

ENGINEERING STATEMENT

This engineering data contained herein have been prepared on behalf of WINCHESTER SCHOOL OF CHINESE CULTURE, applicant for a new LPFM station on Channel 235 in Woburn, Massachusetts (BNPL-20131114BOG) in support of this height-increase amendment to its pending application. The purpose of this exhibit is to also provide additional support for the applicant's request for waiver of the Commission's 2nd-adjacent-channel spacing Rules with regard to WJMN(FM) and WHRB(FM). No change in site location or effective radiated power is proposed herein.

It is now proposed to mount the proposed antenna at the 50-meter level of a proposed 53-meter pole at the originally proposed site.

As stated in the above-reference application, the proposed LPFM site is located 21.0 kilometers from that of WJMN(FM), which operates on Channel 230B in Boston, Massachusetts, and 15.0 kilometers from the site of WHRB(FM), Channel 237A in Cambridge, Massachusetts. Since the required spacing to each of these stations is 67 kilometers and 28 kilometers, respectively, a waiver of the Commission's spacing rules with regard to these stations is requested and believed to be justified for the reasons stated below.

In Exhibit B, we have plotted the proposed LPFM site. As shown, the 78.8 dBu contour of WJMN passes close to the proposed site. In Exhibit C, we have again plotted the proposed LPFM site. As shown thereon, the 70.0 dBu contour of WHRB passes close to the proposed site.

The applicant proposes to utilize an ERI LPX-4E-HW half-wave-spaced antenna for the proposed LPFM facility. This antenna has suppressed radiation values at the steeper elevation angles, as shown in Exhibit D.

EXHIBIT A

In Exhibit E, we have tabulated the calculated free-space field values at five degree increments from horizontal that result from use of this antenna. We employed the following formula for calculating these field strength values: $F=137+10(\log ERP)-20(\log d)$, where F is the field strength in terms of dBu, ERP is in watts (and factors in the relative field value from the elevation pattern at the given depression angle) and d is distance from the base of the tower in meters. As shown, at every distance from the tower base the proposed field strength is less than that required to protect WJMN(FM) and WHRB(FM) from interference.

As a result, a waiver of the FCC's 2nd-adjacent-channel spacing Rule with regard to WJMN(FM) and WHRB(FM) is respectfully requested and believed to be justified.

In Exhibit F, we provide a map on which the predicted service contour of the amended LPFM facility is plotted.

Due to the diminutive height of the proposed mounting structure above ground, and the location of the site with respect to the nearest airport runway, the FAA has not been notified of this application. In addition, and for the same reasons, FCC tower registration of the proposed structure is not required. This conclusion is supported by the Commission's TOWAIR software.

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Woburn facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 0.1 kW (H,V), an antenna radiation center 50 meters above ground, and the specific elevation pattern for the proposed ERI antenna, maximum power density two meters

EXHIBIT A

above ground of 0.000058 mW/cm^2 is calculated to occur 48 meters from the base of the supporting structure. Since this is significantly less than 0.1 percent of the 0.2 mW/cm^2 reference for uncontrolled environments (areas with public access) surrounding a facility operating in the FM Band, this proposal may be considered a minor environmental action with respect to public exposure to non-ionizing electromagnetic radiation.

Further, the station owner will take whatever precautionary steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive non-ionizing radiation.

I declare under penalty of perjury that the foregoing statements and the attached exhibits, which were prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.

KYLE T. FISHER

February 24, 2014



Proposed Site
 Latitude: 42-28-44.60 N
 Longitude: 071-07-05.70 W
 ERP: 0.10 kW
 Channel: 235
 Frequency: 94.9 MHz
 AMSL Height: 64.0 m
 Horiz. Pattern: Omni

Wakefield

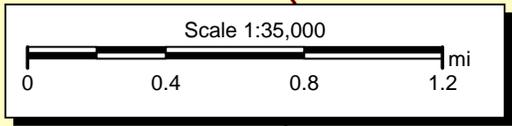
**WJMN 78.8 DBU
 FCC CONTOUR**

Woburn

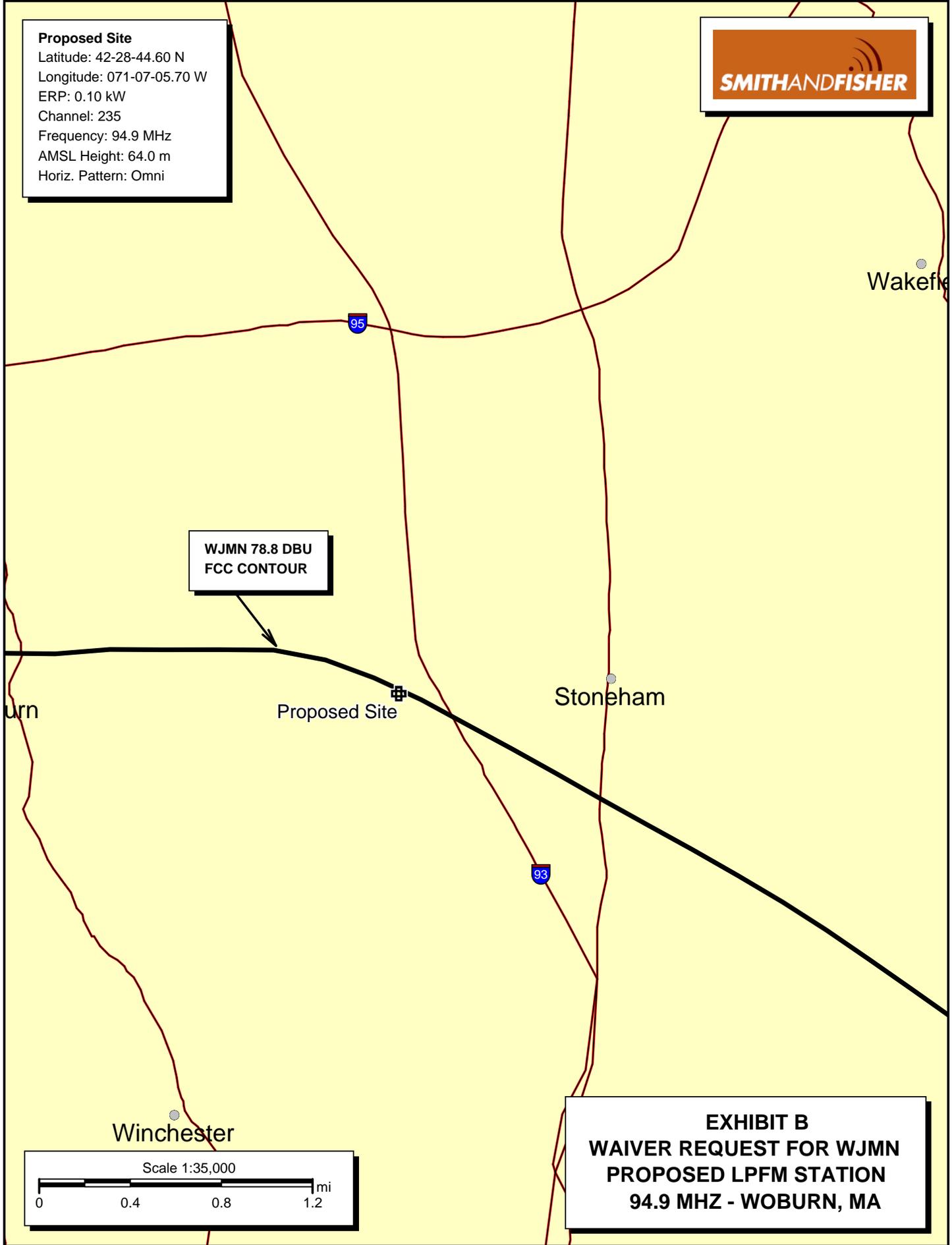
Proposed Site

Stoneham

Winchester



**EXHIBIT B
 WAIVER REQUEST FOR WJMN
 PROPOSED LPFM STATION
 94.9 MHZ - WOBURN, MA**





Proposed Site
 Latitude: 42-28-44.60 N
 Longitude: 071-07-05.70 W
 ERP: 0.10 kW
 Channel: 235
 Frequency: 94.9 MHz
 AMSL Height: 64.0 m
 Horiz. Pattern: Omni

Wakefield

95

WHRB 70 DBU
 FCC CONTOUR

Woburn

Proposed Site

Stoneham

93

Winchester

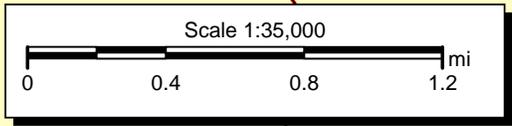
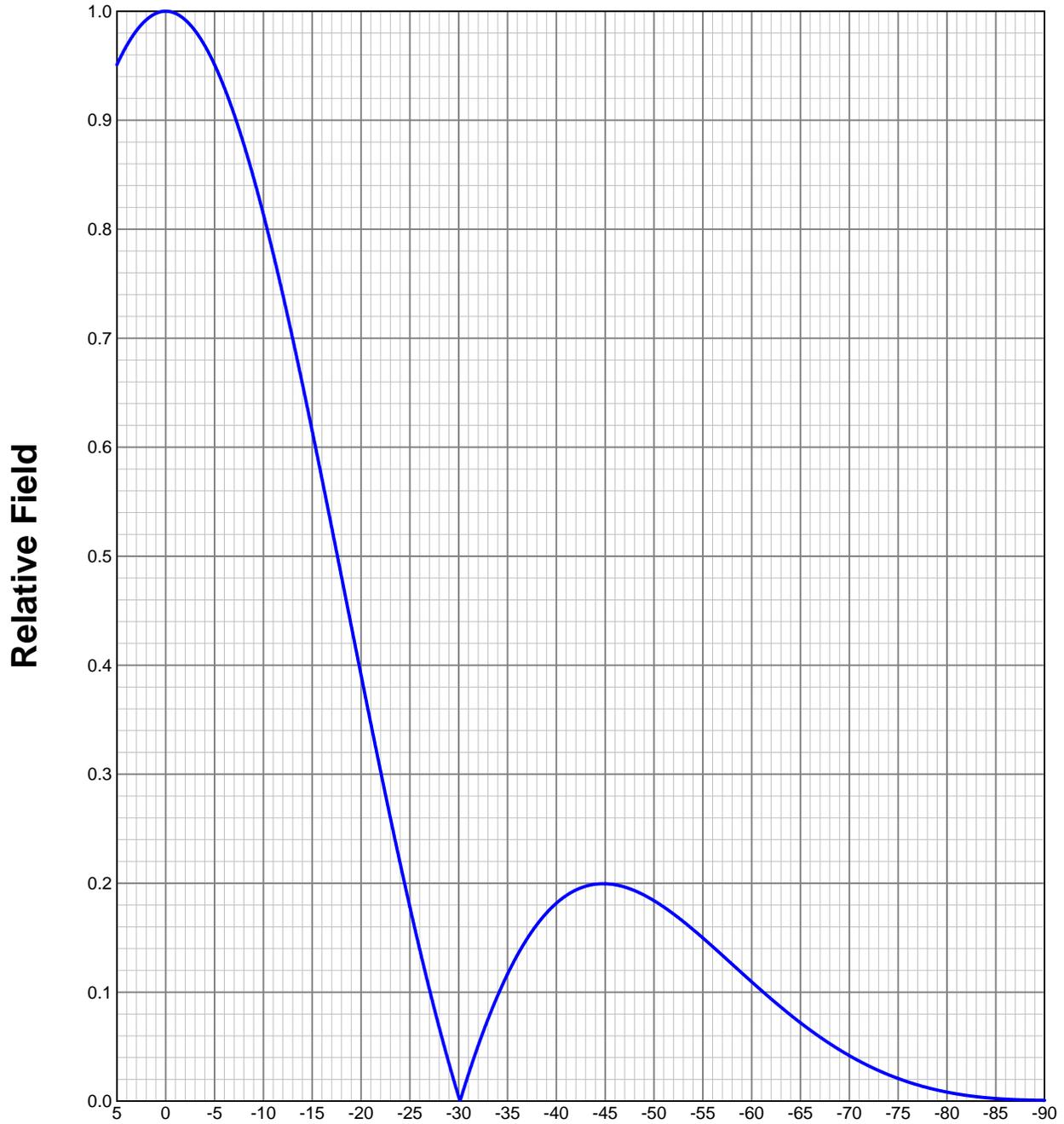


EXHIBIT C
WAIVER REQUEST FOR WHRB
PROPOSED LPFM STATION
94.9 MHZ - WOBURN, MA

ELEVATION PATTERN

Type:	LPX4H		Channel:	250
Directivity:	Numeric	dBd	Location:	
Main Lobe:	1.31	1.16	Beam Tilt:	0.00
Horizontal:	1.31	1.16	Polarization:	Circular



Preliminary, subject to final design and review.

TABULATED DATA FOR ELEVATION PATTERN

Type: LPX4H

Polarization: Circular

ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB					
5.00	0.951	-0.44	-6.75	0.912	-0.80	-27.00	0.103	-19.77	-50.50	0.181	-14.84	-74.00	0.024	-32.29
4.75	0.956	-0.39	-7.00	0.905	-0.86	-27.50	0.085	-21.42	-51.00	0.178	-14.98	-74.50	0.023	-32.95
4.50	0.960	-0.35	-7.25	0.899	-0.93	-28.00	0.068	-23.39	-51.50	0.175	-15.14	-75.00	0.021	-33.63
4.25	0.964	-0.32	-7.50	0.892	-0.99	-28.50	0.051	-25.85	-52.00	0.172	-15.30	-75.50	0.019	-34.33
4.00	0.968	-0.28	-7.75	0.885	-1.06	-29.00	0.035	-29.18	-52.50	0.168	-15.48	-76.00	0.018	-35.04
3.75	0.972	-0.25	-8.00	0.878	-1.13	-29.50	0.019	-34.39	-53.00	0.165	-15.66	-76.50	0.016	-35.78
3.50	0.976	-0.21	-8.25	0.870	-1.21	-30.00	0.004	-48.10	-53.50	0.161	-15.85	-77.00	0.015	-36.54
3.25	0.979	-0.18	-8.50	0.863	-1.28	-30.50	0.011	-39.44	-54.00	0.157	-16.06	-77.50	0.014	-37.32
3.00	0.982	-0.16	-8.75	0.855	-1.36	-31.00	0.025	-32.14	-54.50	0.154	-16.27	-78.00	0.012	-38.12
2.75	0.985	-0.13	-9.00	0.847	-1.44	-31.50	0.038	-28.36	-55.00	0.150	-16.49	-78.50	0.011	-38.95
2.50	0.988	-0.11	-9.25	0.839	-1.53	-32.00	0.051	-25.83	-55.50	0.146	-16.72	-79.00	0.010	-39.80
2.25	0.990	-0.09	-9.50	0.831	-1.61	-32.50	0.063	-23.95	-56.00	0.142	-16.96	-79.50	0.009	-40.68
2.00	0.992	-0.07	-9.75	0.822	-1.70	-33.00	0.075	-22.47	-56.50	0.138	-17.21	-80.00	0.008	-41.59
1.75	0.994	-0.05	-10.00	0.814	-1.79	-33.50	0.086	-21.27	-57.00	0.134	-17.47	-80.50	0.007	-42.52
1.50	0.996	-0.04	-10.50	0.796	-1.98	-34.00	0.097	-20.26	-57.50	0.130	-17.74	-81.00	0.007	-43.48
1.25	0.997	-0.03	-11.00	0.778	-2.18	-34.50	0.107	-19.40	-58.00	0.126	-18.01	-81.50	0.006	-44.46
1.00	0.998	-0.02	-11.50	0.759	-2.40	-35.00	0.117	-18.67	-58.50	0.122	-18.30	-82.00	0.005	-45.48
0.75	0.999	-0.01	-12.00	0.740	-2.62	-35.50	0.126	-18.02	-59.00	0.118	-18.59	-82.50	0.005	-46.53
0.50	1.000	0.00	-12.50	0.720	-2.86	-36.00	0.134	-17.46	-59.50	0.114	-18.90	-83.00	0.004	-47.60
0.25	1.000	0.00	-13.00	0.700	-3.10	-36.50	0.142	-16.97	-60.00	0.110	-19.21	-83.50	0.004	-48.70
0.00	1.000	0.00	-13.50	0.679	-3.36	-37.00	0.149	-16.54	-60.50	0.106	-19.53	-84.00	0.003	-49.82
-0.25	1.000	0.00	-14.00	0.658	-3.64	-37.50	0.156	-16.15	-61.00	0.102	-19.86	-84.50	0.003	-50.97
-0.50	1.000	0.00	-14.50	0.637	-3.92	-38.00	0.162	-15.81	-61.50	0.098	-20.20	-85.00	0.002	-52.14
-0.75	0.999	-0.01	-15.00	0.615	-4.22	-38.50	0.168	-15.51	-62.00	0.094	-20.55	-85.50	0.002	-53.31
-1.00	0.998	-0.02	-15.50	0.593	-4.54	-39.00	0.173	-15.25	-62.50	0.090	-20.91	-86.00	0.002	-54.49
-1.25	0.997	-0.03	-16.00	0.571	-4.87	-39.50	0.177	-15.02	-63.00	0.086	-21.28	-86.50	0.002	-55.65
-1.50	0.996	-0.04	-16.50	0.549	-5.21	-40.00	0.182	-14.81	-63.50	0.083	-21.66	-87.00	0.001	-56.79
-1.75	0.994	-0.05	-17.00	0.526	-5.58	-40.50	0.185	-14.64	-64.00	0.079	-22.05	-87.50	0.001	-57.89
-2.00	0.992	-0.07	-17.50	0.504	-5.95	-41.00	0.189	-14.49	-64.50	0.075	-22.45	-88.00	0.001	-58.92
-2.25	0.990	-0.09	-18.00	0.481	-6.35	-41.50	0.191	-14.36	-65.00	0.072	-22.86	-88.50	0.001	-59.87
-2.50	0.988	-0.11	-18.50	0.459	-6.77	-42.00	0.194	-14.25	-65.50	0.069	-23.28	-89.00	0.001	-60.71
-2.75	0.985	-0.13	-19.00	0.436	-7.21	-42.50	0.196	-14.17	-66.00	0.065	-23.71	-89.50	0.001	-61.44
-3.00	0.982	-0.16	-19.50	0.414	-7.67	-43.00	0.197	-14.10	-66.50	0.062	-24.15	-90.00	0.001	-62.03
-3.25	0.979	-0.18	-20.00	0.391	-8.15	-43.50	0.198	-14.05	-67.00	0.059	-24.61			
-3.50	0.976	-0.21	-20.50	0.369	-8.66	-44.00	0.199	-14.02	-67.50	0.056	-25.07			
-3.75	0.972	-0.25	-21.00	0.347	-9.20	-44.50	0.199	-14.00	-68.00	0.053	-25.55			
-4.00	0.968	-0.28	-21.50	0.325	-9.77	-45.00	0.200	-14.00	-68.50	0.050	-26.03			
-4.25	0.964	-0.32	-22.00	0.303	-10.38	-45.50	0.199	-14.01	-69.00	0.047	-26.53			
-4.50	0.960	-0.35	-22.50	0.281	-11.02	-46.00	0.199	-14.04	-69.50	0.044	-27.05			
-4.75	0.956	-0.39	-23.00	0.260	-11.70	-46.50	0.198	-14.08	-70.00	0.042	-27.57			
-5.00	0.951	-0.44	-23.50	0.239	-12.43	-47.00	0.196	-14.13	-70.50	0.039	-28.11			
-5.25	0.946	-0.48	-24.00	0.218	-13.22	-47.50	0.195	-14.20	-71.00	0.037	-28.66			
-5.50	0.941	-0.53	-24.50	0.198	-14.06	-48.00	0.193	-14.28	-71.50	0.035	-29.23			
-5.75	0.935	-0.58	-25.00	0.178	-14.98	-48.50	0.191	-14.37	-72.00	0.032	-29.81			
-6.00	0.930	-0.63	-25.50	0.159	-15.99	-49.00	0.189	-14.47	-72.50	0.030	-30.40			
-6.25	0.924	-0.69	-26.00	0.140	-17.11	-49.50	0.187	-14.58	-73.00	0.028	-31.01			
-6.50	0.918	-0.74	-26.50	0.121	-18.35	-50.00	0.184	-14.70	-73.50	0.026	-31.64			

Preliminary, subject to final design and review.

CALCULATED FIELD STRENGTHS
 PROPOSED LPFM STATION
 CHANNEL 235 – WOBURN, MASSACHUSETTS
 [AMENDMENT TO BNPL-20131114BOG]

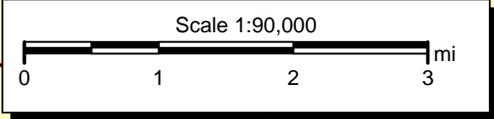
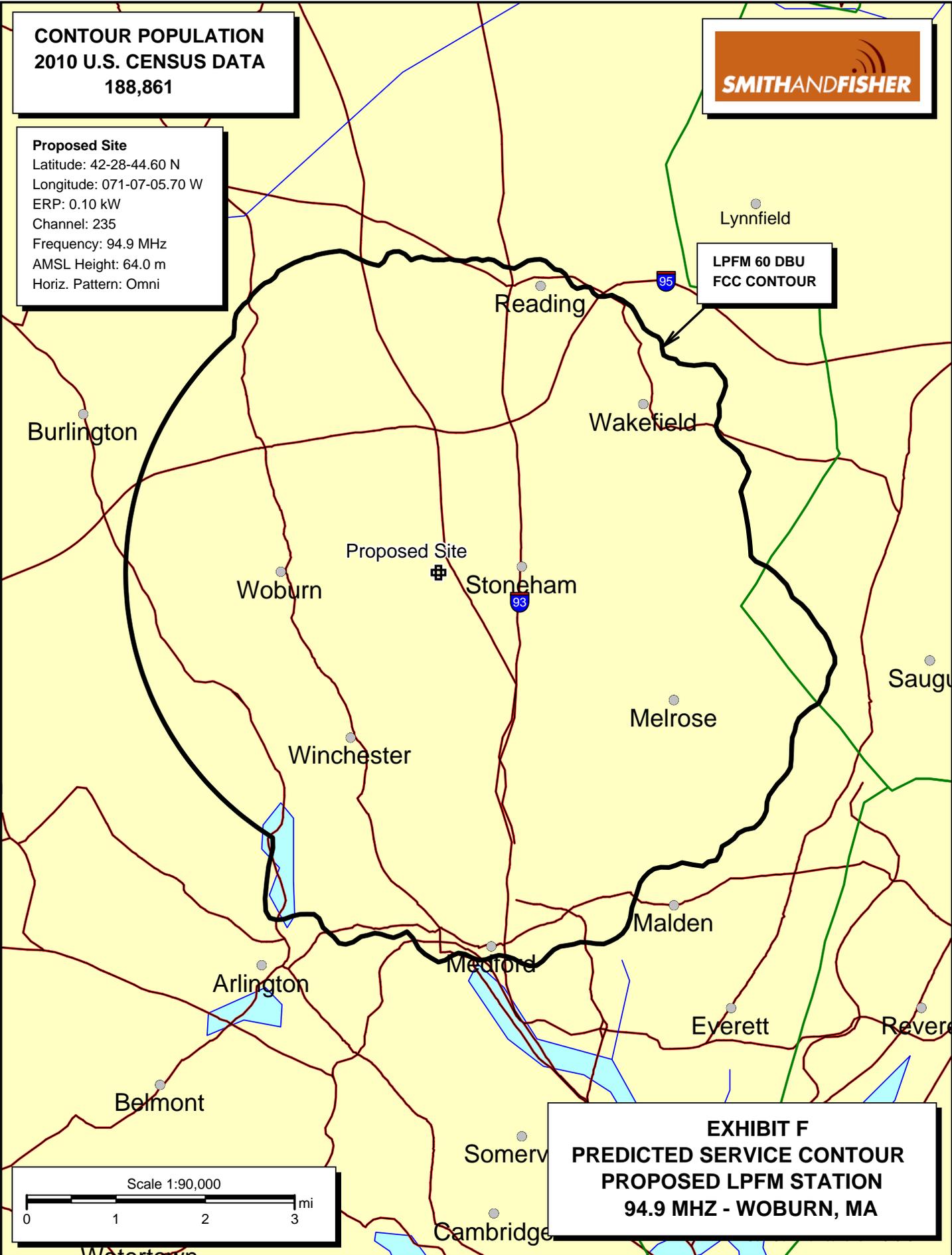
Dep. Ang. (degrees)	R. Field (elevation)	Dist. From Tower (m.)	Effective Power (w)	Free-Space Field (dBu)	WJMN(FM) Clear (dBu)	WHRB(FM) Clear (dBu)
90	0.001	0	0.0001	97.0	21.8	13.0
85	0.002	4	0.0004	90.2	28.6	19.8
80	0.008	9	0.0064	96.2	22.6	13.8
75	0.021	13	0.0441	100.9	17.9	9.1
70	0.042	18	0.1764	104.3	14.5	5.7
65	0.072	23	0.5184	106.8	12.0	3.2
60	0.110	29	1.21	108.6	10.2	1.4
55	0.146	35	2.1316	109.4	9.4	0.6
50	0.184	42	3.3856	109.8	9.0	0.2
45	0.200	50	4	109.0	9.8	1.0
40	0.182	60	3.3124	106.7	12.1	3.3
35	0.117	71	1.3689	101.3	17.5	8.7
30	0.004	87	0.0016	70.3	48.5	39.7
25	0.178	107	3.1684	101.4	17.4	8.6
20	0.391	137	15.2881	106.1	12.7	3.9
15	0.615	187	37.8225	107.4	11.4	2.6
10	0.814	284	66.2596	106.2	12.6	3.8
5	0.951	572	90.4401	101.4	17.4	8.6
2	0.992	1432	98.4064	93.8	25.0	16.2

**CONTOUR POPULATION
2010 U.S. CENSUS DATA
188,861**



Proposed Site
Latitude: 42-28-44.60 N
Longitude: 071-07-05.70 W
ERP: 0.10 kW
Channel: 235
Frequency: 94.9 MHz
AMSL Height: 64.0 m
Horiz. Pattern: Omni

**LPFM 60 DBU
FCC CONTOUR**



**EXHIBIT F
PREDICTED SERVICE CONTOUR
PROPOSED LPFM STATION
94.9 MHZ - WOBURN, MA**