

# **R. M. SMITH ASSOCIATES**

BROADCAST TECHNICAL CONSULTANTS  
P.O. BOX 345 – JENSEN BEACH, FL 34958  
Tel: (772)-335-0688 Fax: (772)-672-3448  
E-MAIL [bob@rmsmith.com](mailto:bob@rmsmith.com)

## **BOROUGH OF POMPTON LAKES APPLICATION FOR FILL-IN TRANSLATOR FOR WGHT(AM)**

### **EXHIBIT 13 CONTOUR OVERLAP**

A search of the CDBS revealed two co-channel FM translators and two second-adjacent FM facilities that warranted detailed study.

#### **CO-CHANNEL**

The 60 dBu F(50,50) protected service contours and 40 dBu F(50,10) interference contours from W252CS and W252DY were calculated and plotted on the attached Figure 1. The 60 dBu F(50,50) protected service contour and 40 dBu F(50,10) interference contour from the proposed translator were then also calculated and plotted.

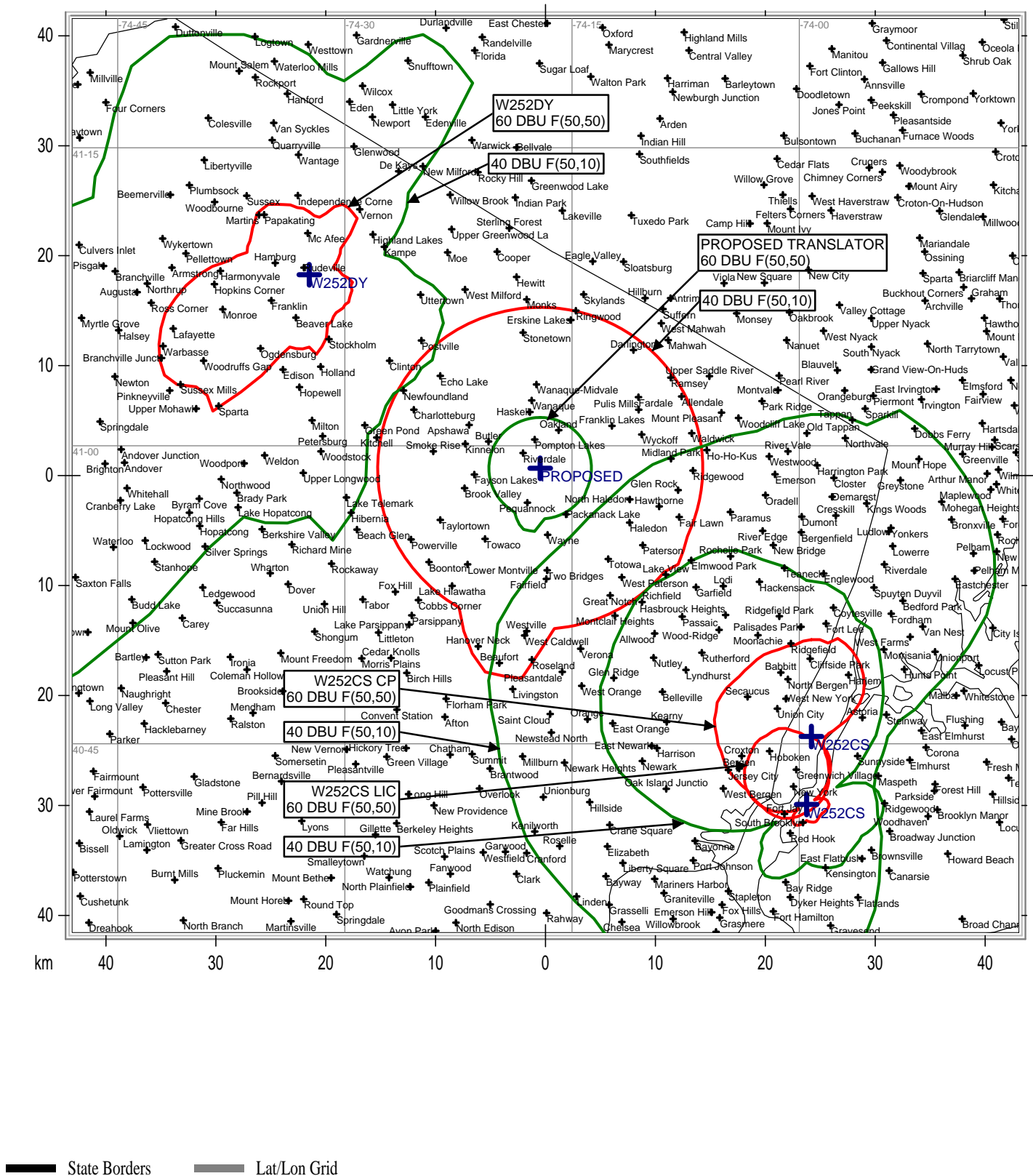
As shown in Figure 1 – The proposed translator 40 dBu F(50,10) contour does not overlap the 60 dBu F(50,50) contour of W252CS or W252DY. In addition, neither the W252CS nor W252DY 40 dBu contour overlaps the proposed 60 dBu F(50,50) contour. The application is in compliance with Section 74.1204 with respect to all co-channel facilities.

#### **ADJACENT CHANNELS**

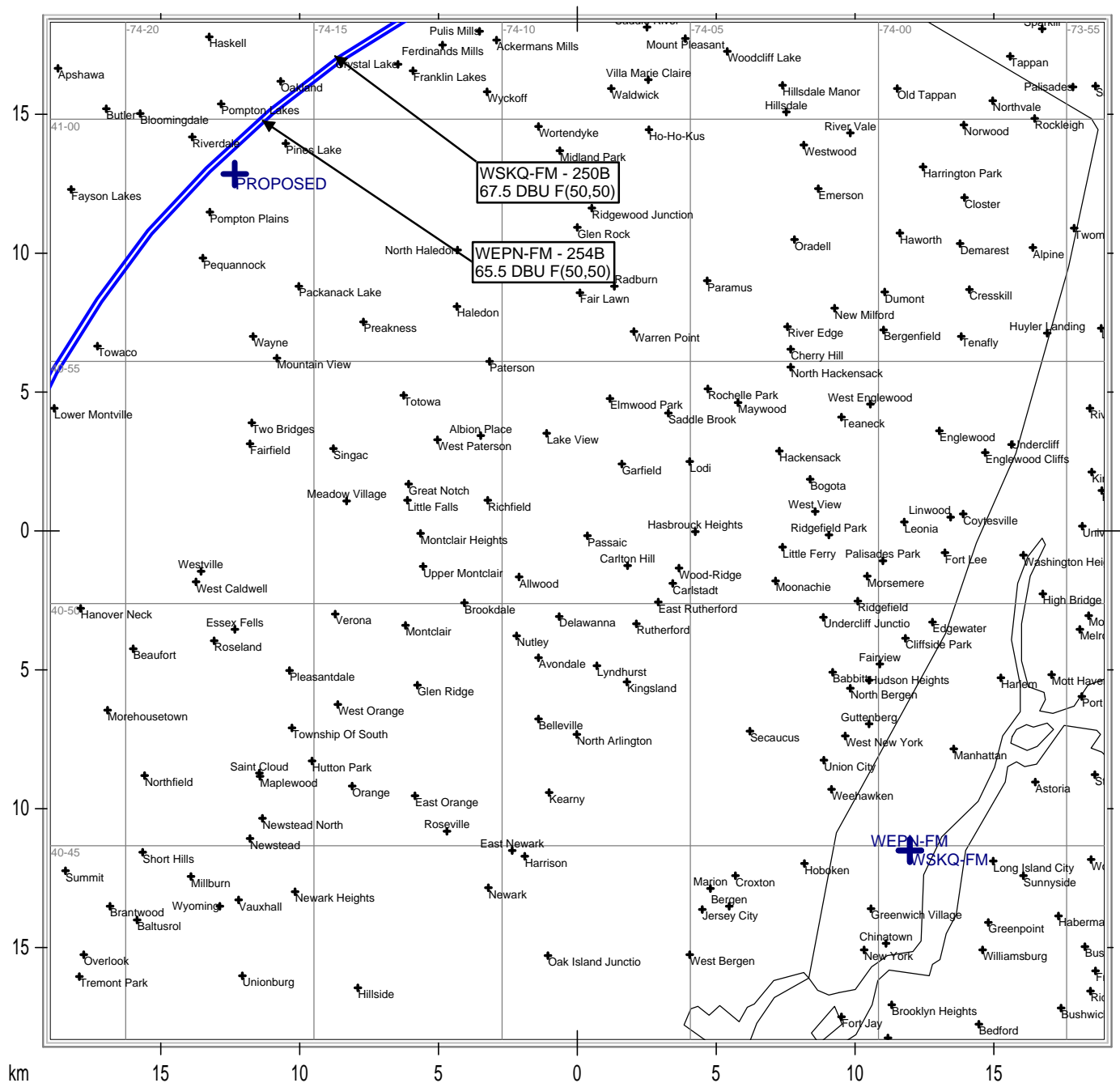
The two second-adjacent channel facilities requiring study are WSKQ-FM, 250B, New York, NY and WEPN-FM, 254B, New York, NY. The proposed antenna site lies inside the protected 54 dBu of both facilities. The signal level from each station, at the proposed site, was calculated and plotted on the attached Figure 2. The WSKQ-FM 67.5 dBu F(50,50) contour and the WEPN-FM 65.5 dBu F(50,50) contour fall at the proposed site. The +40 dB interfering signal, from the proposed translator, is therefore 105.5 dBu. The attached Table 1 is a tabulation of the free-space signal level, from the proposed translator, at various distances from the antenna. The nearest habitable structure or road is 98 meters from the base of the tower that will support the proposed antenna. As shown in the right-most column of the table, the signal strength at ground level exceeds a level of 105.5 dBu only between 12 and 20 meters from the tower base. This area is on the property containing the WGHT(AM) transmitter and contains no structures or roads. At all locations further from the tower the signal

level will be below the interference threshold. Therefore, the proposed translator will create no actual interference to either WSKQ-FM or WEPN-FM. The applicant believes the proposed translator fully protects all existing co-channel and adjacent channel FM facilities.

PROPOSED TRANSLATOR FOR WGHT(AM)



## PROPOSED TRANSLATOR FOR WGHT(AM)



State Borders      Lat/Lon Grid

## BOROUGH OF POMPTON LAKES - PROPOSED TRANSLATOR FOR WGHT(AM)

## EXHIBIT 13

TABLE 1

**Antenna Make** Shively  
**Antenna Model** 6812B-3R  
**ERP (W)** 50  
**Antenna C/R AGL (m)** 45

<u>Downward Angle (Deg)</u>	<u>Horizontal Distance from Antenna (m)</u>	<u>Ground Distance from C/R (m)</u>	<u>Relative Field</u>	<u>ERP (dBk)</u>	<u>Free Space Field dBu</u>
90.0	0.0	45.0	0.000		0.00
89.0	0.8	45.0	0.015	-49.49	84.37
88.0	1.6	45.0	0.029	-43.76	90.09
87.0	2.4	45.1	0.042	-40.55	93.30
86.0	3.1	45.1	0.056	-38.05	95.79
85.0	3.9	45.2	0.069	-36.23	97.59
84.0	4.7	45.2	0.081	-34.84	98.97
83.0	5.5	45.3	0.093	-33.64	100.15
82.0	6.3	45.4	0.105	-32.59	101.18
81.0	7.1	45.6	0.116	-31.72	102.03
80.0	7.9	45.7	0.127	-30.93	102.79
79.0	8.7	45.8	0.137	-30.28	103.42
78.0	9.6	46.0	0.146	-29.72	103.94
77.0	10.4	46.2	0.155	-29.20	104.43
76.0	11.2	46.4	0.163	-28.77	104.83
75.0	12.1	46.6	0.170	-28.40	105.15
74.0	12.9	46.8	0.176	-28.10	105.41
73.0	13.8	47.1	0.181	-27.86	105.61
72.0	14.6	47.3	0.185	-27.67	105.75
71.0	15.5	47.6	0.189	-27.48	105.89
70.0	16.4	47.9	0.191	-27.39	105.93
69.0	17.3	48.2	0.192	-27.34	105.91
68.0	18.2	48.5	0.191	-27.39	105.81
67.0	19.1	48.9	0.190	-27.44	105.70
66.0	20.0	49.3	0.187	-27.57	105.50
65.0	21.0	49.7	0.183	-27.76	105.24
64.0	21.9	50.1	0.177	-28.05	104.88
63.0	22.9	50.5	0.171	-28.35	104.50
62.0	23.9	51.0	0.162	-28.82	103.95
61.0	24.9	51.5	0.153	-29.32	103.38
60.0	26.0	52.0	0.141	-30.03	102.58
59.0	27.0	52.5	0.129	-30.80	101.72
58.0	28.1	53.1	0.115	-31.80	100.63
57.0	29.2	53.7	0.100	-33.01	99.32
56.0	30.4	54.3	0.083	-34.63	97.60
55.0	31.5	54.9	0.066	-36.62	95.50
54.0	32.7	55.6	0.047	-39.57	92.45
53.0	33.9	56.3	0.028	-44.07	87.84
52.0	35.2	57.1	0.007	-56.11	75.68
51.0	36.4	57.9	0.014	-50.09	81.58
50.0	37.8	58.7	0.036	-41.88	89.66

## BOROUGH OF POMPTON LAKES - PROPOSED TRANSLATOR FOR WGHT(AM)

## EXHIBIT 13

TABLE 1 - Continued

<b><u>Downward Angle (Deg)</u></b>	<b><u>Horizontal Distance from Antenna (m)</u></b>	<b><u>Ground Distance from C/R (m)</u></b>	<b><u>Relative Field</u></b>	<b><u>ERP (dBk)</u></b>	<b><u>Free Space Field dBu</u></b>
49.0	39.1	59.6	0.058	-37.74	93.67
48.0	40.5	60.6	0.080	-34.95	96.33
47.0	42.0	61.5	0.103	-32.75	98.38
46.0	43.5	62.6	0.124	-31.14	99.85
45.0	45.0	63.6	0.146	-29.72	101.12
44.0	46.6	64.8	0.167	-28.56	102.14
43.0	48.3	66.0	0.186	-27.62	102.91
42.0	50.0	67.3	0.205	-26.78	103.59
41.0	51.8	68.6	0.221	-26.12	104.07
40.0	53.6	70.0	0.236	-25.55	104.47
39.0	55.6	71.5	0.249	-25.09	104.75
38.0	57.6	73.1	0.260	-24.71	104.93
37.0	59.7	74.8	0.267	-24.48	104.96
36.0	61.9	76.6	0.272	-24.32	104.92
35.0	64.3	78.5	0.274	-24.26	104.77
34.0	66.7	80.5	0.272	-24.32	104.49
33.0	69.3	82.6	0.266	-24.51	104.07
32.0	72.0	84.9	0.257	-24.81	103.53
31.0	74.9	87.4	0.244	-25.26	102.83
30.0	77.9	90.0	0.227	-25.89	101.95
29.0	81.2	92.8	0.206	-26.73	100.83
28.0	84.6	95.9	0.181	-27.86	99.43
27.0	88.3	99.1	0.151	-29.43	97.57
26.0	92.3	102.7	0.118	-31.57	95.12
25.0	96.5	106.5	0.081	-34.84	91.53
24.0	101.1	110.6	0.040	-40.97	85.07
23.0	106.0	115.2	0.004	-60.97	64.72
22.0	111.4	120.1	0.052	-38.69	86.64
21.0	117.2	125.6	0.102	-32.84	92.10
20.0	123.6	131.6	0.155	-29.20	95.33
19.0	130.7	138.2	0.210	-26.57	97.54
18.0	138.5	145.6	0.267	-24.48	99.18
17.0	147.2	153.9	0.325	-22.77	100.40
16.0	156.9	163.3	0.384	-21.32	101.34
15.0	167.9	173.9	0.443	-20.08	102.03
14.0	180.5	186.0	0.502	-19.00	102.53
13.0	194.9	200.0	0.560	-18.05	102.85
12.0	211.7	216.4	0.616	-17.22	102.99
11.0	231.5	235.8	0.671	-16.48	102.99
10.0	255.2	259.1	0.723	-15.83	102.82

BOROUGH OF POMPTON LAKES - PROPOSED TRANSLATOR FOR WGHT(AM)

EXHIBIT 13

TABLE 1 - Continued

<u>Downward Angle (Deg)</u>	<u>Horizontal Distance from Antenna (m)</u>	<u>Ground Distance from C/R (m)</u>	<u>Relative Field</u>	<u>ERP (dBk)</u>	<u>Free Space Field dBu</u>
9.0	284.1	287.7	0.771	-15.27	102.47
8.0	320.2	323.3	0.816	-14.78	101.95
7.0	366.5	369.2	0.858	-14.34	101.23
6.0	428.1	430.5	0.894	-13.98	100.26
5.0	514.4	516.3	0.926	-13.68	98.98
4.0	643.5	645.1	0.952	-13.44	97.29
3.0	858.7	859.8	0.973	-13.25	94.98
2.0	1288.6	1289.4	0.988	-13.12	91.60
1.0	2578.0	2578.4	0.997	-13.04	85.66

Horizontal Distance =  $(\tan(90 - \text{Downward Angle}) * \text{C/R AGL})$

Ground Distance =  $\sqrt{(\text{C/R AGL})^2 + (\text{Horizontal Distance})^2}$

Relative Field= From manufacturers datasheet

Free Space Field =  $106.92 + \text{dBk} - 20 * \log(\text{Ground Distance in km})$