JOB 113157 VER 1
COMMUNITY OF LICENSE Cleveland, OH
APPLICANT Burten, Bell, Carr Development, Inc.

CONSOLIDATED

ENGINEERING EXHIBIT

FCC Form 318 - Section VI - LPFM Engineering, Tech Box

BROWN BROADCAST SERVICES
INCORPORATED
Michael D. Brown 3740 S.W. Comus St. Portland, Oregon 97219-7418 503-245-6065

ENGINEERING STATEMENT
PROPOSED NEW LPFM STATION AT CLEVELAND, OH
Burten, Bell, Carr Development, Inc.

SUMMARY:

The applicant seeks a new LPFM station. This proposal is fully spaced to all co-channel and first-adjacent stations. It is short-spaced to one or more second-adjacent stations. Contour protection is provided by the D/U method, in compliance with 73.807(e)(1). **See Exhibit 11.** A waiver of second-adjacent spacing is hereby requested.

A TOWAIR Determination was performed for the proposed new 24 meter tower. It revealed two runways, both of which had a "Pass Slope" result.

PERTINENT SPECIFICATIONS NOT INCLUDED IN SECTION VI - TECH BOX:

HAAT:	-1 meters
ERP:	100 watts
DATA SOURCE:	V-Soft FMCommander with HAAT Method 0(zero); FCC 30-Second Terrain
SUPPORT STRUCTURE:	Tower

EXHIBIT 11
INTERFERENCE

```
REFERENCE                                                    DISPLAY DATES
41 28 46.0 N.              CLASS = L1 Int = L1               DATA   11-04-13
81 38 14.0 W.           Current  Spacings to 2nd Adj.        SEARCH 11-05-13
 ------------------------- Channel 240 - 95.9 MHz ----------------------------

Call          Channel    Location                Azi      Dist    FCC   Margin
-------------------------------------------------------------------------------
WFHM-FM  LIC    238B   Cleveland          OH    108.7     12.88   66.5   -53.6
WKFM     LIC    241A   Huron              OH    254.7     73.83   55.5    18.3
Proposed to Canada 950830-Specially negotiated, short-spaced allotment lim
ited to 6kw ERP and 100m HAAT or equivalent.-Accepted by Canada 950928
WOHA     CP -N  241A   Ashtabula          OH     62.0     80.52   55.5    25.0
WAKZ     LIC    240A   Sharpsville        PA    107.6     94.55   66.5    28.1
WNPQ     LIC    240A   New Philadelphia   OH    172.9     98.69   66.5    32.2

-------------------------------------------------------------------------------
        Reference station has protected zone issue:
        All separation margins include rounding
```

PROTECTED ZONES REPORT:

```
Protected zones report for NEW on channel 240L1   11-05-2013
Lat. 41 28 46.0  Lng. 81 38 14.0, ERP= 0.1 kw, HAAT= -0.9M
-------------------------------------------------------------------------

*** Station must coordinate with Canada. Distance to border = 53.4 km.
Facility is okay with respect to AM station towers.
   Closest AM Facility is WWGK, CLEVELAND, OH, L, NDD at 8.6º at a distance of 2.6
km
Facility is okay with respect to FCC monitoring stations.
   Closest FCC Monitoring Station is 378.8 km= Allegan, MI
Facility is okay toward West Virginia Quiet Zone. Distance to center = 390.1 km
Facility is okay toward Table Mountain. Distance to Center = 1997.2 km, Azimuth =
273.5 Degrees True
```

CONTOUR PROTECTION TO 2ND-ADJACENT STATIONS:

Contour protection to 2nd-adjacent station WFHM-FM is provided using the ratio method. The F(50/50) contour of WFHM-FM is 88.4dBu at the proposed site. Using the appropriate U/D ratio of 40dB vs. WFHM-FM, the corresponding "worst-case" interfering contour of the proposed LPFM is 128.4dBu and the Distance to Contour is 26.7 meters. However, the field strength of the proposed antenna system falls quickly at depression angles below the horizon.

The proposed 1-bay, SWR FMEC/1 antenna would be mounted on a 24 meter tower at 24m AGL. Using elevation pattern data provided by SWR, the distance to the 128.4dBu contour at various depression angles is tabulated in **Exhibit 11a**.

The surrounding neighborhood (within 26.7 meters) has only one and two story buildings. The uppermost populated floor level of these buildings is believed to be no less than 20 meters below the center of radiation. No areas of interference come close to any of these surfaces. The roofs of the surrounding buildings are not inhabited surfaces.

Therefore, there are no populated areas within the interference zone.

Exhibit 11a

SECOND ADJACENT INTERFERENCE PROTECTION TO POPULATED AREAS

NEW LPFM CH 240	<CALL LETTERS OR FILE NUMBER
CLEVELAND	<PROPOSED COMMUNITY OF LICENSE
128.40	<INTERFERING CONTOUR OF PROPOSAL - dBu
2.6303	<V/m
WFHM-FM	<2nd-ADJ STN REQUIRING INTERFERENCE PROT. (worst case)
100	<PROP. ERP (W)
SWR FMEC/1	<ANTENNA MODEL

max ERP (W)	depression angle below horizon (dg)	relative field	ERP (W)	angular distance to contour (m)	vertical distance (below antenna) (m)	horiz distance to contour (m)	vertical distance below antenna required to clear nearest populated level (m)	clearance of interfering contour above nearest populated level (m)
100	0	1	100.00	26.65	0.0	26.7	20	**20.0**
100	5	0.997	99.40	26.57	2.3	26.5	20	**17.7**
100	10	0.986	97.22	26.28	4.6	25.9	20	**15.4**
100	15	0.969	93.90	25.83	6.7	24.9	20	**13.3**
100	20	0.946	89.49	25.21	8.6	23.7	20	**11.4**
100	25	0.916	83.91	24.41	10.3	22.1	20	**9.7**
100	30	0.879	77.26	23.43	11.7	20.3	20	**8.3**
100	35	0.837	70.06	22.31	12.8	18.3	20	**7.2**
100	40	0.789	62.25	21.03	13.5	16.1	20	**6.5**
100	45	0.736	54.17	19.62	13.9	13.9	20	**6.1**
100	50	0.679	46.10	18.10	13.9	11.6	20	**6.1**
100	55	0.616	37.95	16.42	13.4	9.4	20	**6.6**
100	60	0.55	30.25	14.66	12.7	7.3	20	**7.3**
100	65	0.48	23.04	12.79	11.6	5.4	20	**8.4**
100	70	0.408	16.65	10.87	10.2	3.7	20	**9.8**
100	75	0.333	11.09	8.87	8.6	2.3	20	**11.4**
100	80	0.256	6.55	6.82	6.7	1.2	20	**13.3**
100	85	0.178	3.17	4.74	4.7	0.4	20	**15.3**
100	90	0	0.00		0.0	0.0	20	**20.0**

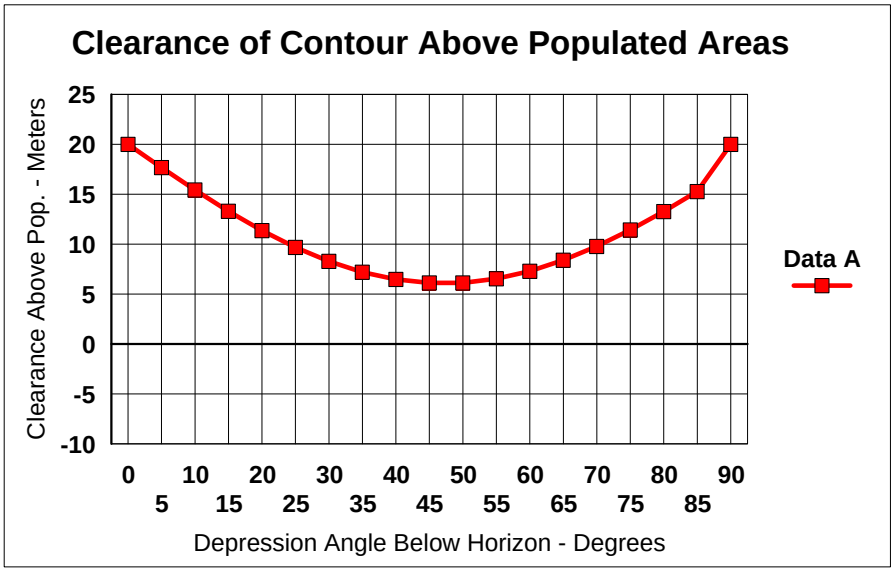

EXHIBIT 14
ENVIRONMENTAL PROTECTION ACT / NIER ANALYSIS

The applicant proposes mounting a new antenna on a new 24 meter tower. The proposed center of radiation is 24m AGL. A 1 bay SWR FMEC/1, one-bay antenna is anticipated. This antenna is the functional equivalent of the Jampro "Double-V" series. Calculations were made using FM Model for Windows, version 2.10, using the “Jampro "Double-V"” setting. FM Model predicted a peak exposure of 3.8μW/cm^2, at 22.4 meters from the tower. This represents 1.9% of the Maximum Permissible Exposure (MPE) of 200μW/cm^2 for uncontrolled environments.

The applicant will ensure that public access to the tower is restricted by fencing, anti-climb devices, or other appropriate measures. The site will be posted with appropriate RF exposure warning signs. If tower climbing by authorized personnel becomes necessary, transmitter power will be reduced or operation will cease, as necessary, so as to not exceed the RF exposure limits.