



OWL ENGINEERING & EMC TEST LABS, INC.

CONSULTING COMMUNICATIONS ENGINEERS • EMC TEST LABORATORIES

MINNESOTA OFFICE
5844 Hamline Avenue North, Shoreview, MN 55126
651-784-7445 • Fax 651-784-7541

800-797-1338

**ENGINEERING EXHIBIT FOR AN
APPLICATION FOR A CONSTRUCTION PERMIT
CHANNEL 285 CLASS A WLXR-FM
MISSISSIPPI VALLEY BROADCASTERS, LLC
LA CROSSE, WISCONSIN
REQUEST PROCESSING UNDER SECTION 73.215**

CHANNEL 285 0.8 KW (H&V) 207 METERS HAAT

September 12, 2006



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TABLE OF CONTENTS

	Engineering Statement
Engineering Figure 1& 1A	Site Location - USGS Map
Engineering Figure 2	Site Location – Aerial Photograph
Engineering Figure 3	Contour Coverage Map
Engineering Figure 4	WLXR / KVIK Interference Contours
Engineering Figure 4A	WLXR / KVIK Interference Contours (Expanded)
Engineering Figure 5	FAA Form 7460
Engineering Figure 6	Blanketing Interference Contour

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PAGE 1**

ENGINEERING STATEMENT

This engineering exhibit, of which this Statement is a part, was prepared in accordance with the Rules and Regulations of the Federal Communications Commission and pursuant to the provisions of Section III-B of FCC Form 301 on behalf of Mississippi Valley Broadcasters, LLC (hereafter "**MVB**") in support of an application for authority to modify an existing FM broadcast facility (WLXR) Class A operating on channel 285 (104.9 MHz) at La Crosse, Wisconsin. The purpose of this application is to change the antenna location, effective radiated power to 0.8 KW, both in the horizontal and vertical plane, and the antenna center of radiation to 207 meters above the average terrain. This power/height combination is an allowable Class A facility permitted under the current rules and regulations. The proposed antenna location is 4 km from the currently licensed facility.

"**MVB**" proposes to operate from a site uniquely described by the geographic coordinates:

(NAD 27)

43° 43' 17" North Latitude
91° 17' 24" West Longitude

(NAD 83)

N 43° 43' 16.9" North Latitude
W 91° 17' 24.5" West Longitude

Notification to the FAA Great Lakes Regional office was done on September 12, 2006 and a copy of the notification is included as Engineering Figure 5. An application for a construction permit for modification of a commonly-owned radio station KQEG is being filed simultaneously to propose location on the same tower.

Engineering Figure 1 is a portion of the Brownsville, Minnesota 7.5 minute map that shows the exact location of the proposed site. A search was performed for the presence of any other communications facilities located nearby and none were found.

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FOR MISSISSIPPI VALLEY BROADCASTERS, LLC
CHANNEL 285 0.8 KW (H & V) 207 METERS HAAT
PAGE 2**

BLANKETING INTERFERENCE

Figure 2 shows an aerial view of the proposed site and that the surrounding area is rural. Because the area is rural, there is not expected to be any problem with blanketing interference. Figure 6 shows the predicted 115 dbuv blanketing contour. As can be seen in this figure there are no homes located within the contour area. The applicant is aware of the provisions of Section 73.318 of the FCC's Rules and the requirement for satisfying all complaints of blanketing interference that are received within a one-year period. The main studio for the station will continue to comply with the requirements of the main studio rule.

ALLOCATION CONSIDERATIONS

A review of allotments and assignments on channel 285, on the three immediately upper adjacent, the three immediately lower adjacent channels and the two channels removed by 53 and 54 channels (231 & 232) shows that the site proposed would not be in full compliance with Section 73.207. **Therefore, processing under Section 73.215 is requested.**

FM CHANNEL SPACING STUDY

SPACING STUDY

REFERENCE				CLASS = A		DISPLAY DATES	
43 43 17 N.				Current Spacings		DATA	09-12-06
91 17 24 W.				Channel 285 - 104.9 MHz		SEARCH	09-12-06
Call	Channel	Location	Azi	Dist	FCC	Margin	
WLXRFM	LIC 285A	La Crosse	WI 359.4	4.04	115.0	-110.96	
WNFM	LIC 285A	Reedsburg	WI 97.5	104.11	115.0	-10.89*	
DDKVIK	LIC-N 284A	Decorah	IA 225.0	68.10	72.0	-3.90	
WFBZ	LIC 288A	Trempealeau	WI 334.9	27.16	31.0	-3.84*	
WAXX	LIC 283C	Eau Claire	WI 13.9	108.00	95.0	13.00	
WKQH	LIC 285C3	Marathon	WI 43.8	173.69	142.0	31.69	
KRFOFM	LIC-N 285A	Owatonna	MN 285.2	156.80	115.0	41.80	
KYBA	LIC 287C2	Stewartville	MN 267.8	113.66	55.0	58.66	
WQPC	LIC-N 232C2	Prairie Du Chien	WI 168.2	75.09	15.0	60.09	
WLMXFM	LIC 285C3	Balsam Lake	WI 340.4	209.26	142.0	67.26	
KVGO	LIC 282C3	Spring Valley	MN 265.7	109.37	42.0	67.37	
KLMJ	LIC 285A	Hampton	IA 237.9	183.14	115.0	68.14	

- Short-Spaced condition removed with interference agreement

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CHANNEL 285 0.8 KW (H & V) 207 METERS HAAT
PAGE 3**

COVERAGE CONTOURS

The three-to-sixteen-kilometer average terrain elevations were derived from the Defense Mapping Agency 3-second topography database.

The effective antenna radiation center height for each of the eight standard 45-degree spaced radials was used in conjunction with the F(50,50) metric curves of Figure 1 of Section 73.333 of the Rules to determine the distances to the 70 dBu and 60 dBu coverage contours. The contours drawn from the data are depicted on the map included as Engineering Figure 3. Although the proposed 70 dBu contour will not encompass all of La Crosse, Wisconsin, more than 80% of La Crosse will have 70 dBu coverage, in accordance with current FM application processing policies.

DISTANCE TO CONTOURS

DISTANCES TO CONTOURS (Kilometers):
Antenna COR elevation (AMSL): 466 meters Average HAAT: 201 meters
Frequency: 104.9000 MHz
Coordinates: N 43 43 17.00 W 91 17 24.00
F(50,10) Curves Number of Contours: 2

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu):	
			70.0	60.0
0.0	262	0.8000	16.2	29.9
45.0	218	0.8000	14.8	27.3
90.0	204	0.8000	14.2	26.4
135.0	222	0.8000	14.9	27.5
180.0	193	0.8000	13.8	25.6
225.0	155	0.8000	12.3	22.9
270.0	166	0.8000	12.8	23.7
315.0	190	0.8000	13.7	25.4

POPULATION AND AREA DATA

Based on the 2000 U.S. Census of Population, the numbers of persons enclosed by the proposed 60 dBu coverage contour are 115,453 persons. The population count was made through the employment of a computer program containing a database including the geographic coordinates of the centroids of population groupings. The area within the proposed 60 dBu coverage contour is 2,426 square kilometers. A computerized integration program determined this area.

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FOR MISSISSIPPI VALLEY BROADCASTERS, LLC
CHANNEL 285 0.8 KW (H & V) 207 METERS HAAT
PAGE 4**

Interference Study

The spacing study shows that the proposed new tower site will have several predicted short-spaced conditions with WNFM, WFBZ and KVIK. The short-spaced conditions with WNFM and WFBZ are eliminated by a mutual agreement between the stations. The short-spaced condition with KVIK is eliminated by the use of contour protection using the provisions of Section 73.215. Figure 4 shows the interference contours between the proposed new location of WLXR and KVIK. Figure 4A is an expanded view to show that no overlap occurs. The contour to distance data is tabulated below.

Proposed WLXR Contours

F(50,50) Contours

DISTANCES TO CONTOURS (Kilometers):
 Antenna COR elevation (AMSL): 466 meters Average HAAT: 201 meters
 Frequency: 104.9000 MHz
 Coordinates: N 43 43 17.00 W 91 17 24.00
 F(50,50) Curves Number of Contours: 1

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu): 60.0
210.0	176	0.8000	23.3
211.0	178	0.8000	23.4
212.0	177	0.8000	23.4
213.0	174	0.8000	23.2
214.0	173	0.8000	23.1
215.0	173	0.8000	23.1
216.0	172	0.8000	23.1
217.0	171	0.8000	23.0
218.0	167	0.8000	22.7
219.0	166	0.8000	22.6
220.0	166	0.8000	22.6
221.0	162	0.8000	22.4
222.0	159	0.8000	22.1
223.0	156	0.8000	21.9
224.0	154	0.8000	21.8
225.0	155	0.8000	21.9
226.0	155	0.8000	21.9
227.0	152	0.8000	21.7
228.0	152	0.8000	21.7
229.0	151	0.8000	21.6
230.0	149	0.8000	21.4
231.0	149	0.8000	21.4
232.0	148	0.8000	21.4
233.0	145	0.8000	21.1
234.0	143	0.8000	21.0
235.0	142	0.8000	20.9

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WLXR-FM LA CROSSE, WISCONSIN
FOR MISSISSIPPI VALLEY BROADCASTERS, LLC
CHANNEL 285 0.8 KW (H & V) 207 METERS HAAT
PAGE 5**

F(50,10) Contours

DISTANCES TO CONTOURS (Kilometers):

Antenna COR elevation (AMSL): 466 meters Average HAAT: 201 meters

Frequency: 104.9000 MHz

Coordinates: N 43 43 17.00 W 91 17 24.00

F(50,10) Curves Number of Contours: 1 7

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu): 54.0
210.0	176	0.8000	34.4
211.0	178	0.8000	34.6
212.0	177	0.8000	34.5
213.0	174	0.8000	34.2
214.0	173	0.8000	34.1
215.0	173	0.8000	34.1
216.0	172	0.8000	34.1
217.0	171	0.8000	33.9
218.0	167	0.8000	33.6
219.0	166	0.8000	33.4
220.0	166	0.8000	33.4
221.0	162	0.8000	33.1
222.0	159	0.8000	32.7
223.0	156	0.8000	32.4
224.0	154	0.8000	32.3
225.0	155	0.8000	32.3
226.0	155	0.8000	32.4
227.0	152	0.8000	32.1
228.0	152	0.8000	32.1
229.0	151	0.8000	32.0
230.0	149	0.8000	31.8
231.0	149	0.8000	31.8
232.0	148	0.8000	31.7
233.0	145	0.8000	31.3
234.0	143	0.8000	31.2
235.0	142	0.8000	31.0

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FOR MISSISSIPPI VALLEY BROADCASTERS, LLC
CHANNEL 285 0.8 KW (H & V) 207 METERS HAAT
PAGE 6**

KVIK Contours

F(50,50) Contours

DISTANCES TO CONTOURS (Kilometers):

Antenna COR elevation (AMSL): 518 meters Average HAAT: 178 meters

Frequency: 104.7000 MHz

Coordinates: N 43 17 13.00 W 91 53 3.00

F(50,50) Curves Number of Contours: 1 7

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu): 60.0
35.0	197	1.9500	30.0
36.0	198	1.9500	30.1
37.0	202	1.9500	30.3
38.0	205	1.9500	30.5
39.0	206	1.9500	30.6
40.0	205	1.9500	30.5
41.0	204	1.9500	30.5
42.0	203	1.9500	30.4
43.0	203	1.9500	30.4
44.0	203	1.9500	30.4
45.0	202	1.9500	30.3
46.0	202	1.9500	30.3
47.0	201	1.9500	30.2
48.0	201	1.9500	30.2
49.0	202	1.9500	30.3
50.0	203	1.9500	30.4

F(50,10) Contours

DISTANCES TO CONTOURS (Kilometers):

Antenna COR elevation (AMSL): 518 meters Average HAAT: 178 meters

Frequency: 104.7000 MHz

Coordinates: N 43 17 13.00 W 91 53 3.00

F(50,10) Curves Number of Contours: 1 7

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu): 54.0
35.0	197	1.9500	44.8
36.0	198	1.9500	44.9
37.0	202	1.9500	45.3
38.0	205	1.9500	45.7
39.0	206	1.9500	45.8
40.0	205	1.9500	45.7
41.0	204	1.9500	45.6
42.0	203	1.9500	45.5
43.0	203	1.9500	45.4
44.0	203	1.9500	45.4
45.0	202	1.9500	45.4
46.0	202	1.9500	45.3
47.0	201	1.9500	45.2
48.0	201	1.9500	45.2
49.0	202	1.9500	45.3
50.0	203	1.9500	45.4

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FOR A CONSTRUCTION PERMIT
WLXR-FM LA CROSSE, WISCONSIN
FOR MISSISSIPPI VALLEY BROADCASTERS, LLC
CHANNEL 285 0.8 KW (H & V) 207 METERS HAAT
PAGE 7**

ANSI Power Density Calculations

The proposed antenna will be energized such that it produces an effective radiated power of 0.8 kW from a center of radiation 139 meters above ground level. There is also another FM station proposed to be located on the tower KQEG. Using the FCC FM Model program the maximum RF Radiation level assuming the combined power levels of KQEG and WLXR with type 3 antennas the predicted radiation levels are:

STATION	Power Density ($\mu\text{w}/\text{cm}^2$)	% of maximum uncontrolled
KQEG	16.2	8.13
WLXR	.44	2.2
TOTAL	20.6	10.33

Based on the calculations it was determined that the RF radiation would be only 10.33% of the uncontrolled limit.

Access to RF circuitry is restricted by a metal fence that surrounds the property that limits access to the public. Signs are posted warning of the potential danger. When persons require access to the site, tower or antenna for maintenance purposes, the transmitter power will be reduced or completely eliminated to comply with ANSI guidelines. Hence, the conditions of Section 1.1306(b)(3) would not be involved.

ENVIRONMENTAL IMPACT STATEMENT

The instant proposal satisfies the following conditions for exclusion from environmental processing under Section 1.1306(b)(2) and (3):

- 1) The site proposed is not in or near any location referenced in Section 1.1306(b)(1) as being of environmental interest.
- 2) The provisions of Section 1.1306(b)(2) relating to the use of high intensity strobe lighting do not apply since this tower is not utilizing this type of lighting.
- 3) Compliance to Section 1.1306(b)(3) regarding human exposure to RF radiation was examined for multiple sources. A search was made about the proposed site coordinates to locate any additional sources of RF radiation and the proposed WLXR and KQEG facilities were found. The total combined exposure is predicted to be 10.33% of the limit for an uncontrolled environment.

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WLXR-FM LA CROSSE, WISCONSIN
FOR MISSISSIPPI VALLEY BROADCASTERS, LLC
CHANNEL 285 0.8 KW (H & V) 207 METERS HAAT
PAGE 8**

The applicant is undertaking a review of the instant proposal under Section 106 of the National Historic Preservation Act. The application will be amended accordingly upon conclusion of that review.

CONCLUSIONS

Based on the engineering studies provided, the following conclusions can be obtained:

- (1) Implementation of the instant proposal will continue to provide La Crosse with a full time aural broadcast service.
- (2) 115,453 persons in 2,426 square kilometers would have an available signal strength of 60 dBu or greater from the proposed construction location.
- (3) La Crosse would be served with a signal of 70 dBu or greater from the proposed construction site.
- (4) The proposal is in complete conformance with all technical rules of the Federal Communications Commission.

A handwritten signature in black ink, reading "Garrett G. Lysiak". The signature is written in a cursive, flowing style with a large initial 'G'.

Garrett G. Lysiak, P.E.
September 12, 2006



FIGURE 1 SITE MAP

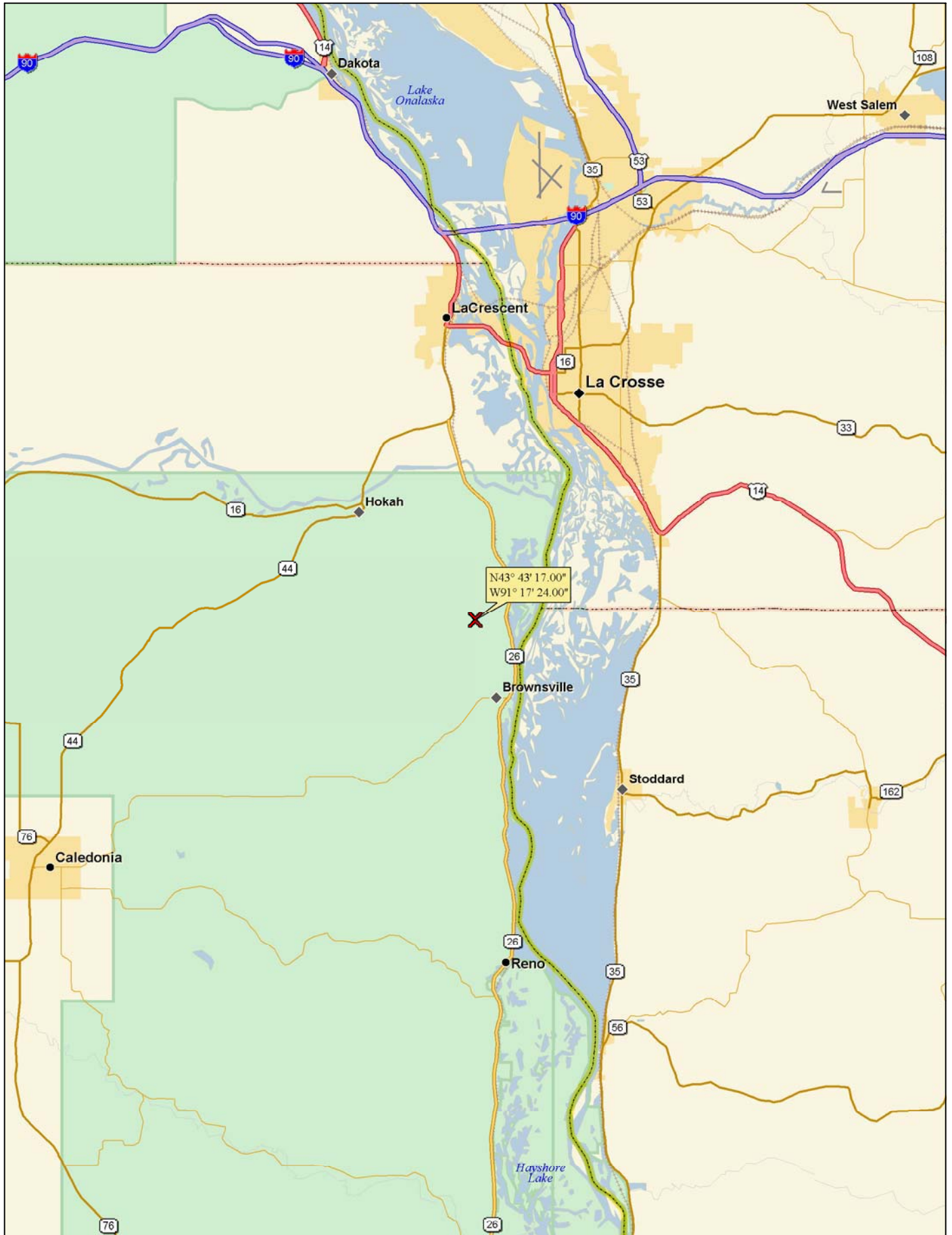
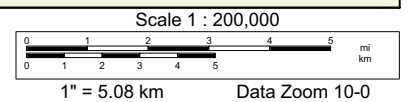


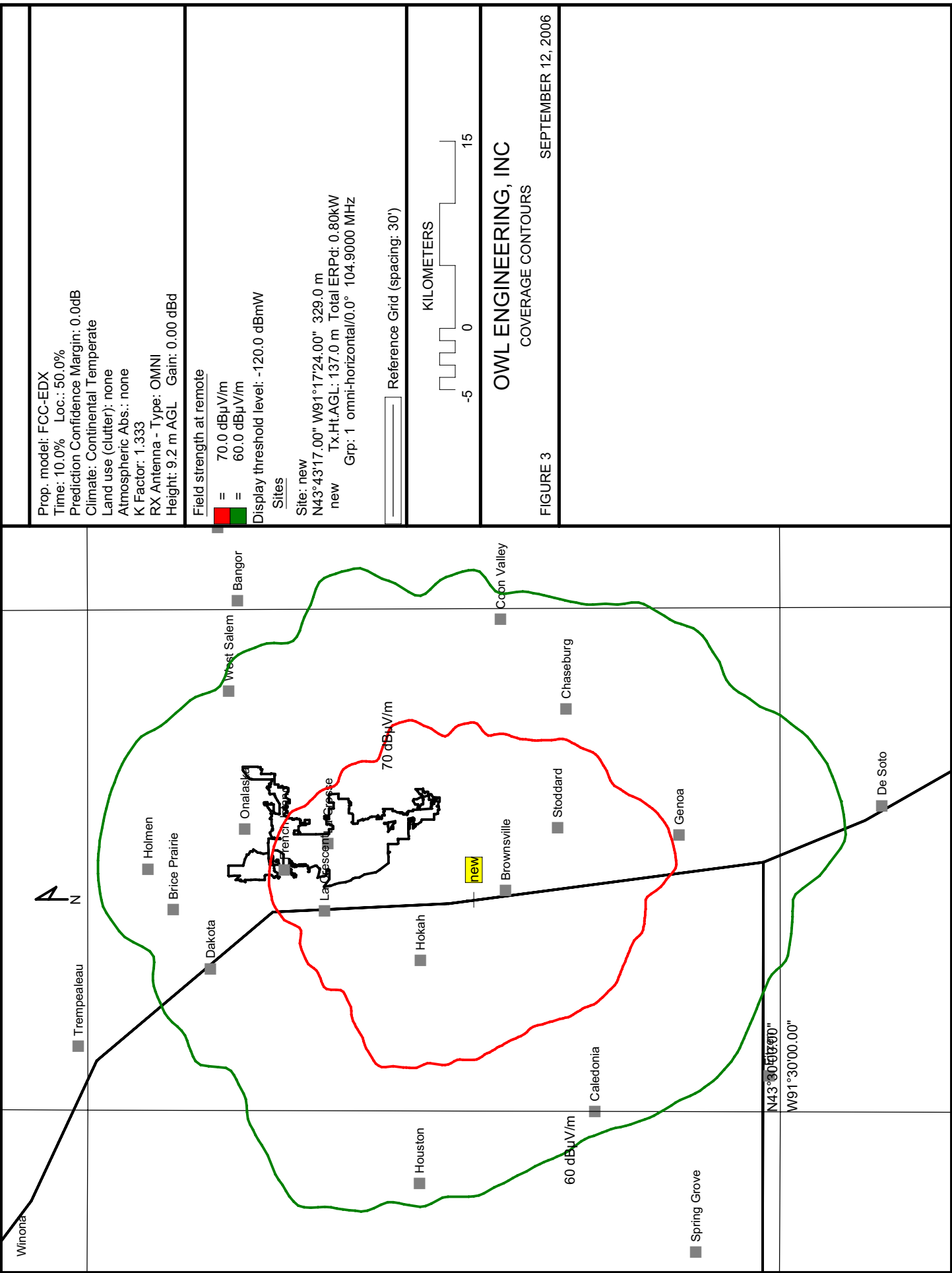
FIGURE 1A - SITE MAP

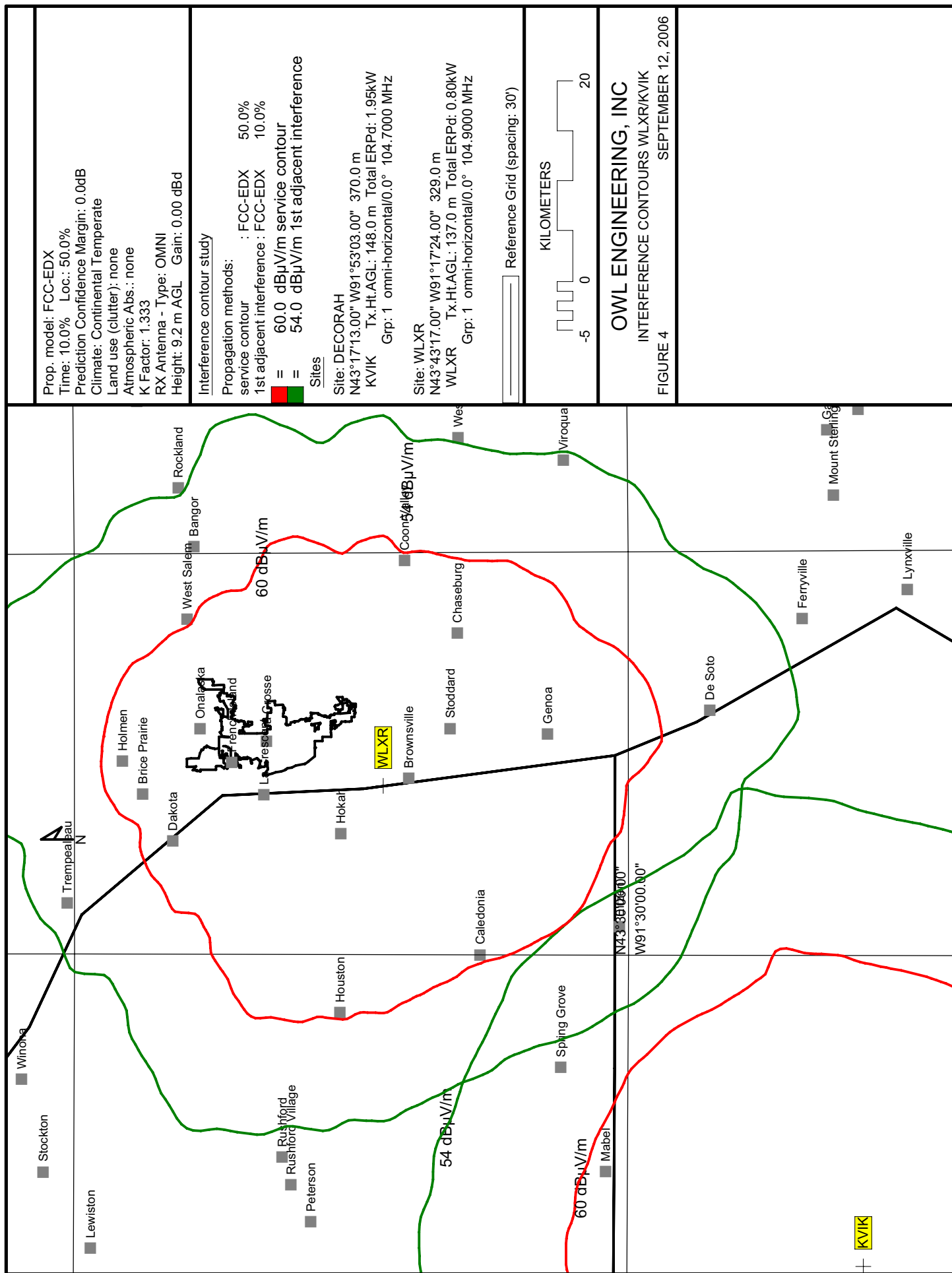


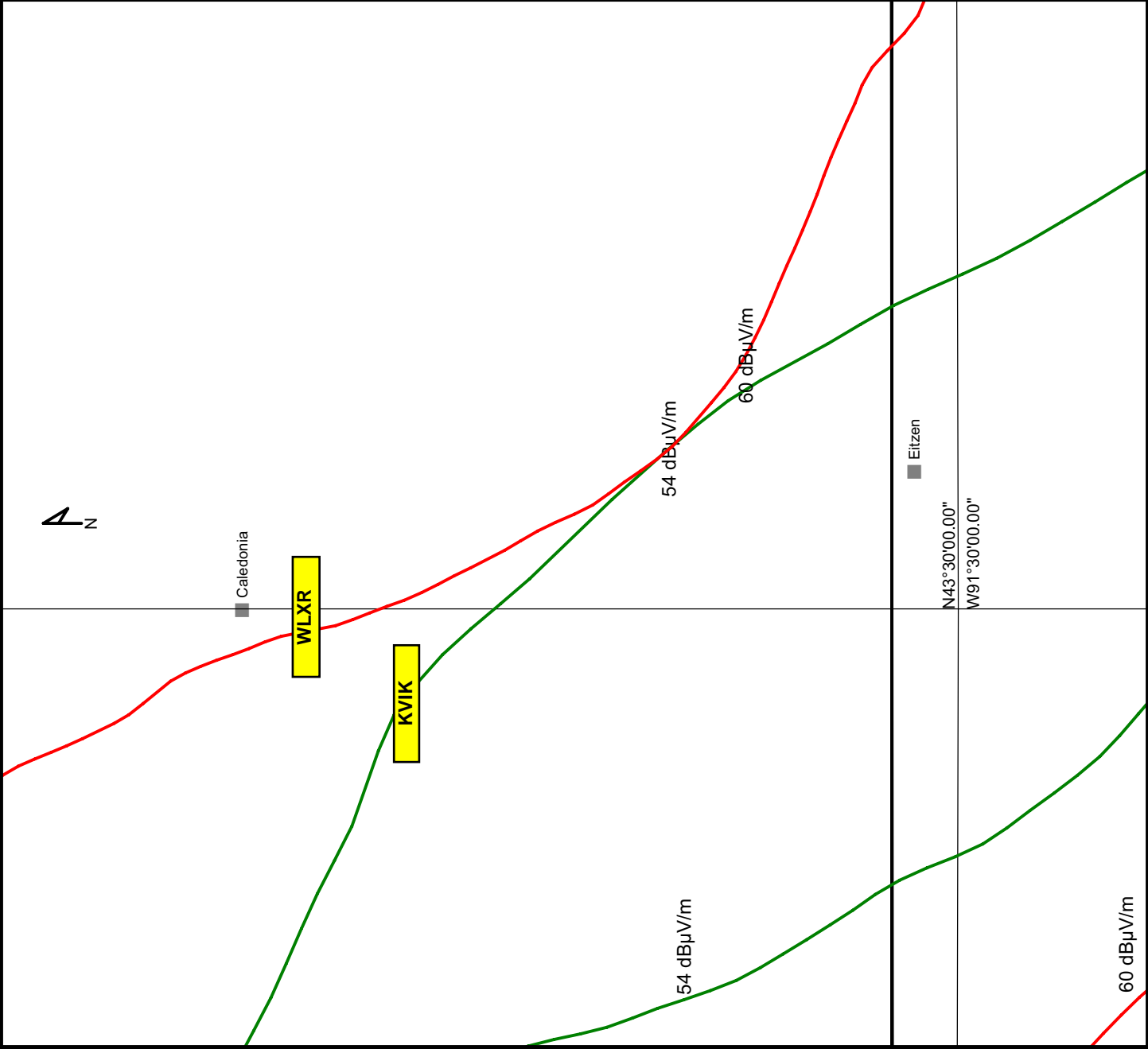


NEW

FIGURE 2 AERIAL PHOTO







Prop. model: FCC-EDX
Time: 10.0% Loc.: 50.0%
Prediction Confidence Margin: 0.0dB
Climate: Continental Temperate
Land use (clutter): none
Atmospheric Abs.: none
K Factor: 1.333
RX Antenna - Type: OMNI
Height: 9.2 m AGL Gain: 0.00 dBd

Interference contour study

Propagation methods:
service contour : FCC-EDX 50.0%
1st adjacent interference : FCC-EDX 10.0%

█ = 60.0 dBμV/m service contour
█ = 54.0 dBμV/m 1st adjacent interference

Sites

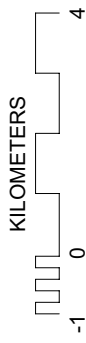
Site: DECORAH

N43°17'13.00" W91°53'03.00" 370.0 m
KVIK Tx.Ht.AGL: 148.0 m Total ERPd: 1.95kW
Grp: 1 omni-horizontal/0.0° 104.7000 MHz

Site: WLXR

N43°43'17.00" W91°17'24.00" 329.0 m
WLXR Tx.Ht.AGL: 137.0 m Total ERPd: 0.80kW
Grp: 1 omni-horizontal/0.0° 104.9000 MHz

Reference Grid (spacing: 30')



OWL ENGINEERING, INC
INTERFERENCE CONTOURS WLXR/KVIK

FIGURE 4A EXPANDED VIEW SEPTEMBER 12, 2006



U.S. Department of Transportation
Federal Aviation Administration

Failure To Provide All Requested Information May Delay Processing of Your Notice

Notice of Proposed Construction or Alteration

FOR FAA USA ONLY
Aeronautical Study Number

1. Sponsor (person, company, etc. proposing this action):

Attn.of: _____
Name: MISSISSIPPI VALLEY BROADCASTING
Address: 201 STATE STREET

City: LA CROSSE State: WI Zip: 54601
Telephone: (608) 782-8335 Fax: (608) 782-8340

2. Sponsor's Representative (if other than #1):

Attn.of: GARRETT G. LYSIAK, P.E.
Name: OWL ENGINEERING, INC
Address: 5844 HAMLINE AVE NORTH

City: SHOREVIEW State: MN Zip: 55126
Telephone: (651) 784-7445 Fax: (651) 784-7541

3. Notice of: ☒ New Construction ☐ Alteration ☐ Existing

4. Duration: ☒ Permanent ☐ Temporary (months, days)

5. Work Schedule: Beginning 2/1/2005 End 2/1/2005

6. Type: ☒ Antenna Tower ☐ Crane ☐ Building ☐ Power Line
☐ Landfill ☐ Water Tank ☐ Other

7. Marking/Painting and/or Lighting Preferred:

☒ Red Lights and Paint ☐ Dual - Red and Medium Intensity White
☐ White - Medium Intensity ☐ Dual - Red and High Intensity White
☐ White - High Intensity ☐ Other

8. FCC Antenna Structure Registration Number (if applicable):

9. Latitude: 43 ° 43 ' 17.0 "

10. Longitude: 091 ° 17 ' 24.0 "

11. Datum: ☐ NAD 83 ☒ NAD 27 ☐ Other:

12. Nearest: City: Stoddard State: WI

13. Nearest **Public-use** (not private-use) or Military Airport or Heliport:

LSE: LA CROSSE MUNI

14. Distance from #13. to Structure: 54742 ft.

15. Direction from #13. to Structure: 189 degrees

16. Site Elevation (AMSL): 1080 ft.

17. Total Structure Height (AGL): 493 ft.

18. Overall Height (#16. + #17.) (AMSL): 1573 ft.

19. Previous FAA Aeronautical Study Number (if applicable):

- OE

20. Description of Location: (Attach a USGS 7.5 minute
Quadrangle Map with the precise site marked and any certified survey.)

0.67 NT EAST OF SR28, 1.6 NT NW OF BROWNSVILLE, MN

21. Complete Description of Proposal:

STELL COMMUNICATIONS TOWER WITH SIDE-MOUNTED FM STATIONS

Frequency/Power (KW)

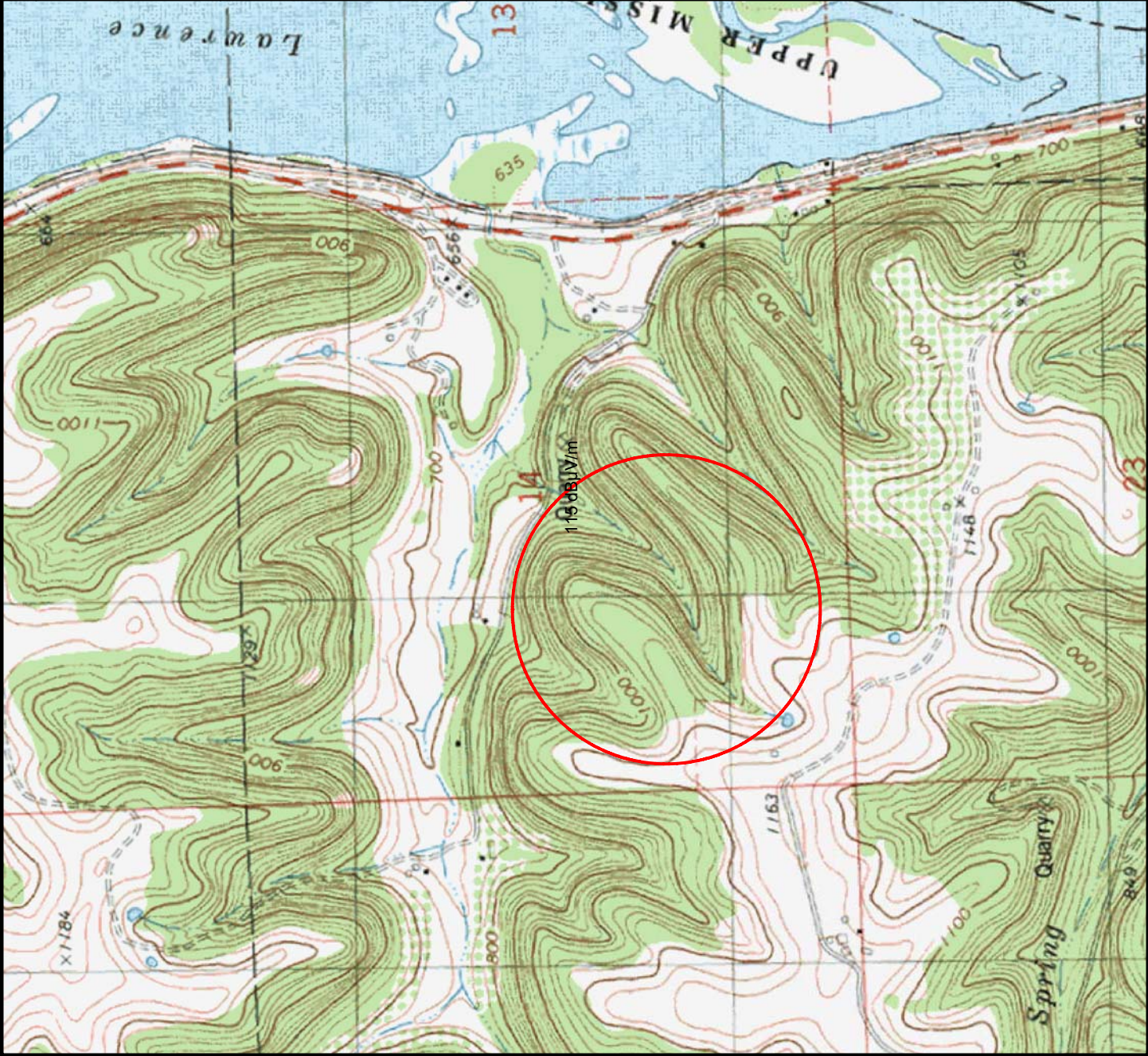
104.9 0.8

102.7 4.7

Notice is required by 14 Code of Federal Regulations, Part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of \$1,000 per day until the notice is received, pursuant to 49 U.S.C., Section 46301 (a).

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking & lighting standards as necessary.

Date <u>09/12/2006</u>	Typed or Printed Name and Title, of Person Filing Notice <u>GARRETT G. LYSIAK, P.E.</u>	Signature
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Prop. model: FCC-EDX
Time: 50.0% Loc.: 50.0%
Prediction Confidence Margin: 0.0dB
Climate: Continental Temperate
Land use (clutter): none
Atmospheric Abs.: none
K Factor: 1.333
RX Antenna - Type: OMNI
Height: 9.2 m AGL Gain: 0.00 dBd

Field strength at remote

= 115.0 dBμV/m

Display threshold level: -120.0 dBmW

Sites

Site: new

N43°43'17.00" W91°17'24.00" 329.0 m

new Tx.Ht.AGL: 137.0 m Total ERPd: 0.8 kW

Grp: 1 omni-horizontal/0.0° 104.9000 MHz

Reference Grid (spacing: 30')

METERS



OWL ENGINEERING, INC

BLANKETING CONTOUR

FIGURE 6

SEPTEMBER 12, 2006