



# **OWL ENGINEERING & EMC TEST LABS, INC.**

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**ENGINEERING EXHIBIT FOR AN  
AMENDMENT TO AN APPLICATION FOR FM  
CONSTRUCTION PERMIT  
CHANNEL 264 100.7 MHZ  
ANDERSON BROADCASTING COMPANY  
BIGFORK, MONTANA**

**CHANNEL 264 100 KW(H&V) 305 METERS HAAT**

**SEPTEMBER 19, 2002**

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TO AN APPLICATION FOR A CONSTRUCTION  
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**TABLE OF CONTENTS**

	<b>Engineering Statement</b>
<b>Figure 1</b>	<b>Site Location Map</b>
<b>Figure 1A</b>	<b>Site Location Map</b>
<b>Figure 2</b>	<b>Contour Coverage Map</b>
<b>Figure 2A</b>	<b>Contour Coverage Map (Detailed)</b>
<b>Figure 2B</b>	<b>Contour Coverage Map (City)</b>

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TO AN APPLICATION FOR A CONSTRUCTION  
PERMIT FOR  
ANDERSON BROADCASTING COMPANY  
CHANNEL 264 100.7 MHZ  
100 KW (H & V) 305 METERS HAAT  
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 **Anderson Broadcasting Company** (hereafter “**ABC**”) in support of an amendment to an application for authority to construct an FM broadcast facility operating on channel 264 (100.7 MHz) at Bigfork, Montana. The effective radiated power proposed is 100 KW, both in the horizontal and vertical plane, and the antenna center of radiation is 305 meters above the average terrain. This power/height combination is an allowable Class C facility permitted under the current rules and regulations.

“**ABC**” proposes to operate from a site uniquely described by the geographic coordinates:

(NAD 27)  
47° 51' 58" North Latitude  
114° 00' 44" West Longitude

(NAD 83)  
47°51' 57.7" North Latitude  
114° 00' 47.05" West Longitude

Engineering Exhibit Figure 1 is a portion of the Bull Island, Montana 7.5 Minute U.S.G.S. topographic quadrangle map showing the proposed transmitter site. Figure 1A is a reduced copy of the entire map.

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CHANNEL 264 100.7 MHZ  
100 KW (H & V) 305 METERS HAAT  
Page 2**

Because the area is rural, there is not expected to be any problem with blanketing interference. 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 be located in the Bigfork area.

### **COVERAGE CONTOURS**

The three-to-sixteen-kilometer average terrain elevations were derived from the 30-second NDGC topography database. However, the site elevation was determined from the U.S.G.S. 7.5 Minute Bull Island, Montana topographic quadrangle map.

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 Exhibit Figures 2, 2A and 2B. As is readily evident, all of Bigfork, Montana is included within the proposed 70 dBu coverage contour as required by the rules.

### **DISTANCE TO CONTOURS**

DISTANCES TO CONTOURS (Kilometers):  
 Antenna COR elevation (AMSL): 1468 mtrs      Average HAAT: 305 mtrs  
 Frequency: 100.7000 MHz  
 Coordinates: N 47 51 58.00      W 114 0 44.20  
 F(50,50) Curves      Number of Contours: 2      8

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu): 70.0   60.0	
0.0	160	100.0000	39.4	59.7
45.0	30	100.0000	18.2	31.2
90.0	206	100.0000	43.5	64.4
135.0	-140	100.0000	18.2	31.2
180.0	409	100.0000	56.8	80.4
225.0	577	100.0000	66.7	90.9
270.0	588	100.0000	67.2	91.4
315.0	591	100.0000	67.3	91.4
349.0**	553	100.0000	65.5	89.8

\*\*not in average

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TO AN APPLICATION FOR A CONSTRUCTION  
PERMIT FOR  
ANDERSON BROADCASTING COMPANY  
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100 KW (H & V) 305 METERS HAAT  
Page 3**

**POPULATION AND AREA DATA**

Based on the 2000 U.S. Census of Population, the number of persons enclosed by the proposed 60 dBu coverage contour is 83,175 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 16,026 square kilometers. A computerized integration program determined this area.

**ALLOCATION CONSIDERATIONS**

A review of allotments and assignments on channel 264, on the three immediately upper adjacent, the three immediately lower adjacent channels, and on channels 210 and 211 (53 and 54 channels removed from channel 264 showed that the site proposed would be in accordance with section 73.207 of the FCC Rules.

\*\*\*\*\* FM CHANNEL SPACING STUDY \*\*\*\*\*

Job title: ALLOCATION STUDY  
Proposed latitude: N 47 51 58.00  
Proposed longitude: W 114 0 44.00  
Database file name: C:\FCCnewdata\2002  
Use pre-1989 Class A spacings?: N

Proposed channel: 264C

CH	Call	Record	City	ST	Status	Bear.	Dist.	Reqd. Dist.	Result
266C	KZMT	24572	HELENA	MT	LIC	133.8	177.9	105.0	
266C	KZMT	24603	HELENA	MT	LIC	133.8	177.9	105.0	
261C1	KZOQ-FM	24779	MISSOULA	MT	LIC	178.5	118.3	105.0	13.3
210A	KBGA	24783	MISSOULA	MT	LIC	178.9	109.4	29.0	
261C1	KZOQ-FM	24790	MISSOULA	MT	LIC	178.5	118.3	105.0	13.3
264C1	KSIL	25154	WALLACE	ID	APP	357.1	9.2	270.0	-260.8
210A	KUKL	25170	KALISPELL	MT	LIC	324.2	42.6	29.0	13.6
264C	KSIL	25175	BIGFORK	MT	LIC	0.7	20.0	290.0	-270.0
263A		25193	ELKFORD	AB	LIC	347.5	243.4	182.0	
264C	890713ML	25430	WALLACE	ID	LIC	253.8	150.0	290.0	-140.0
264C2	KSIL	25433	WALLACE	ID	LIC	256.8	141.4	249.0	-107.6

\*\*\*\*\* End of channel 264 study \*\*\*\*\*

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PERMIT FOR  
ANDERSON BROADCASTING COMPANY  
CHANNEL 264 100.7 MHZ  
100 KW (H & V) 305 METERS HAAT  
Page 4**

**ENVIRONMENTAL IMPACT STATEMENT**

The instant proposal is categorically excluded from environmental processing since none of the conditions of Section 1.1306(b)(2) and (3) would be involved for the following reasons:

- 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 does not apply since this tower is already utilizing an approved lighting system.
- 3) Compliance to Section 1.1306(b)(3) regarding human exposure to RF radiation was examined. A search was made about the proposed site coordinates to locate any additional sources of RF radiation and none were found.

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PERMIT FOR  
ANDERSON BROADCASTING COMPANY  
CHANNEL 264 100.7 MHZ  
100 KW (H & V) 305 METERS HAAT  
Page 5**

**ANSI Power Density Calculations**

The power density at the base of the tower was calculated using the following formula from OST Bulletin Number 65, August, 1997:

$$S = ((0.64)(1.64)(ERP)(1000)(\text{milliwatts/watt}))/(\pi(R)^2)$$

where: S = power density in milliwatts per square centimeter

ERP = effective radiated power in watts

R = distance to radiation source in centimeters

$\pi = 3.14$

Using this formula and the values shown below, a power density of 3.038 mW/cm<sup>2</sup> is predicted to exist at the base of the tower.

ERP = 200 watts

R = 4,690 cm.

The ANSI limit is 1.0 mW/cm<sup>2</sup> in this frequency range and the calculated radiation density is below this value. Since the predicted power density is predicted to exceed the ANSI guidelines the tables in OET-65 were utilized to show compliance with the radiation standard. Exhibit 29 shows that the instant proposal will comply with the maximum allowable value for RF radiation. After the station is constructed measurements will be performed after construction to determine the location of the fenced area to restrict access to any area found to exceed the standard limit. The area is not in a very accessible location and it normally not frequented by members of the general public.

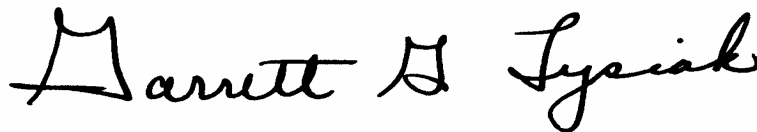
Access to RF circuitry will be restricted. Signs will be posted warning of the potential danger. When persons require access to the site, tower or antenna for maintenance purposes, the transmitter power will be reduced or completely eliminated to comply with ANSI guidelines. Hence, the conditions of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

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Page 6**

**CONCLUSIONS**

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

- (1) Implementation of the instant proposal will provide Bigfork with a full time aural broadcast service.
- (2) 83,175 persons in 16,026 square kilometers would have an available signal strength of 60 dBu or greater from the proposed construction location.
- (3) All of Bigfork 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 fluid and cursive, with the first name "Garrett" and last name "Lysiak" being more prominent than the middle initial "G".

Garrett G. Lysiak, P.E.

September 19, 2002



BULL ISLAND QUADRANGLE  
MONTANA-LAKE CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)

3279 IV NW  
(VEW CREEK)

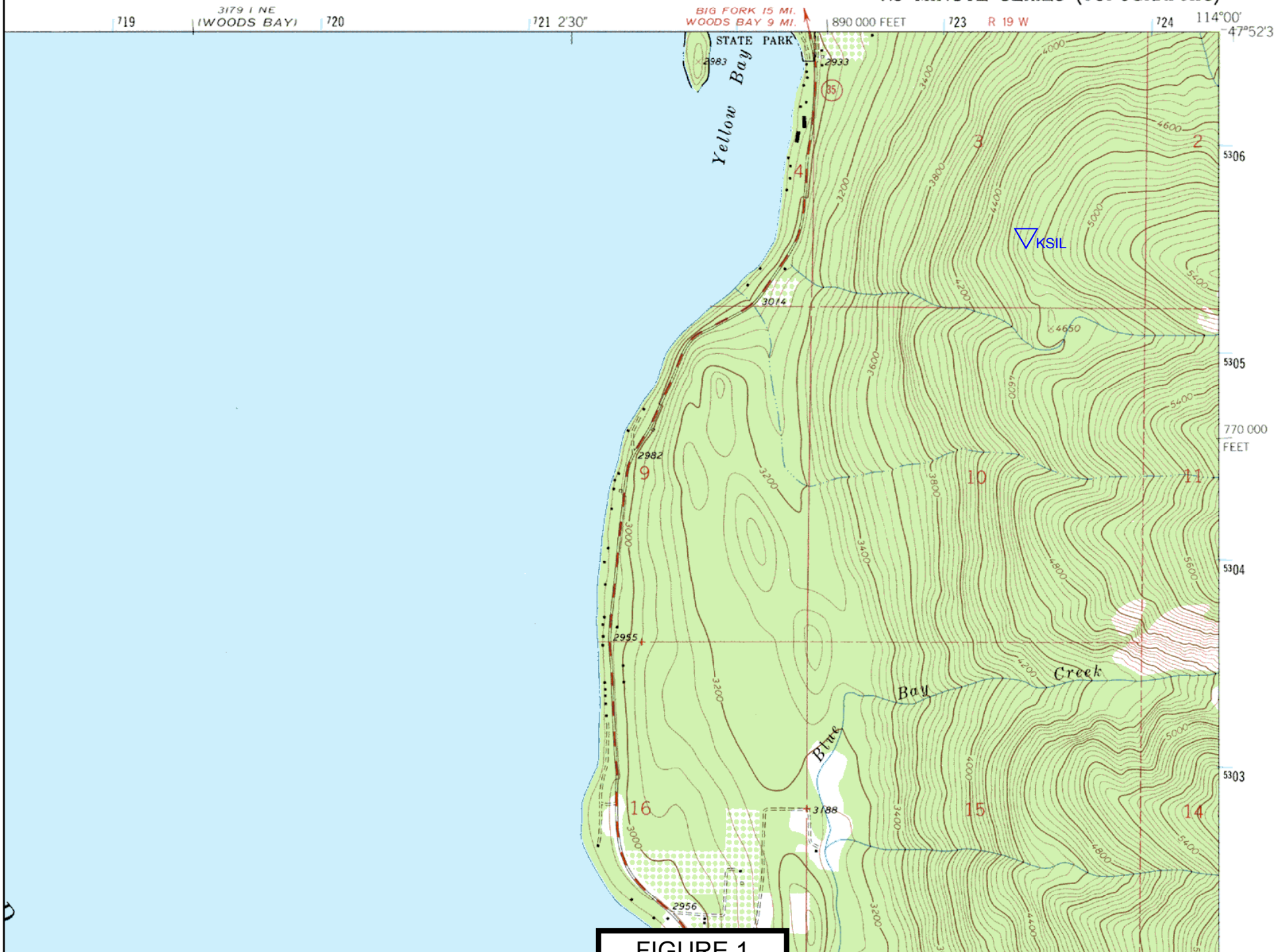
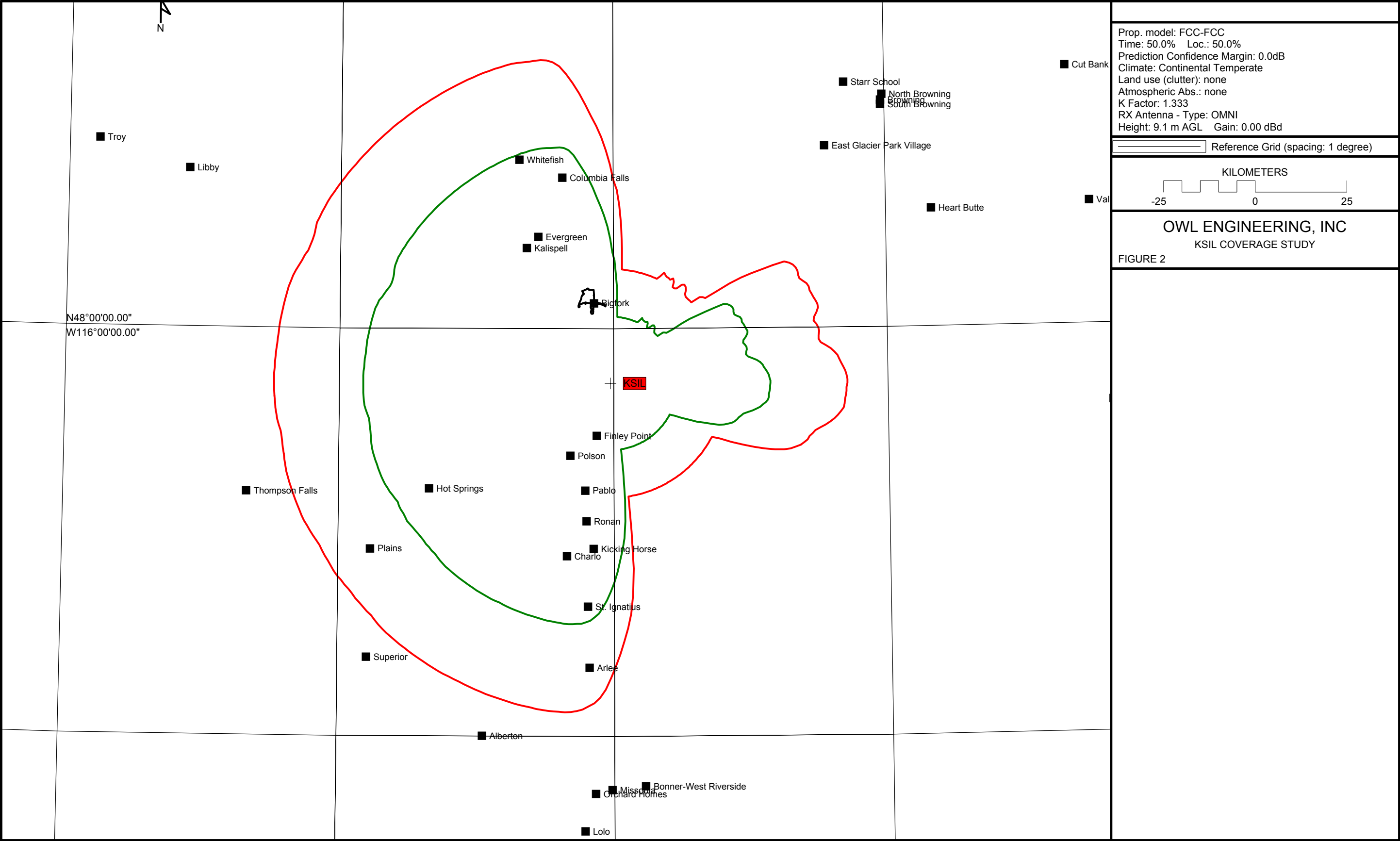
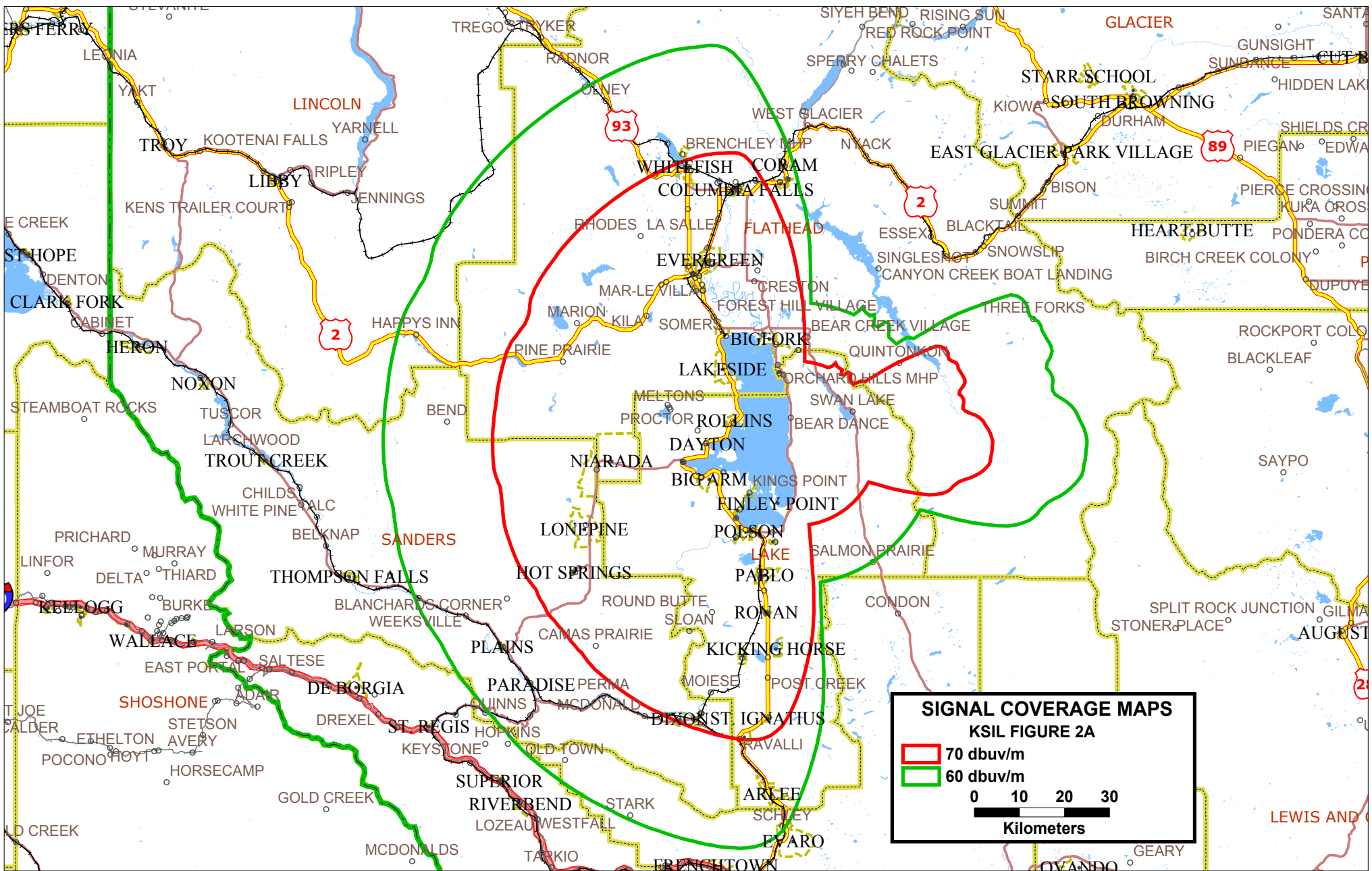


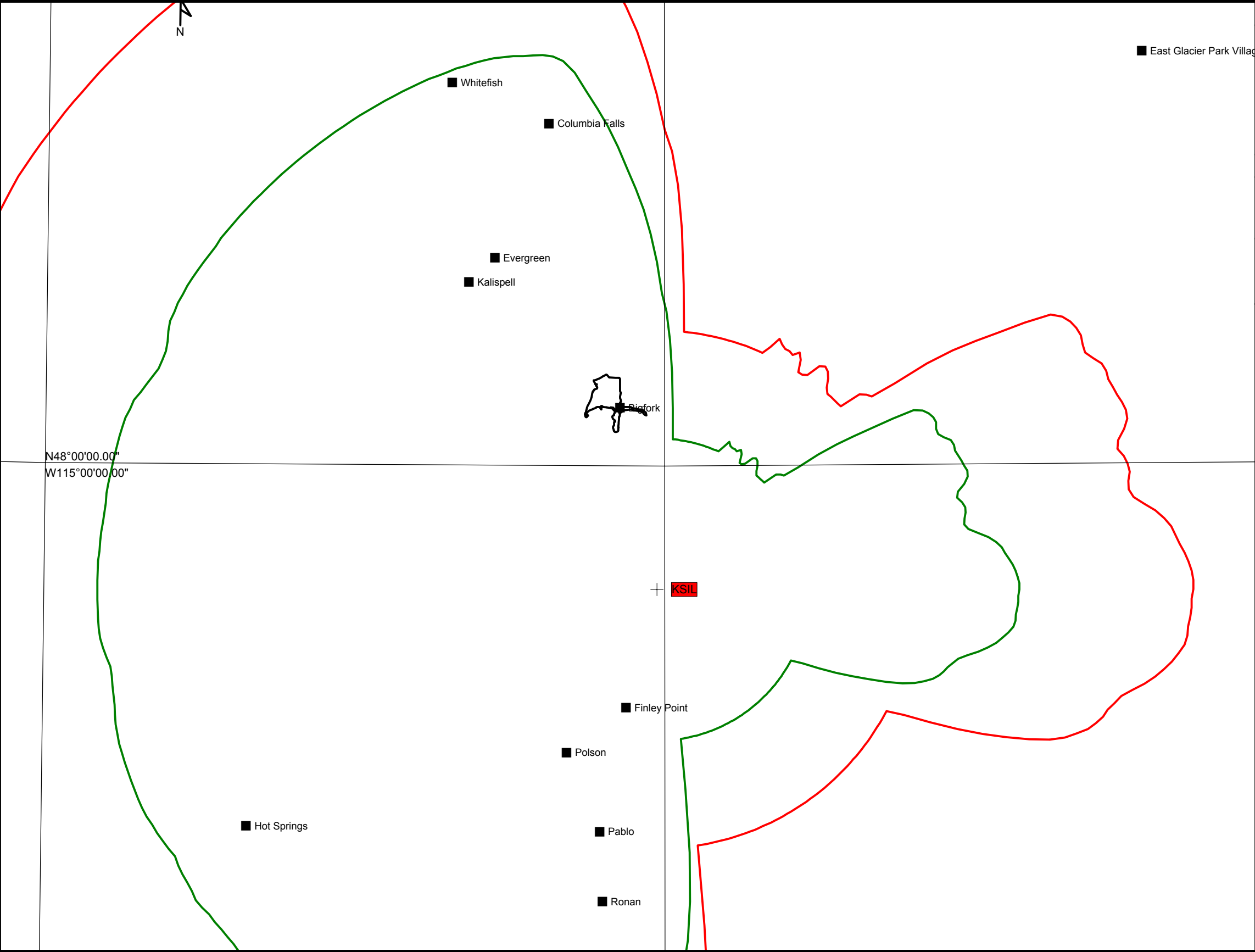
FIGURE 1











Prop. model: FCC-FCC  
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: 9.1 m AGL Gain: 0.00 dBd

Reference Grid (spacing: 1 degree)



OWL ENGINEERING, INC  
KSIL COVERAGE STUDY

FIGURE 2B