May 2019
KMHD(FM) Channel 206C1
Gresham, Oregon
Engineering STA Request

STA Facilities Proposed

Mt. Hood Community College District, the licensee of FM station KMHD, requests Special Temporary Authority to operate the station with technical facilities at variance from the station license. It is proposed to temporarily operate KMHD from a one-bay antenna installed on an existing tower at Healy Heights. Effective Radiated Power will be 250 watts, horizontally-polarized only.

The proposed antenna support structure does not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

RF Exposure Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

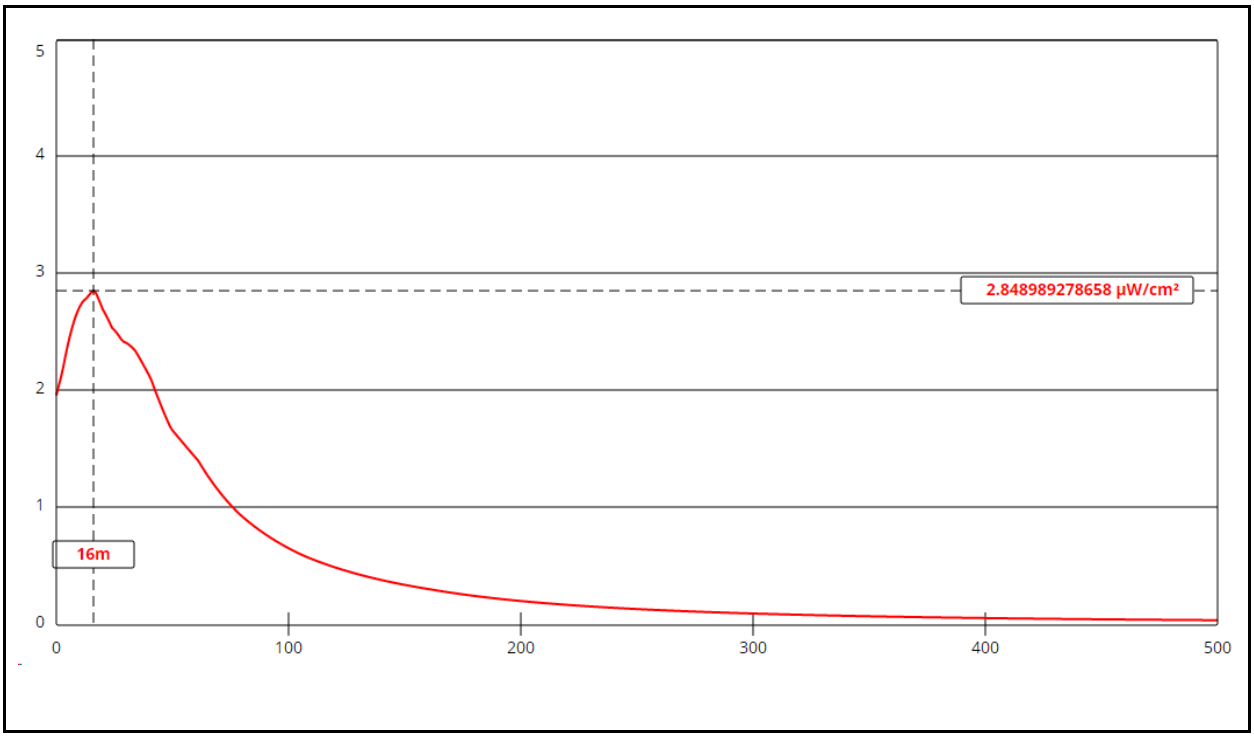
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 1 element pattern, which is the element pattern for the Kathrein FMO-1 antenna proposed for use.

The highest calculated ground level power density occurs at a distance of 16 meters from the base of the antenna support structure. At this point the power density is calculated to be 2.8 $\mu W/cm^2$, which is 0.3% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments) and 1.4% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KMHD-STA alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 500 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicant's proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency exposure in excess of FCC guidelines.

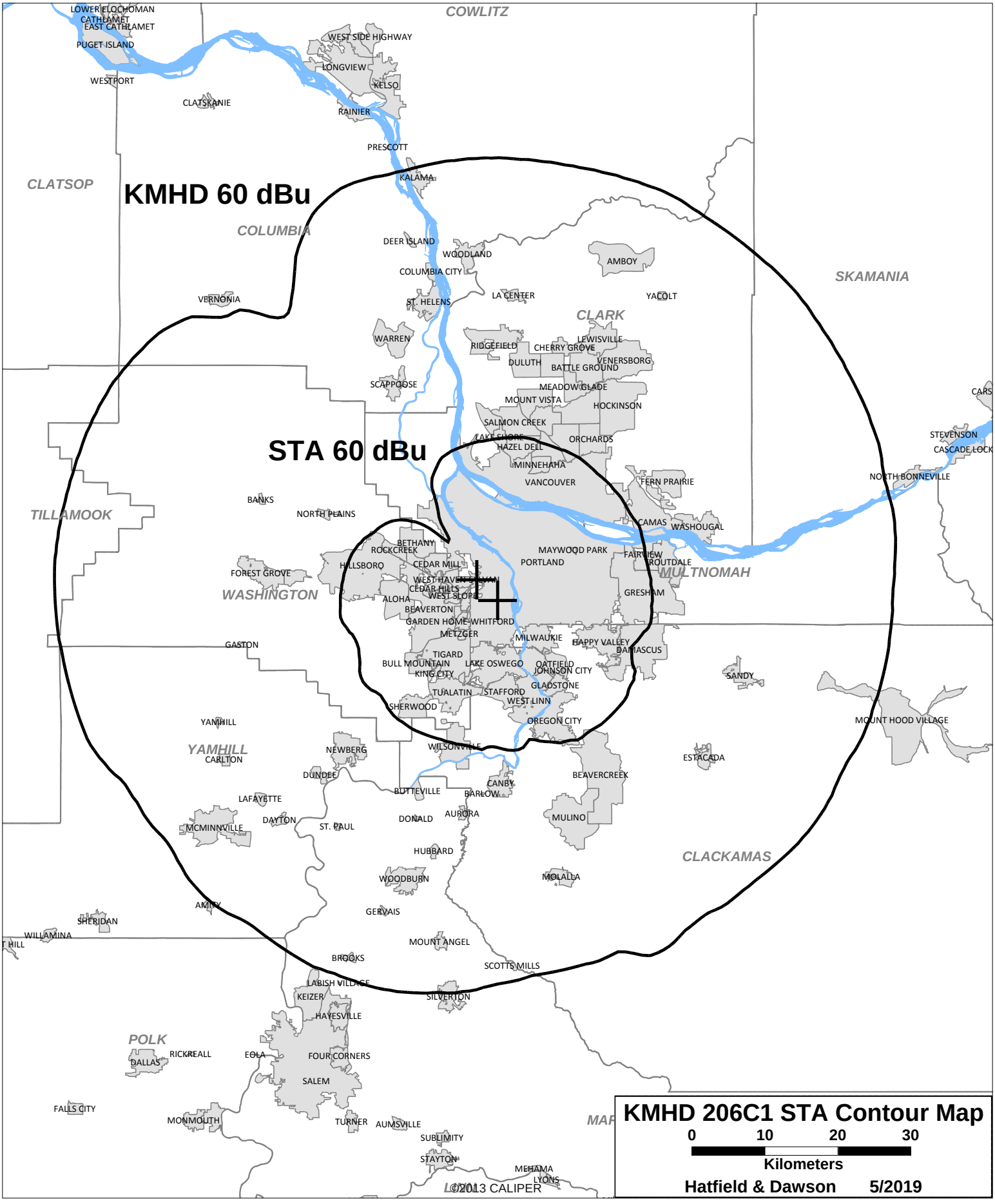


Ground-Level RF Exposure **OET FMModel**

KMHD 206C1 STA

Antenna Type:	Kathrein FMO-1 (Type 1)
No. of Elements:	1
Element Spacing:	1.0 wavelength
Distance:	500 meters
Horizontal ERP:	250 W
Vertical ERP:	zero W
Antenna Height:	30.5 meters AGL

Maximum Calculated Power Density is 2.8 µW/cm^2 at 16 meters from the antenna structure.

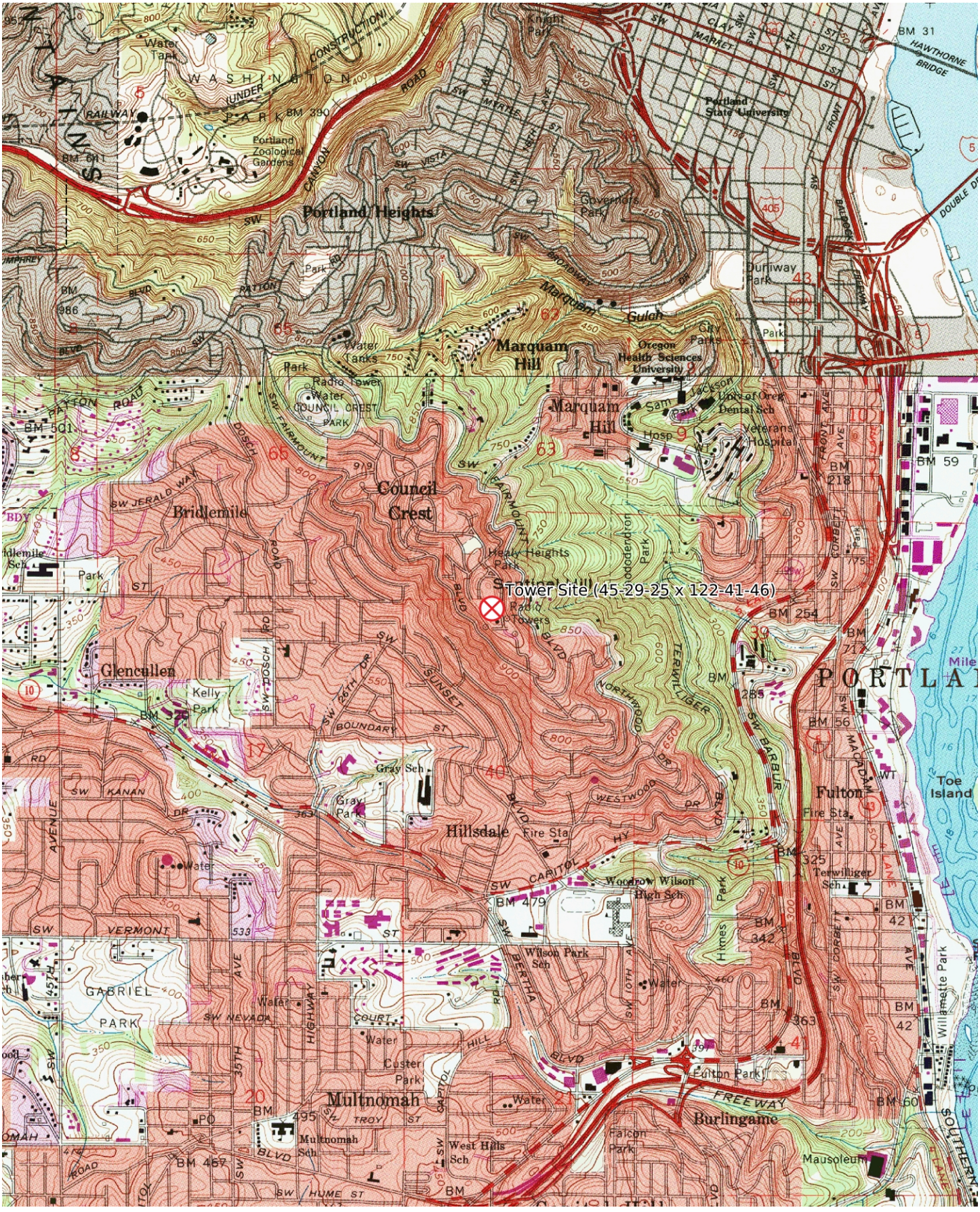


KMHD 206C1 STA Contour Map

0 10 20 30

Kilometers

Hatfield & Dawson 5/2019



Mercator Projection
NAD27 Conus
USNG Zone 10TER

CalTopo

0.5 1.0 1.5 2.0 2.5 km

0.5 1.0 1.5 mi

Scale **1:24000** 1 inch = 2000 feet

N MN 15°