



Zilkha Renewable Energy: Wild Horse Project

Executive Summary – Wind Power GeoPlanner™

Licensed Microwave Search & Worse Case Fresnel Zone

Comsearch performed an analysis to evaluate the potential effects of the planned Wild Horse wind turbine project area to existing microwave telecom systems. Comsearch identified microwave paths that intersect the defined project area and calculated a Worse Case Fresnel Zone for each path.

Comsearch's Wind Power GeoPlanner™ provides a graphical representation of the microwave paths and provide supporting technical parameters, as maintained in Comsearch's corporate database. The microwave path data (including CC, OF and TV services) is overlaid on USGS topographic basemaps. Comsearch identified microwave paths that intersected the Wild Horse project area.

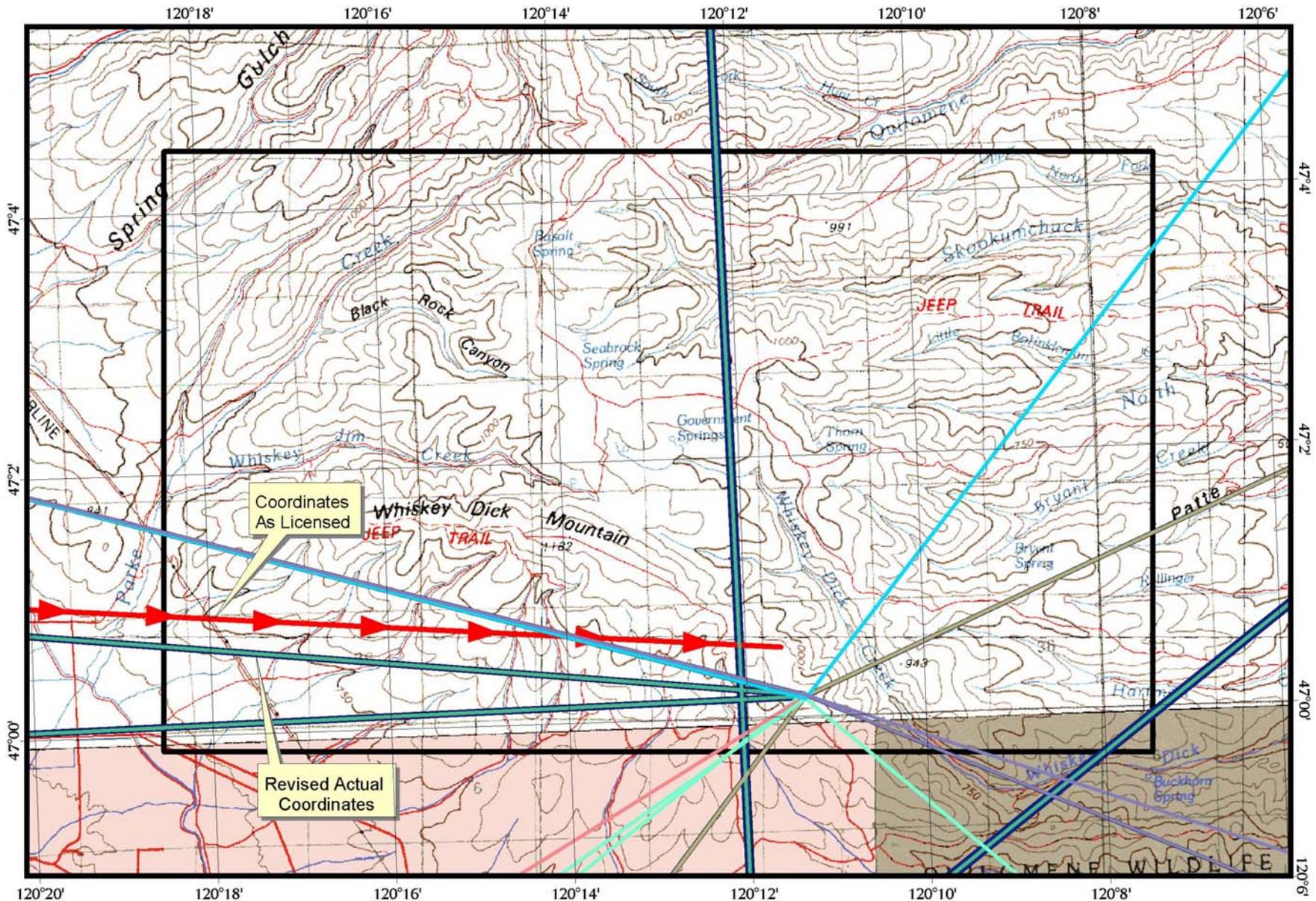
Comsearch then calculated Worse Case Fresnel Zones (WCFZ) for each microwave path in the project area. The mid-point of a full microwave path is the location where the widest (or worst) Fresnel zone occurs. Fresnel zones are calculated for each path using the following formula.

$$Rn \cong 17.3 \sqrt{\frac{n}{FGHz} \left(\frac{d1d2}{d1 + d2} \right)}$$

Each microwave path in the project area is buffered by the calculated WCFZ radius, giving the linear path an area or swath. The distance unit is in meters and can be found in the column attribute "WCFZ." In general this is the XY area where the planned wind turbines should be avoided, if possible. This area is shown in the Figures below.

For this project, latitude and longitude values for turbine locations and the turbine blade radius were not given. If given, the executive summary would have identified specific microwave telecom paths and turbines if a potential XY conflict exists. When wind turbines need to be located inside a WCFZ, Comsearch offers and recommends a detailed interference study, which considers the vertical Z-height clearance objectives. Please contact your sales representative, or Denise Finney (703) 726 – 5650 for assistance.

NOTE: Per Mark Johnson at the DNR Department Natural Resources SE Headquarters, the actual coordinates for the Wiskey Dick tower (WNEZ423) differ from the licensed coordinates. The actual coordinates are 47 00 12.4 N and 120 11 22.3 W.

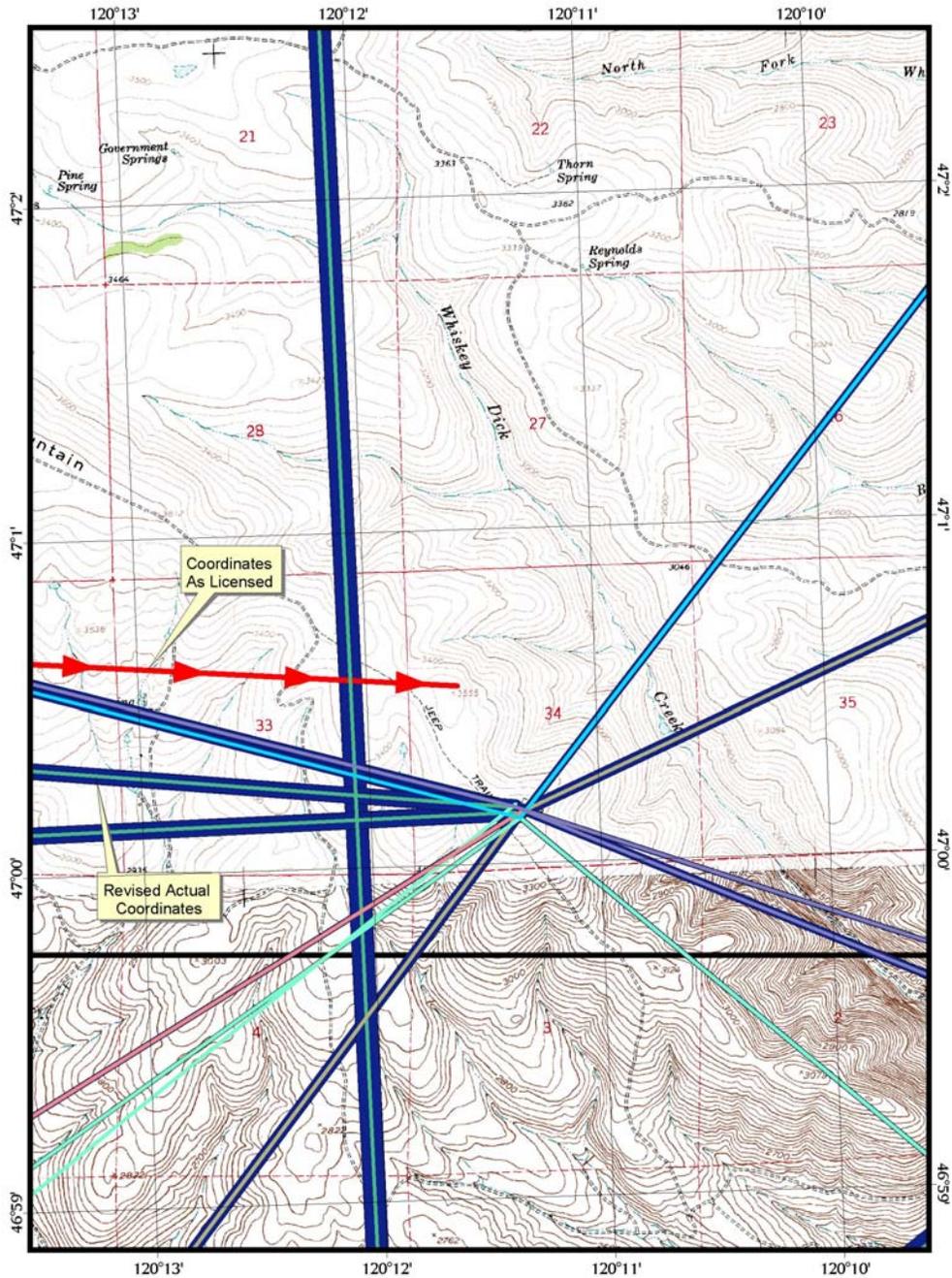


Zlikha Wild Horse : Wind Power GeoPlanner

- Wind Power GeoPlanner
- 10 GHz
 - 11 GHz
 - 2.1 GHz
 - 940-960 MHz
 - Lower 6 GHz
 - Upper 6 GHz
- WCFZ
 - AOI
 - S15603 as Licensed



Figure 1 – Wind Power GeoPlanner™ & WCFZ



Zlikha Wild Horse : Wind Power GeoPlanner

- Wind Power GeoPlanner
- 10 GHz
 - 11 GHz
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 - 640-980 MHz
 - Lower 6 GHz
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Figure 2 – Wind Power GeoPlanner™ & WCFZ Detail 1