

Appendix C-3

Wetlands and Other Surface Waters Report

WETLANDS AND OTHER SURFACE WATERS REPORT

**Hatchet Ridge Wind Energy Project
Shasta County, California**

Prepared for:

Hatchet Ridge Wind, LLC
Portland, Oregon

Prepared by:

Kurt Flaig
David Young
Western EcoSystems Technology, Inc.
2003 Central Avenue
Cheyenne, WY 82001

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INTRODUCTION

Hatchet Mountain is situated along the southern edge of the Cascade Range, in Shasta County, California. It is located approximately 40 miles northeast of Redding and 5 miles west of Burney, California. The Hatchet Ridge Wind Project site includes a long, broad ridge that is a portion of Hatchet Mountain, extending north from State Highway 299. The site boundary extends approximately 6 miles along the ridge, and ranges between one-half mile and one mile wide. The project site occurs entirely on private land owned by Sierra Pacific Industries and the Fruit Growers Supply Company. The site has been managed as a tree plantation. In August 1992, the project site was burned in the Fountain Fire. It was subsequently replanted with predominantly white fir and ponderosa pine. Elevations on site range from 5,470 feet, in the northwestern portion of the site near a radio tower facility, to approximately 4,300 feet, in the southern portion of the site near Hatchet Mountain Pass.

Hatchet Ridge Wind, LLC has proposed the development of a wind energy project on Hatchet Ridge. Western Ecosystems Technology (WEST) was contracted to conduct biological surveys and prepare survey reports to support the environmental review documents, including an investigation for the presence of wetlands and water bodies.

This report has been prepared to document a survey that was conducted for waters of the U.S. within the project area. The term "waters of the U.S." has been defined to include essentially all surface waters, including both those connected to a surface tributary system and isolated waters that are not part of a tributary system. The definition also includes wetlands. Development in any waters of the U.S. is subject to the permit requirements of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (1972). A summary of the wetland delineation methodology and results is provided below.

METHODS

WEST biologists surveyed the project site from August 2-3, 2007 for waters of the U.S. The survey area included the area encompassed by a 400-foot corridor along proposed turbine strings (200 feet to either side) and a 100-foot corridor (50-feet to either side) of proposed and existing identified access roads. Waters of the U.S. that were located within these areas were delineated on an aerial photograph of the site and then digitized in the office using ArcView 9.0. During the digitization effort, identified waterbodies were extended out (downstream) to the project boundary.

Prior to conducting the survey, U.S. Geological Survey (USGS) topographic maps, soil survey information from the Natural Resource Conservation Service (NRCS), and U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps for the survey area were reviewed. Preparation of this report complies with guidelines issued by the Regulatory Branch of the Sacramento District, USACE, titled *Minimum Standards for*

Acceptance of Preliminary Wetland Delineations and a guidance letter issued by the Wyoming Regulatory Office, USACE, dated 1996.

Wetlands were delineated in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). This manual emphasizes a three-parameter approach to identify wetlands that may be federally regulated, including the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. These criteria were applied to establish the presence and extent of wetlands. The delineated wetlands were classified according to methodologies set forth in *Wetlands and Deepwater Habitats of the United States* (Cowardin *et al.*, 1979).

Vegetation. Plants observed at a given survey location were identified to species using *The Jepson Manual* (Hickman 1993) which is a standard flora guide appropriate for California. Plant species nomenclature and indicator status were assigned according to the *National List of Plant Species that Occur in Wetlands: National Summary* (Reed 1988) and the *National List of Plant Species that Occur in Wetlands: Northwest Supplement (Region 0)* (Reed 1993). A list of species was then compiled for the survey area and an assessment of the dominant species was made. It was then determined if the survey area supported wetland vegetation. The 1987 manual frequently uses the term "dominant vegetation" but provides no definition. The term is defined by the 1989 Federal Manual for Identifying and Delineating Wetlands, as those species the dominance measures of which, when added together, immediately exceed 50% of the total dominance measure, plus those individual species which contribute 20% or more of the total dominance measure. This definition was used for this project.

Wetland indicator species are so designated according to their frequency of occurrence in wetlands (Table 1). For instance, a species with a presumed frequency of occurrence of 67 percent to 99 percent in wetlands is designated a facultative wetland indicator species.

Table 1. Plant Wetland Indicator Status Categories*

Indicator Category	Symbol	Frequency of Occurrence
OBLIGATE	OBL	Greater than 99%
FACULTATIVE WETLAND	FACW	67-99%
FACULTATIVE	FAC	34-66%
FACULTATIVE UPLAND	FACU	1-33%
UPLAND	UPL	Less than 1%

* Based upon information contained in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987).

Obligate and facultative wetland indicator species are hydrophytes that occur “in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present” (Environmental Laboratory 1987). Facultative indicator species

may be considered wetland indicator species when found growing in hydric soils that experience periodic saturation.

Soils. Where possible, the top 22 inches of the soil profile was examined for hydric characteristics. Such characteristics include the presence of organic soils (histosols), histic epipedons, aquic or peraquic moisture regime, presence of soil on hydric soil list, mottling indicated by the presence of gleyed or bright spots of colors (in the former case, blue grays; in the latter case, orange red, or red brown) within the soil horizons observed. Mottling of soils usually indicates poor aeration and lack of good drainage. Munsell Soil Notations (Kollmorgen Instr. Corp. 1990) were recorded for the soil matrix for each soil sample. The last digit of the Munsell Soil Notation refers to the chroma of the sample. This notation consists of numbers beginning with 0 for neutral grays and increasing at equal intervals to a maximum of about 20. Chroma values of the soil matrix which are one (1) or less, or two (2) or less when mottling is present, are typical of soils which have developed under anaerobic conditions caused by saturation.

In sandy soils, such as alluvial deposits in the bottom of drainage channels, hydric soil indicators include high organic matter content in the surface horizon and streaking of subsurface horizons by organic matter.

Hydrology. Each of the survey areas was examined for positive field indicators of wetland hydrology. Such indicators include visual observation of inundation and/or soil saturation, watermarks, drift lines, water-borne sediment deposits, water-stained leaves, and drainage patterns in wetlands

RESULTS

No wetlands were identified within the survey area. One waterbody meeting the criteria for waters of the U.S. was surveyed on site (Figure 1, Appendix A - photo 1). No hydrophytic vegetation (and thus no wetland habitat) was observed along this drainage within the survey area. The drainage is lined with a nearly impenetrable thicket of manzanita and ceanothus, with an understory of grasses and forbs. The waterbody featured a defined bed and bank, with a 2-foot channel width (ordinary high water mark - OHWM). USGS topographic maps show a spring along this drainage located further downstream and outside the project boundary. It is likely that the drainage supports wetland vegetation in the vicinity of the spring or further downstream. The waterbody intersects an existing road that may require improvement (e.g., widening, realigning) if used for the project, but was outside the survey corridors for proposed turbines and new roads. The drainage is currently culverted at the road intersection. Improvement of the road for the project is likely to include widening and extension of the culvert. A Section 404 permit from the ACOE may be required for road improvement activity along this water of the U.S., but the determination as to whether or not the channel is jurisdictional remains the sole responsibility of the USACE.

A large depression approximately 40 feet wide by 100 feet long was observed along the ridge in the central portion of the site (Figure 1, Appendix A - photo 2). The depression is between 1 and 2 feet deep and is likely man-made, as an old tread of a track vehicle was observed within it. No inlet channels were observed around the depression. The lowest area within the depression featured scattered prostrate knotweed (*Polygonum aviculare*; FAC) and sand spurrey (*Spergularia rubra*; FAC-). A soil pit was excavated in the lowest portion of the depression. The soil was a 10YR 2/2 silt loam from 0 to 16 inches, with no mottling. No hydric soil indicators were observed. With the absence of any hydric soil indicators and very marginal hydrophytic vegetation (FAC-, FAC), no wetland feature was collected. Furthermore, if a wetland had been present it would be considered an isolated wetland, and thus likely non-jurisdictional.

SUMMARY

This investigation identified one potentially jurisdictional channel (waters of the U.S.) within the Hatchet Ridge project area. The ultimate determination as to whether or not a given channel is jurisdictional remains the sole responsibility of the USACE. In order to gain concurrence from the USACE, the methods and results sections of this wetland report and corresponding map should be submitted to the Sacramento District of the USACE, along with a letter requesting a jurisdictional determination of the mapping. Once the USACE has made a final determination and concurs that the map and data accurately represent the location and status of waters of the U.S. on the subject property, the report will be kept on file at the USACE Office, and will serve as official reference regarding jurisdictional wetlands for the subject property. Once a determination is made regarding the appropriateness of permitting for a project at Hatchet Ridge, it will be necessary to submit a 404 permit application using the agreed to jurisdictional delineation.

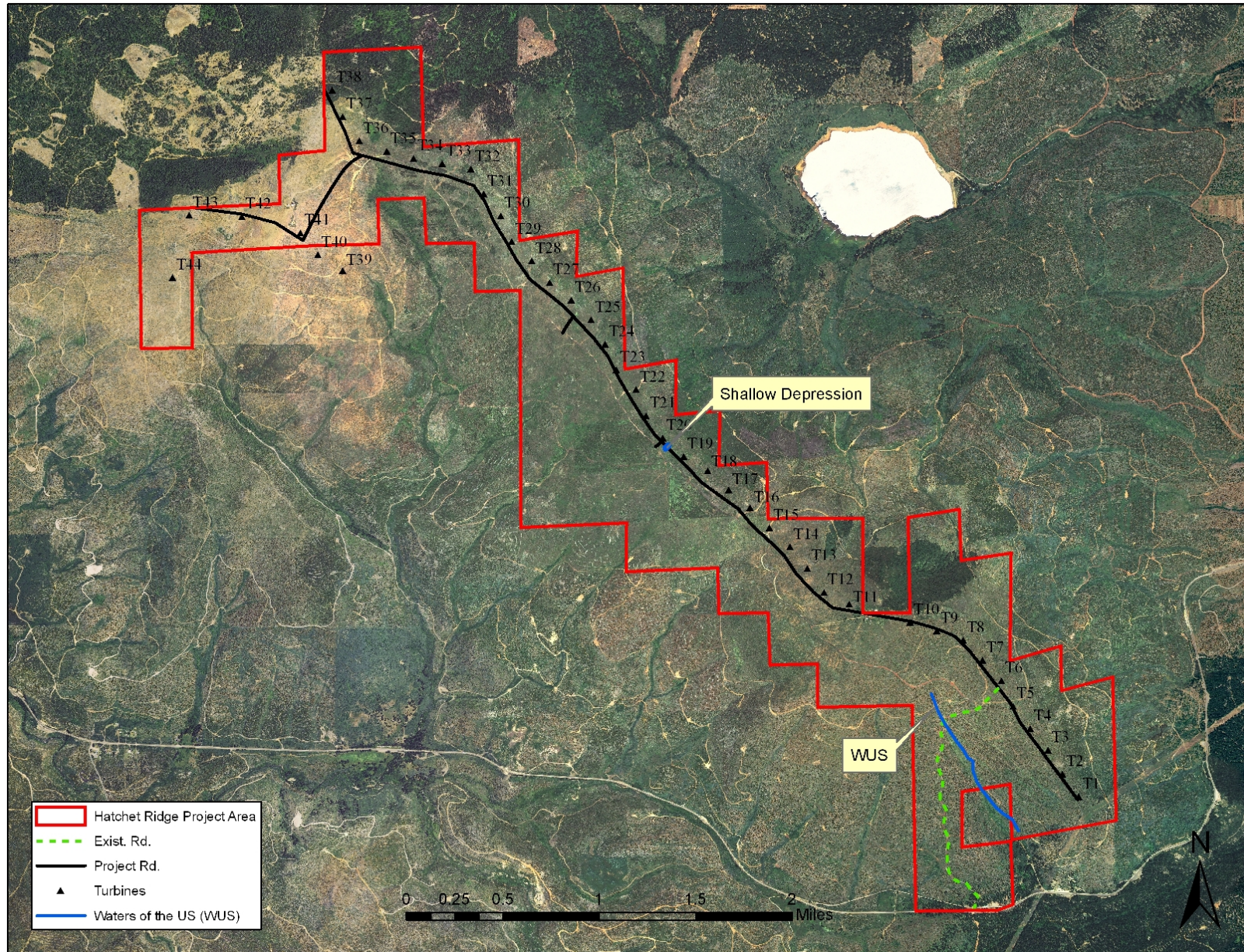
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Figure 1. Surface waters identified in the proposed Hatchet Ridge Wind Energy Project area.



**Appendix A. Photos of Potential Waters of the U.S. Encountered During the 2007
Hatchet Ridge Wind Project Wetlands and Other Surface Waters Survey**

Photo 1 – Intermittent Drainage Channel



Photo 2 – Isolated large depression

