FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT #OR-035-08-01
LIME WIND PROJECT
OR-64395

While any land management activity invariably and by definition entails environmental effects, I have determined, based upon the analysis of environmental impacts contained in the referenced EA (OR-035-08-01), that the potential impacts raised by the proposed action (which is to issue Joseph Millworks Inc. a right-of-way grant authorizing the right to install, operate, and maintain a wind development project on public lands and to also issue a right-of-way grant to Idaho Power Company authorizing the right to build, operate and maintain an overhead utility corridor from their existing line on private property across BLM lands to the Lime Wind Project) will not be significant and that, therefore, preparation of an environmental impact statement is not required.

In relation to context, I find that the project's affected regions is localized and the effects of implementation are relevant to people recreating and living in the area. There would be no societal or regional impacts and no impacts on potentially affected interests.

I have evaluated the effects of the proposed action, together with the proposed mitigating measures, against the tests of significance found at 40 CFR 1508.27. I have determined that:

1. The proposed action would cause no significant impacts, either beneficial or adverse; all impact would be minimal; most would be of short duration.
2. The proposed action would have no effect on public health or safety.
3. The proposed action would not affect unique characteristics of the geographic area.
4. The proposed action would have no highly controversial effects.
5. The proposed action would have no uncertain effects and would not involve unique or unknown risks.
6. The proposed action is a routine and common project and does not establish a precedent for future actions.
7. The proposed action is not related to any other action being considered by BLM.
8. The proposed action would have no adverse effect to any property listed on or potentially eligible for listing on the National Register of Historic Places.
9. The proposed action would not significantly adversely affect an endangered or threatened species, or any habitat critical to an endangered or threatened species.
10. The proposed action does not violate any law or requirement imposed for the protection of the environment.

Appeal Rights

This decision may be appealed to the Interior Board of Lands Appeals, Office of the Secretary, in accordance with the regulations contained in 43CFR, Part 4 and Form 1842-1. If an appeal is taken, a notice of appeal must be filed in this office (BLM, 3285 11th Street, Baker City, Oregon, 97814) within 30 days from that notice of this decision is published in the Baker City Herald. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition (request), pursuant to regulation 43 CFR 4.21 (58FR 4939, January 18, 1993), for a stay (suspension) of effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Except as otherwise provided by law or other pertinent regulation, a petition for a stay a decision pending appeal shall show sufficient justification based on the following standards:

(1) The relative harm to the parties if the stay is granted or denied,

(2) The likelihood of the appellant's success on the merits,

(3) The likelihood of immediate and irreparable harm if the stay is not granted, and,

(4) Whether the public interest favors granting the stay.

_____ _____

Nancy Lull Date
Field Manager
Baker Field Office, Vale District BLM

ENVIRONMENTAL ASSESSMENT
OR-035-08-01
LIME WIND PROJECT
OR-64395

TABLE OF CONTENTS

1) INTRODUCTION

1.1 Background:

On June 6, 2007 Randy Joseph, amended to Joseph Millworks Inc., of Baker City Oregon, submitted a Right-of-Way (ROW) application to install wind turbines on Federal Lands to the Bureau of Land Management's (BLM) Baker Field Office. The project location is near Lime Oregon on BLM administered lands in section 36, T.13S., R. 44 E, Willamette Meridian, Oregon. The Lime Wind Project would include installation of twelve 250 Kilowatt (KW) wind turbines on these lands**.**

Joseph Millworks, Inc currently has an existing Right-of-Way Grant issued by the BLM for a wind test tower (OR-63195).

1.2 Type of Action:

Issuance of Right-of-Way Grants.

1.3 Purpose of and Need for Proposed Action:

On August 8, 2005, President Bush signed into law the Energy Policy Act of 2005 (P.L. 109-58). Section 211 of the Act states, "It is the sense of the Congress that the Secretary of the Interior should, before the end of the 10-year period beginning on the date of enactment of this Act, seek to have approved non-hydropower renewable energy projects located on the public lands with a generation capacity of at least 10,000 megawatts of electricity."

The Lime Wind Project falls below the Oregon Department of Energy, Siting Standards for Wind Energy Facilities threshold of 105 Megawatts, therefore the Oregon Energy Facility Siting Standards do not apply. (Oregon Department of Energy, 2007) Wind energy facilities under 105 Megawatts fall under local jurisdiction, however as this project is located on federal land, Baker County Zoning and Subdivision Ordinances do not apply. The project would be required to meet building code and electrical code requirements approved by the Oregon Building Codes Division as administered by Baker County (Baker County Planning and Community Development Department, 2008).

The purpose of the Lime Wind Project is to provide clean renewable energy while providing a model for community wind development[1] on public land. This project would be in direct

[1] "Community wind" refers to a method of wind energy development that intentionally seeks to optimize local benefits. For purposes of this report, "community wind" includes locally owned wind projects that sell or offset energy on the electric grid. For a project to be locally owned, community members must have a direct financial stake in the project beyond just land leases or local tax revenue. For example, a community wind project could include several local landowners banding together to purchase multiple turbines and share in a larger investment, or it could be a local school district purchasing and operating a turbine behind a school building. Community wind directs the benefits of wind development to rural communities and local

correlation with the President's Energy Policy Act because it is a non-hydropower renewable energy project located on public lands.

1.4 Location of Proposed Action:

Baker County, Oregon.
Township 13S., Range 44E., N1/2 of Section 36
(See Exhibit I)

1.5 Conformance with Applicable Land Use Plan:

The proposed action is located within the boundaries of the BLM's Baker Field Office of the Vale District. The Baker Resource Management Plan (1989) was written to include the project area which is in the Baker County Geographic Unit. On page 117, the plan specifies "Maintain the availability of public lands for utility and transportation corridors and local rights-of-way."

The BLM initiated the preparation of a Programmatic Environmental Impact Statement (EIS) in October 2003 to address the impacts of the future development of wind energy resources on public land. A Record of Decision (ROD) was signed on December 15, 2005, to implement the Best Management Practices (BMP) and land use plan amendments identified in the Programmatic EIS. A Notice of Availability of the ROD was published in the Federal Register on January 11, 2006. This Environmental Assessment (EA) would tier to the appropriate sections of the Programmatic EIS.

The proposed action is in conformance with the terms and conditions of the applicable BLM Land Use Plan as required by 43 CFR 1610.5.

1.6 Relationship to Statutes, Regulations or Other Plans:

The subject application was made in accordance with Title V of the Federal Land Policy and Management Act of 1976 as amended (43 U.S.C. 1761) and the regulations found in 43 CFR 2800. These regulations would govern the granting of the ROW (if approved), determination of cost reimbursement, determination of the rental value, and the compliance and monitoring requirements.

Right-of-way decisions become effective upon approval by the authorized officer (43 CFR 2801.10 (b).

This document has been prepared in accordance with the National Environmental Policy Act (NEPA) (42 United States Code [USC] §4321 et seq.); CEQ regulations, as amended (40 Code

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landowners. While any wind development diversifies the local economy and brings jobs and extra income to the landowners, direct local investment in the project brings significantly higher returns than wages or lease payments. Community wind development also has particular advantages over other forms of wind energy development, such as tapping a new and lower cost source of capital, maximizing public support for the project, and increasing overall distributed energy generation and price stability. (Shoemaker, 2006)

of Federal Regulations [CFR] §1500 et seq.); BLM NEPA Handbook (BLM Manual H-1790-1); and BLM Wind Energy Development Policy Instruction Memorandum (IM) 2006-216. IM 2006-216 provides guidance on implementing the Record of Decision for the Final Programmatic EIS on Wind Energy Development (BLM 2005) and guidance on processing ROW applications for wind energy projects on public lands administered by BLM. This EA is intended to tier off of the Programmatic EIS and may, in whole or in part, be used to fulfill other federal, state, and/or local requirements.

The Proposed Action is consistent with other federal, state, and/or local plans and programs. Prior to construction, Joseph Millworks, Inc. would obtain all relevant federal, state, and local government permits and/or licenses, and the Proposed Action shall be consistent with federal, state, and local laws, regulations, and plans to the maximum extent possible. Below is a list of agencies that would be involved:

1. Federal Energy Regulatory Commission: Form 556 Certification of Qualifying Facility Status
2. Oregon Department of Environmental Quality: National Pollution Discharge Permit
3. Baker County: Upgrade of Marble Creek Road
4. State Building & Electrical Inspectors in affiliation with Baker City/County Building Department
5. Oregon Building Codes Division administered by Baker City/County Building Department
6. Idaho Power Company: agreement To Be Determined

Baker County Zoning & Subdivision Ordinance #83-3 Section 105 does not apply to land managed by agencies of the federal government i.e. Lime Wind Project (**Exhibit X**).

1.7 Scoping

Several issues were identified as a result of interdisciplinary team discussions, input from Joseph Millworks Inc., and public scoping. BLM and Joseph Millworks Inc. conducted a public scoping meeting in Baker City, Oregon on October 17, 2007 to identify issues, concerns, and opportunities. A notice of the meeting was published in the local newspapers and a letter and map describing the proposed project, requesting input on the proposed project, and identifying the meeting time and place, were sent to the following groups:

- Agencies having jurisdiction and/or specific interest within the proposed project area
- Landowners within the proposed project area
- Oregon California Trails Association

The information gathered from these activities helped to identify issues and plan mitigation for the proposed Project. The following is a description of those issues:

- Minimize impacts to local grazing schedules
- Evaluate visual impacts
- Avoid negative impacts to resident and migrating wildlife

As part of the scoping process and to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, a letter requesting input on the proposed project and a proposed project map were sent to the Oregon State Historic Preservation Office and the following tribal governments with an interest in the area:

- Confederated Tribes of the Umatilla Indian Reservation
- Burns Paiute
- Nez Perce

2) PROPOSED ACTION AND ALTERNATIVE(S)

2.1 Description of Proposed Action:

The proposed action is to issue the applicant, Joseph Millworks Inc. of Baker City Oregon, a right-of-way (ROW) grant authorizing the right to install, operate, and maintain a wind development project on public lands. This ROW will include twelve wind turbines, six transformers, two electrical collectors, access roads, buried utility corridor and electrical line extension.

The proposed project includes issuing a ROW grant to Idaho Power Company authorizing the right to build, operate and maintain an overhead utility corridor from their existing line on private property across BLM lands to the Lime Wind Project. The Idaho Power Company line extension from their existing distribution line to the collection point at the Lime Wind Project will be a total of approximately 3000 feet with poles placed approximately 200 feet apart for a total of approximately 15 poles, 13 poles on public lands and 2 on private. The poles will be placed adjacent to the proposed roadway; will be 35 feet tall and will follow standard raptor-safe construction practices used by Idaho Power Company. At the interconnection point, the point where the Lime Wind Project's generated power connects with the Idaho Power Company's line extension there will be a collection area with locked pad mounted devices, further described in Section 2.1.4.

The wind turbines for the Lime Wind Project would be twelve Mitsubishi 250 KW wind turbines. Wind turbines would be mounted on 30 meter towers that would rest on concrete foundations. Turbine rotors would have a 15 meter radius, extending the full height of the turbine to 45 meters (148 feet) (**Exhibit VI**).

Anticipated annual electrical power production would be 8,229 megawatt hours. This is enough power to supply 800 homes with electricity annually. Generated electrical power would be sold to or through Idaho Power Company under the guidelines of the Public Utility Regulatory Policy Act (PURPA).

The applicant requests a thirty year right-of-way term renewable for an equal term thereafter.

A total of 8.89 acres would be initially disturbed by both Proposed ROWs, with a total of 3.20 acres permanently disturbed after the reclamation process.

The foundations and towers would have a fifty to one hundred year working life with regular maintenance.

2.1.1 Sequence of Construction Activities

Joseph Millworks Inc. would not initiate any construction or other surface disturbing activities on the public land portion of the ROW until after issuance of the BLM grant by the Authorized Officer. Such authorization would consist of a written Notice to Proceed (form 2800-15). Joseph Millworks would conduct all activities associated with the construction and operation of the ROW within the authorized limits of the ROW and in strict conformity with the POD. A copy of the complete ROW grant, including all stipulations and approved POD, would be made available on the ROW during construction.

The construction of the proposed project would follow the sequence of:

1. Baker County road and bridge work
2. Turbine foundation excavation and fencing
3. Graveling of road system with overburden from excavation
4. Forming and pouring of turbine foundations
5. Backfilling and tamping of turbine foundations
6. Excavation, forming, and pouring of pads for electrical collectors and transformers
7. Trenching for electrical wiring
8. Laying of wire, backfilling and tamping trenches
9. Installation of electrical collectors and transformers
10. Transportation of turbines to respective sites
11. Erection of turbines
12. Turbine wiring and connection
13. Reseeding and reclamation
14. Commissioning of turbines

Table 1 shows this preliminary construction schedule

Table 1. Preliminary Construction Schedule 2009

Task	**Time Frame (Months)**					
	May	June	July	August	September	October
County Road/Bridge Work	7/1 -----7/15					
Excavation			7/15 ---- 8/1			
Rocking Road System			7/15 ---- 8/1			
Foundation Pouring			7/15 ---------- 8/15			
Foundation Backfilling			7/15 ---------- 8/15			
Collector/Transformer Pads				8/1 ---8/15		
Trenching			7/15----- 8/1			
Laying Wire				8/1 -- 8/15		
Collector/Transformer Installation				8/15 ------9/1		
Turbine Transport				8/1 ---------- 9/1		
Turbine Erection				8/15 ----------10/1		
Turbine Wiring					9/1 ---------- 10/1	
Reseeding and Reclamation						10/1 ------- 11/1

2.1.2 Wind Turbine Pad Area Construction

Wind turbine pad areas (pad area is total area needed for equipment to excavate and construct turbine foundations, access wind turbine components and erect wind turbines) would be prepared by clearing approximately 40 feet by 120 feet (0.11 acre) for individual pads. See **Exhibit III** for specific wind turbine locations. Turbine pad locations would be cleared of vegetation and topsoil (up to 12 inches), which would be stockpiled for future use in reclamation. The turbine pad location would be leveled using standard cut-and-fill construction techniques. The typical turbine pad would disturb no more than 0.11 acres during construction. Once construction activities are complete and when production ensues, turbine pads would be partially reclaimed (for operational purposes) resulting in life-of-project disturbance of 0.03 acres per turbine pad.

Foundations for wind turbines would require excavation within the turbine pad area. These excavations would be 10 feet deep by 25 feet long by 25 feet wide. The depth of the excavation may vary depending on the parent material encountered. Below are photos of the type of foundation that would be utilized for the project wind turbines.

During foundation construction activities, a 5 foot high chain-link fence would be installed to prevent wildlife and recreationalists from entering the excavation.

2.1.3 Transformer and Electrical Collector Pad Construction

Transformer and Electrical Collector pads would be prepared by clearing an area approximately 25 feet by 25 feet (0.01 of an acre) for individual pads. See **Exhibit III** for specific pad locations. These locations would be cleared of vegetation and topsoil (up to 12 inches), which would be stockpiled for future use in reclamation. The pad location would be leveled using standard cut-and-fill construction techniques. The typical pad would disturb no more than 0.01 of an acre during construction. Once construction activities are complete and when production ensues, pads would be partially reclaimed (for operational purposes) resulting in life-of-project disturbance of 0.005 of an acre per transformer and electrical collector pad.

Foundations for transformer structures would require minor excavation within the pad area.

These excavations would be 1 to 2 feet deep by 15 feet long by 15 feet wide. A concrete slab to support the 12 foot x 12 foot prefabricated structure would be cast in place.

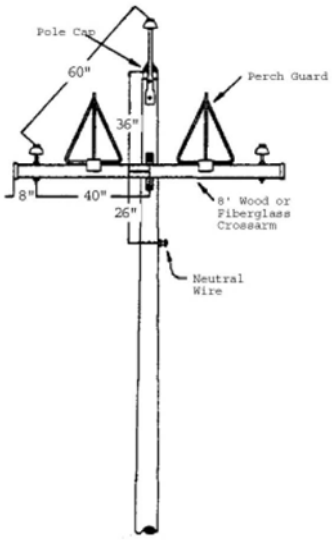
2.1.4 Overhead Transmission Line Construction

The overhead transmission lines are adjacent to the existing road system therefore creating no additional disturbance. The overhead transmission lines would be included in the Idaho Power Company's ROW.

Electrical lines would interconnect to the existing Idaho Power Company distribution lines 500 ft. north of the BLM gate at Marble Springs. The existing distribution line would be rebuilt by Idaho Power to carry the generated electrical power to Idaho Power's Lime substation.

A new above-ground line extension of 3000 feet would be built and owned by Idaho Power from their existing distribution line to the Lime Wind electrical collectors with a total of approximately 15 power poles. The line extension is located with approximately 500 feet on private land and 2500 feet on BLM land; with power poles spaced approximately 200 feet apart, 2 poles would be erected on private land and 13 poles erected on BLM land. All transmission and utility work on private property is allowed through Baker County Recorded Easement from Paul Vaden to Joseph Millworks, Inc. (B08 15 0247).

The overhead line would be constructed following standard raptor safer construction practices which includes diverters on power poles and lines used by Idaho Power. Examples of a raptor safer construction type are shown below. The specific construction practice selected for the line extension would be chosen to discourage raptor perching and be implemented by Idaho Power Company.



2.1.5 Collection System Construction

Overview

The proposed Lime Wind project consists of installing twelve 250kW Mitsubishi wind generators and connecting these generators through a combined underground and overhead high voltage electrical system to the Idaho Power Lime Substation.

Collection System

The twelve 250kW generators would connect in pairs to 500kVA pad mounted transformers to step up the generator output voltage, 480V, to the Idaho Power standard voltage of 12,470V. These transformers are of a three phase configuration. A similar transformer is shown below.

From each generator to its associated step-up transformer would be installed four direct buried 600Vrated insulated wires (shown below). These wires would have 500kcmil aluminum conductors and cross linked polyethylene (XHHW) insulation. Depth of burial for the conductors would be in accordance with the National Electric Code of 24” cover.

At each step-up transformer, the high voltage collector wires would connect inside the pad mounted transformer enclosure and extend to the next pad mounted transformer or device in the system. This cable would be 15kV jacketed concentric neutral cable with 220mil ethylene propylene rubber insulation and a #2 AWG aluminum conductor. The three direct buried high voltage wires would be installed at a depth as required by the National Electric Safety code of 30” minimum cover. A single typical high voltage wire is shown below.

All underground electrical cable routes would be placed in trenches approximately 2 feet wide and 4 feet deep following the access roads to facilitate installation and maintenance as shown in **Exhibit III.**

At the point of interconnection to the Idaho Power overhead power line, two pad mounted devices may be required by Idaho Power. One would be a high voltage metering cabinet. The other would be a high voltage fault interrupter. The metering cabinet would provide the electric metering required by the interconnection agreements between Lime Wind and Idaho Power. See a photo of a typical device below.

The fault interrupter would provide protection of the Idaho Power electric system from faults in the Line Wind electrical equipment. See a photo of a typical device below.

Near the meter and fault interrupter, the three underground cables would rise in a conduit mounted to an Idaho Power electrical pole for attachment to the Idaho Power overhead lines. A

typical “riser” on a power pole is shown below.

Foundations for electrical collector structures would require minor excavation within the pad area. These excavations would be 1 to 2 feet deep by 15 feet long by 15 feet wide. A concrete slab to support the 12 foot x 12 foot prefabricated structure would be cast in place.

2.1.6 Turbine Erection

The turbines would arrive via I-84 using three trucks per turbine for a total of 36 truckloads. These trucks would be offloaded at an existing turn-out at the bottom of Marble Creek Road within Baker County’s existing 60 foot right-of-way. Each load would be transferred to a converted logging truck to be driven to its designated position at the site. A crane would be utilized to raise the two base sections of the turbine, the nacelle, and each of the three blades. Flaggers would be utilized on public roads when and where necessary for safe transportation of this equipment and/or materials.

2.1.7 Road Design Factors

The proposed action requires the use of existing roads, construction of new access roads, and construction of wind turbine pads, wind turbine foundations, transformer pads, electrical collector pads, and underground power-lines.

The proposed road system utilizes existing state and federal highways and the Baker County

Marble Creek Road. It traverses through private property (per Easement Agreement Vaden to Joseph Millworks - B08 15 0247) to access BLM lands at Marble Springs. This road has developed over the years through dispersed recreation and permittee use and, with some minor improvements, would be suitable for necessary construction and maintenance activities required for this project. See **Exhibits III & IV** for road and infrastructure locations.

2.1.8 Surface Disturbance Summary

Table 2:

Facility	Length (feet)	Width (feet)	Initial Disturbance (Acres)	Post-Reclamation Disturbance (Acres)
New and existing two-track roads (A to B) (private land)	1180	20 (initial) 14 (LOP)*	0.61	0.42
New and existing two-track roads (B to D)	2730	20 (initial) 14 (LOP)	1.25	0.88
Existing two-track roads (D to E)	1250	20 (initial) 14 (LOP)	0.57	0.40
Existing two-track roads (C to F)	690	20 (initial) 14 (LOP)	0.32	0.22
Existing two-track roads (D to G)	2360	20 (initial) 14 (LOP)	1.08	0.76
Turnout	100	14 (LOP	.03	.03
Proposed Special Purpose Roads (Access to Turbines 3 and 4)	280	20 (initial) 14 (LOP)	0.13	0.09
Proposed Utility Corridor From Collectors to Transmission Lines (Paralleling existing roads)	5275	20 (initial) 0 (LOP)	2.42	0.0
Proposed Utility Corridor From turbines to transformers (Paralleling existing roads and pads)	2350	20 (initial) 0 (LOP)	1.08	0.0
Each Wind Turbine Pad 12 total	120 (initial) 60 (LOP)	40 (Initial) 20 (LOP)	0.11 per pad 1.32 total	.03 per pad 0.36 total
Each Transformer Pad 6 total	25 (initial) 15 (LOP)	25 (initial) 15 (LOP)	0.01 per pad 0.06 total	0.005 per pad 0.03 total
Each Electrical Collector Pad 2 total	25 (initial) 15 (LOP)	25 (initial) 15 (LOP)	0.01 per pad 0.02 total	0.005 per pad 0.01 total
* LOP is Life-of-Project			8.89	3.20

Following is a general discussion of proposed construction techniques that will be used to implement the Proposed Action. These construction techniques would be generally applicable to roads, wind turbine pads, wind turbine foundations, transformer pads, electrical collector pads, and power lines.

2.1.9 Road Construction

No work is needed on existing State or Federal Highways to access the Lime Wind site. The existing bridge spanning Marble Creek will need re-decked prior to the hauling of heavy equipment or concrete to the site. The bridge is owned by Baker County and all work will be done with full knowledge and participation of Baker County. The bridge was inspected by Cahill Engineering in the spring of 2008 and was determined to have deterioration of the wooden planks and girders sufficient to require re-decking prior to heavy equipment traffic. The existing concrete foundations were found to be in good and serviceable condition. Marble Creek is a seasonal creek carrying spring run-off and is dry the majority of the year. The equipment used for the re-decking will work from the existing roadway and will not enter the stream bed. The exiting stream channel is buttressed on either side with concrete in good condition that acts as the support for the bridge deck. The existing wooden girders and deck will be removed and a new, 2 section, pre-cast concrete deck, 10 feet by 12 feet, will be installed. The reconstructed bridge's life span would be equal to the life of the project; therefore there would be no need to replace the bridge again during the project. All removed material would be disposed of in an appropriate disposal site. Marble Creek Road would be graded by Baker County within the existing 60 foot right-of-way.

The existing 1180 feet of private road system from Marble Creek Road to BLM administered lands in Section 36 would be graded and realigned, including 400 feet of new road to the east of the existing route. The proposal also includes the installation of a cattle-guard and necessary fence at the property line indicated on **Exhibit III**.

Roads constructed and/or improved on BLM lands would include 480 feet of new road 80 feet to the east of Marble Spring, to minimize impact to Marble Spring. The existing 7030 feet of two-track roads required for use by the Lime Wind Project would require some initial pre-construction maintenance to become suitable for construction traffic. Most of this maintenance would be in the form of blading and rolling to smooth and compact the running surface.

The 280 foot access to Turbines 3 and 4 would be via a new road constructed from Turbine 2 to the northwest to Turbine 4 (see **Exhibits III & IV**). This road would be constructed on flat slopes that would require minor brushing or mowing of vegetation and blading a route to the turbine locations.

The final roadway locations would be flagged and staked prior to construction for approval by BLM staff and the roads would be constructed to BLM standards utilizing "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03". These specifications can be found at "http://www.wfl.fha.dot.gov/design/specs/fp03.htm". These specifications include requirements for safety, and sediment and pollution control.

Road surface drainage would be controlled by out-sloping and constructed rolling dips installed at sufficient intervals to reduce road surface runoff. These road surface drainage techniques keep water from flowing down the roadway and diffuse any connectivity with adjacent stream courses.

Materials required for the surface running course would be obtained from commercial sources outside the project area unless suitable materials from wind turbine foundation excavations or utility corridor construction can be obtained.

Typical road construction equipment and materials would be utilized for the construction of this road. The types of equipment expected for use include; dozers, tracked excavators, graders, dump trucks and water trucks for dust abatement. Flaggers will be utilized on public roads when and where necessary for safe transportation of this equipment and/or materials.

Construction and maintenance activities would be prohibited during periods when severe rutting (creation of ruts in excess of 3" deep) or resource damage might occur. Preventive and corrective maintenance of roads in the project area throughout the duration of the Proposed Action would be ongoing. This may include shallow grading, cleaning ditches and drainage facilities, dust abatement, noxious weed control, or other requirements as directed by the BLM.

2.1.10 Construction Waste Disposal

Construction sites and access roads would be kept in an orderly condition throughout the construction period. Refuse and trash would be removed from the sites and disposed of in an approved manner. Oils or other chemicals would be hauled to an approved site for disposal. No open burning of construction trash would occur.

2.1.11 Site Reclamation

Disturbed areas within the ROW would be graded and reseeded as required by the BLM or property owner. The natural drainage pattern along the ROW would be restored as near as practical to the original pattern.

Work sites would be restored using excess materials, vegetation, and topsoil stockpiled for that purpose. Excess soil materials, rock, and other objectionable materials that cannot be used in restoration work would be disposed in a manner approved by the Authorized Officer.

2.1.12 Fire Protection

A Fire Plan would be prepared. It would document all the applicable fire laws and regulations to be observed during the construction period, including any BLM notice of restricted activities due to high fire danger. All personnel would be advised of their responsibilities under the applicable fire laws and regulations.

2.1.13 Operation and Maintenance

2.1.13.1 Operation and Maintenance of Road System

The newly constructed roads would become part of the BLM's specified road system and maintained according to the stipulations within the ROW.

Maintenance activities would include all work necessary to maintain the roadway to minimize erosion and runoff. The activities would include vegetation removal, surface replacement and maintenance, and slump and slide removal. A plan to maintain all roads for the proposed action would be submitted annually, or an agreed to interval, prior to use.

The road is not proposed as an all-weather road. Routine maintenance would require the use of track vehicles to access the site in winter and spring. Notification would be given to BLM for any work done requiring access of heavy equipment.

2.1.13.2 Operation and Maintenance of Remanufactured Mitsubishi 250 kW Wind Turbines

Daily (2 hours):
Download production and fault status from the remote communications system for failures that require immediate attention. These include loss of pump pressure, pitch feedback, and excess yaw. In addition to the remote communications system an alarm in the form of a flashing yellow light outside the tower indicates a fault condition during visual inspection.

Monthly (4 to 8 hours; 48-96 hours/year):

- Hub bolt torque check
- Wire and cable inspection
- Bearing and spindle grease application
- Generator/gear box coupling check
- Hydraulic and oil filter inspection
- Hydraulic and oil level maintenance

Quarterly (8 hours; 32 hours/year):

- Blade inspection
- Oil pump drive inspection
- High-voltage test of generator, yaw motor, and oil pump motor
- Tower bolt inspection, including tower to nacelle, mid-tower, and tower to foundation bolts

Yearly (8-40 hours):

- Full electrical and grounding test
- Yaw system check
- Foundation inspection
- Hydraulic system inspection
- Pressure washing of blades and towers

Equipment required for routine turbine maintenance would be limited to a water truck, pressure washer, man lift and truck. All equipment and tools would be kept offsite by the applicant.

2.1.14 Mitigation Measures

The mitigation measures discussed in this section are measures that the applicant would include as a part of the proposed project. These measures, designed to avoid or reduce the impacts of the proposed project, are organized by resource topic and discussed in detail in Sections 2 and 4 – Project Description and Environmental Consequences.

2.1.14.1 Measures Common to Several Resources

- If construction of wind energy facilities has not commenced within 2 years after the effective date of the grant or consistent with the timeframes of the approved POD, the right-of-way holder shall provide the BLM good cause as to the nature of any delay, the anticipated date of the construction, and evidence of progress toward commencement of construction. Failure to comply provides the Authorized Officer the authority to terminate the authorization (43 CFR 2807.17).

- The holder shall construct, operate, and maintain the facilities, improvements, and structures within this right-of-way in strict conformity with the plan(s) of development which was approved and made part of the grant. Any relocation, additional construction, or use that is not in accord with the approved plan(s) of development, shall not be initiated without the prior written approval of the authorized officer. A copy of the complete right-of-way grant, including all stipulations and approved plan(s) of development, shall be made available on the right-of-way area during construction, operation, and termination to the authorized officer. Noncompliance with the above will be grounds for an immediate temporary suspension of activities if it constitutes a threat to public health and safety or the environment.

- The United States retains the right to authorize use of the right-of-way for other compatible uses (including the subsurface and air space).

- The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, (43 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, et seq.) on the right-of-way (unless the release or threatened release is wholly unrelated to the right-of-way holder's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

- Ninety days prior to termination of the right-of-way, the holder shall contact the authorized officer to arrange a joint inspection of the right-of-way. This inspection will be held to agree to an acceptable termination (and rehabilitation) plan. This plan shall include, but is not limited to, removal of facilities, drainage structures, or surface material, recontouring, topsoiling, or seeding. The authorized officer must approve the plan in writing prior to the

holder's commencement of any termination activities.

- The holder shall conduct all activities associated with the construction, operations, and termination of the right-of-way within the authorized limits of the right-of-way.

2.1.14.2 Measures Regarding Cultural/Archeological Resources

- Any cultural and/or paleontological resource (historic or prehistoric site or object, or fossil) discovered by the holder, or any persons working on his behalf on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and mitigation, and any decision as to proper avoidance, protection or mitigation measures will be made by the authorized officer after consulting with the holder and others under Section 106 of the National Historic Preservation Act.

- Pursuant to 43 CFR 10.4(g), the holder of this authorization must immediately notify the authorized officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4 (c) and (d), the holder must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer. The BLM Authorized Officer will determine avoidance, protection or mitigation measures in consultation with the Holder, Oregon SHPO, and affected Tribes. Costs associated with the discovery, evaluation, protection or mitigation of the discovery shall be the responsibility of the holder.

- The holder shall notify the Authorized Officer at least **90** days prior to any non-emergency activities that would cause surface disturbance in the right-of-way. The Authorized Officer will determine if a cultural resource inventory, treatment or mitigation is required for the activity. The holder will be responsible for the cost of inventory, avoidance, treatment or mitigation; including any maintenance-caused damage. The Authorized Officer will determine avoidance, treatment and mitigation measures that are necessary after consulting with the holder and under Section 106 of the National Historic Preservation Act.

2.1.14.3 Measures Regarding Visual Resources

- Wind turbines, rotors, visible ancillary structures, and other equipment would be painted with a high quality non-reflective paint in an unobtrusive grey color that is found in the natural landscape.

- Commercial symbols, trademarks, and advertising messages would not appear on sites or ancillary structures.

- Tubular shaped towers would be used that present a simpler profile and less complex surface

characteristics

- Where feasible, electrical cables and transmission lines would be placed underground.

- Towers are 30 meters in height with 30 meter rotors, for an overall height of 45 meters. This height turbine requires no nighttime illumination by the FAA (See DOT/FAA/AR-TN05/50: Development of Obstruction Lighting Standards for Wind Turbine Farms)

2.1.14.4 Measures Regarding Biological Resources

- Unless otherwise agreed to by the authorized officer in writing, power lines shall be constructed in accordance to standards outlined in 'Suggested Practices for Avian Protection on Power lines, 'Raptor Research Foundation, Inc., 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication are 'eagle safe.' Such proof shall be provided by a raptor expert approved by the authorized officer. The BLM reserves the right to require modifications or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

- The holder shall be responsible for weed control on disturbed areas within the limits of the right-of-way. The holder is responsible for consultation with the authorized officer and/or local authorities for acceptable weed control methods (within limits imposed in the grant stipulations).

- Use of all pesticides (including fungicides, herbicides, insecticides, etc.) shall comply with the applicable Federal and State laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the holder shall obtain from the authorized officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the authorized officer. Emergency use of pesticides shall be approved in writing by the authorized officer prior to such use. BLM Policy requires that all applicators be certified or under the direct supervision of a certified applicator. Also, Oregon law requires the applicator to possess an Oregon Public Applicator's license when applying pesticides on public land.

- The holder shall seed all disturbed areas with a seed mixture and rate specified by BLM, using an agreed upon method suitable for the location. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS) per acre. There shall be no primary or secondary noxious weed seed in the seed mixture. Seed shall be tested and the viability testing of seed shall be done in accordance with state law and within 9 months prior to purchase. Commercial seed shall be either certified as Oregon weed seed free or registered seed. The seed container shall be tagged in accordance with state law and available for inspection by the authorized officer. The seeding shall be repeated until a satisfactory stand is established as determined by the authorized officer. If mulch is used on seeded areas, it

shall be certified weed free straw or hay.

- Holder shall remove only the minimum amount of vegetation necessary for the construction of structures and facilities.

- A monitoring program shall be developed to determine bird and bat strikes during the operational phase of the project. This program will include the reporting of any mortality to the BLM authorized officer immediately after identification by ODFW. Also, additional mitigation measures will be developed and implemented whenever unacceptable levels of mortality are observed.

- Facilities shall be designed to discourage use as perching or nesting substrates by birds.

- All construction employees shall be instructed to avoid the harassment and/or disturbance of wildlife, especially during reproductive (e.g. courtship and nesting) seasons.

- No construction activities will take place between March 1st and June 30th each year to prevent disturbance to several species of birds during mating and/or breeding seasons.

2.1.14.5 Measures Regarding Geology/Soils

- No construction or maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of 3 inches deep, the soil shall be deemed too wet to adequately support construction equipment.

- If necessary, the holder shall construct waterbars on all disturbed areas to the spacing and cross sections specified by the authorized officer. Waterbars are to be constructed to:

    1. Simulate the imaginary contour lines of the slope (ideally with a grade of one or two percent).
    2. Drain away from the disturbed area.
    3. Begin and end in vegetation or rock whenever possible.

- The holder shall recontour disturbed areas, or designated sections of the right-of-way, by grading to restore the site to approximately the original contour of the ground as determined by the authorized officer.

2.1.14.6 Measures Regarding Health, Safety, and Noise

- Construction sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

- The holder shall take such measures for prevention and suppression of fire on the grant area

and adjacent public lands or public lands used or traversed by the holder in connection with operations as are required by applicable laws and regulations.

- No hazardous wastes or fuel will be stored on site at any time.

- A traffic management plan shall be prepared for the site access roads to ensure that no hazards would result from the increased truck traffic and that traffic flow would not be adversely impacted.

2.1.14.7 Measures Regarding Land Use and Recreation

- The holder shall protect all survey monuments found within the right-of-way. Survey monuments include, but are not limited to, General Land Office and Bureau of Land Management Cadastral Survey Corners, reference corners, witness points, U.S. Coastal and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. In the event of obliteration or disturbance of any of the above, the holder shall immediately report the incident, in writing, to the authorized officer and the respective installing authority if known. Where General Land Office or Bureau of Land Management right-of-way monuments or references are obliterated during operations, the holder shall secure the services of a registered land surveyor or a Bureau cadastral surveyor to restore the disturbed monuments and references using surveying procedures found in the Manual of Surveying Instructions of the Survey of the Public Lands of the Unites States, latest edition. The holder shall record such survey in the appropriate county and send a copy to the authorized officer. If the Bureau cadastral surveyors or other Federal surveyors are used to restore the disturbed survey monument, the holder shall be responsible for the survey cost.

2.2 No Action Alternative

This alternative considers the environmental consequences of not undertaking the Proposed Action, and is to be used as a baseline against which the other alternatives may be compared. The No Action Alternative would reject the proponent's application for a BLM ROW grant. Therefore only existing land management activities will occur.

2.3 Alternatives Considered but Eliminated from Detailed Study

In accordance with 40 CFR 1502.14(a), all reasonable alternatives are required to be explored and evaluated. The following alternatives were considered but found to be unreasonable. Thus, these alternatives were eliminated from detailed study.

Construction of new access route: This alternative was based on the Proposed Action with a new route to access the project area. This alternative would have required an additional 6300 feet of new construction. It would have required significant earthwork activities and the construction of an approach off of the Marble Creek road that would have made access for heavy equipment difficult. Due to the cost and construction impacts, this alternative was dropped from further study.

Use of existing route adjacent to Marble Spring: This alternative would forgo the 480 feet of new road on BLM land plus 400 feet on private property constructed east of Marble Spring. Due to the potential impacts of runoff and compaction to Marble Spring by utilizing the existing roadway, this alternative was dropped from further study.

3) AFFECTED ENVIRONMENT

3.1 General Setting

The proposed project area is located in Baker County, Oregon on public lands that are administered by the Vale District's Baker Field Office of the Bureau of land Management. The Project area is approximately two miles east of Interstate 84 and 1.5 miles west of Brownlee reservoir. The town of Huntington, Oregon is located 3 miles southeast of the project area. Access to the project area is available from the Lime Exit at Interstate 84, proceeding east 2.5 miles on the county road, referred to as the Marble Creek Road, then approximately .25 miles south across a spur road on private land. There is not legal public or administrative access across the private land, however, Joseph Millworks has obtained an easement from the private land owner to build and operate the Lime Wind Project. The county road provides additional public access to BLM lands north and east of the project site.

Project area elevations range from 3700 feet to 4000 feet above sea level. While the project site is relatively level, adjacent topography is dominated by steep slopes and drainages that feed into the Burnt River to the west and Brownlee Reservoir to the east.

This site is in the area of the Burnt River watershed, which is a sub province of the Columbia Basin. Raymond (1991) indicates that the Blue Mountain physiographic province was formed from lava flows and geologic uplift. "The Grande Ronde valley started forming over 15 million years ago when the Columbia River basalt was erupting and laying down huge lava flows throughout the Columbia Basin. As the valley started to form, the lava filled in very quickly, covering both the valley floor and the surrounding ridges" (Reidel 2003, www.pnl.gov). This resulted in over 42,000 cubic miles of basalt (Orr and Orr 1996) covering the Columbia Plateau. The basalt flows redirected or blocked rivers and streams, creating sediment basins. The topography of the project area is hilly with minimal to steep slopes (ranging from 2-75% slopes) (NRCS 2008).

The proposed project area is within a non-forested rangeland ecosystem where the vegetation consists predominately of native shrubs, forbs, and grasses, with some non-native grasses introduced. The primary land uses are livestock grazing, wildlife habitat, and dispersed outdoor recreation. No cultivated agricultural lands occur within the project area.

Precipitation ranges from 9 to 20 inches annually with a total average annual precipitation of 13 inches per year. The majority of annual precipitation comes in the form of winter snow and spring rains. Summer precipitation is minimal although isolated thunderstorms are common to the area in July and August. In winter, the average temperature at Huntington is 32˚ F while the average summer temperature is 75˚ F.

Winds are common to the area especially on the exposed ridge tops where the wind turbines would be located. The project area has been identified as a Class 5 (Excellent) wind site on the Validated Oregon Wind Power Map (TrueWind Solutions, LLC, 2008).

Per BLM policy, Byron Schmidt, Chief, Airspace Management from the Mountain Home Air Force Base in Mountain Home, Idaho was notified to ensure that the proposed project would not interfere with the air space managed by the United States Air Force. No conflicts were indicated. Contact was made with the Idaho National Guard, who manages the adjacent airspace, and no concerns were brought forward.

3.2. Critical Elements of the Human Environment

Elements denoted by an "X" in the *not affected* column in the attached lists of Critical Elements of the Human Environment **(Exhibit VII)** are not affected by the proposed action or alternatives and would receive no further consideration. Elements which are present and are likely to be affected are discussed below.

3.2.1 Air Quality

The Oregon Department of Environmental Quality (DEQ) has jurisdiction of air quality programs over all counties in the state. The Oregon DEQ is the state regulatory agency whose job is to protect and enhance the quality of Oregon's Environment. DEQ monitors for Federal Clean Air Acts pollutants including Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), Ozone (O_3), Total Suspended Particulate (TSP), Fine Particulate (PM10 and PM2.5), and Lead (Pb). In support of that job, to protect air quality, the Air Quality Monitoring Section of the DEQ has established a network of monitoring and sampling equipment at sites throughout the state of Oregon. The closest monitoring site from the proposed project area is located in Baker City, Oregon. For 2006, Baker City experienced 329 "Good" air quality days, 25 "Moderate" days, 2 "Unsafe For Sensitive Groups" days, 0 "Unhealthy" days, and 9 days without data (Oregon DEQ, 2006).

3.2.2 Areas of Critical Environmental Concern – Oregon Trail ACEC

Portions of the Oregon Trail within the Vale District have been designated as an Area of Critical Environmental Concern for management and protection of historic trail traces and associated landscape. Three components of the Oregon Trail Areas of Critical Environmental Concern (ACEC) are located between 4-15 miles of the Lime Wind project.

The Birch Creek component of the ACEC includes traces of the Oregon Trail with a BLM interpretive wayside along Birch Creek. Existing visual impacts in the vicinity of Birch Creek include a livestock reservoir, buried communication line route, and the wayside located on an improved county road. The Tub Mountain component of the ACEC includes trail traces, the historic trail route, and landscape through the hills between Alkali Springs and Birch Creek. Except for livestock ponds and improvements to the county road, there are few modern intrusions along the Tub Mountain segment. The Chimney Creek component of the ACEC

includes route traces on an isolated parcel of BLM land with one buried utilities corridor located about ½ mile to the west. Both Birch Creek and Tub Mountain areas have public access over existing county roads. There is no public access to the Chimney Creek parcel.

The Lime Wind Project is not located on or adjacent to any segment of the Oregon National Historic Trail, nor is it within the boundaries of the Vale District Oregon Trail ACEC components. A viewshed analysis under Visual Resources will discuss the relationship between the Lime Wind Project and visibility from segments of the Oregon Trail.

3.2.3 Cultural Resources

On November 17, 2007, an intensive archaeological survey of 92.73 acres of the project area was conducted by Blue Mountain Consulting. The survey included roads, transmission lines and an area surrounding potential turbine locations on the BLM land. The survey also included a corridor along the county road that would be improved from near Lime, Oregon, to the project location. No archaeological resources were found during this survey. A modern bridge on the county road would be modified, but the bridge is not considered to be a historic resource. On June 13, 2008, an archaeological survey of 9 acres was conducted by the BLM for a proposed road realignment on the BLM land. A historic debris scatter and a rock feature were recorded, but both sites are located outside the project area. No archaeological resources were found within the project area during either survey. A portion of the new access road construction and a segment of the Idaho Power transmission line facility would cross approximately 500 feet of private land, which has not been surveyed for archaeological resources. This area was not surveyed because permission for surveys could not be obtained from the private land owners. (personal conversation with Randy Joseph)

A discussion of the Oregon Trail Area of Environmental Concern is provided above in Section 3.2.2.

3.2.4 Invasive, Non-native Species

In addition to cheat grass (*Bromus tectorum*), there are small amounts of white-top (*Cardaria draba*) on private land and BLM near the north edge of the project area. There were a few scattered thistles (not identifiable to species in this season) in a draw east of turbines #8-10, but they may be native thistles and not an invasive threat. About 75-200 feet south and southwest of turbine # 1, there were skeletal remains of last year's plants of a few Scotch thistle (*Onopordum acanthium*) and Russian thistle (*Salsola kali*), indicating a seed source which might expand into the project area if not monitored and treated. One substantial pocket of medusahead rye (*Taeniatherum canput-medusae*) occurs in the draw and slopes immediately north of Binder Spring. The medusahead is on both sides of the road that leads uphill to turbines # 1-4, but does not extend onto the hill top where the wind turbines are proposed to be sited.

A native species, curly-cup gumweed (*Grindelia squarrosa*), which tends to be invasive on compacted soils and roadbeds, is already present on all road and trail surfaces, and abundant in the lower basin and crested wheat seeding near Marble Creek Spring.

Heavy infestations of diffuse knapweed (*Centaurea diffusa*) have been identified on private land approximately one mile northeast of the project area. There is also a small infestation of rush skeleton weed (*Chondrilla juncea*) on BLM land approximately one mile from the project area.

3.2.5 Plants, Endangered/Threatened/Sensitive/Strategic

There no known vascular plants listed as threatened, endangered, a candidate species, or a species of concern by U.S. Fish and Wildlife Service (USFWS) or The Oregon Natural Heritage Program that potentially occur within the Lime Wind Energy Project. However, there are plant species that are considered Bureau (BLM) sensitive/strategic and State (Oregon Department of Agriculture) agency endangered. The species that are either known to occur or those where habitat is available are: Snake River/ray goldenweed (*pyrrocoma radiate*) and the Oregon princesplume (*Stanleya confertiflora*).

After a clearance survey, there were no known populations of Snake River/ray goldenweed or Oregon princesplume within the project area although there is vegetative habitat that may support these plant populations.

Snake River/ray goldenweed is known to occur on the ridges and slopes near the proposed project area. Recent BLM inventory information documents close populations that range from south of the Powder River near the Snake River to the vicinity of Huntington, and west to Huntington Junction and Malheur Reservoir. The vegetative community in which it occurs includes: bunchgrass and/or sagebrush-bunchgrass communities dominated by big sagebrush (*Artemisia tridentata)*/bluebunch wheatgrass (*Pseudoroegnaria spicata*), Idaho fescue (*Festuca idahoensis*), Great Basin wildrye (*Leymus* cinereus), blue wildrye (*Elymus glaucus*), and Sandberg bluegrass (*Poa secunda*). Elevation consists between 2000 and 4100 feet on all slopes and predominantly north aspects. Degraded plant communities infested with cheatgrass (*Bromus* spp.) may still support the Snake River/ray goldenweed. Although there is not a clearly defined soil type it has been found in sedimentary clays and mudstone, basaltic colluvium derived clay-loam, deep clay-loam in swales, and sites with high components of argillite bedrock stone on ridge tops. Its sparsely-rayed yellow flowers appear in June. Similar in appearance to young specimens of mule's ear (*Wyethia* spp.), Snake River/ray goldenweed may be identified by its glabrous-persistent leaves at all seasons. This perennial species has a deep taproot that has adapted to survive fire and re-sprouts each year from the root crown. Flower stalks are moderately palatable to livestock, deer, and elk, but the somewhat leathery leaves are rarely grazed until after native grasses have cured and become less palatable. Snake River/ray goldenweed has been observed to colonize the flat surface of old road cuts, indicating an ability to pioneer into disturbed habitat.

Oregon princesplume is a Bureau strategic/sensitive species. It occurs on sparsely vegetated white to yellow or gray clay outcrops. The nearest known population was found along the Snake River near the confluence with the Burnt River in Baker County. It is also known from one occurrence north of Baker City, and at scattered locations in Malheur County. It is an annual or biennial species that may be highly dependent on winter-spring moisture to germinate and develop. Its pale yellow flowers appear in May or June. Oregon princesplume has a large, weedy

appearance similar to other species of the genus, but can be distinguished by the form of its leaves whenever present.

3.2.6 Wastes, Hazardous or Solid

No wastes, hazardous or solid, have been located within the project area.

3.2.7 Surface Water and Groundwater Quality

There are no wetlands, riparian areas, or streams listed as impaired in Oregon's Section 303(d) located on the proposed project site. There is one existing spring (Marble Creek Spring) that is currently fenced off from grazing cattle.

3.2.8 Wilderness

No wilderness characteristics have been identified. Documentation of this finding has been recorded and is part of the administrative record of this EA. The existing land use allocations, uses, management actions, and/or mitigation measures that are currently in place included roaded activities which eliminate the proposed action area's ability to meet criterion required for wilderness characteristics. See Attachment B.

3.2.9 Wildlife

3.2.9.1 Migratory and Neotropical Birds

Oregon lies directly under a bird migration route know as the Pacific Flyway. This flyway covers coastline, mountains, and rivers that provide food, supplies, and a visual "map" for the birds to follow. Although project site is located east of the main migration corridor, a number of migratory bird species may pass through the project area during the spring or fall migration, or during other seasonal movements. These species can be grouped into five main categories: waterfowl, waterbirds, songbirds, raptors and nocturnal hunters. Examples of species that likely pass through the area within each of these main categories are listed below in **Table 3**. **Table 3** also provides the type of use likely exhibited by these species. The information in this table is derived from general area knowledge and not site-specific surveys.

Table 3. Migratory Birds That May Pass Through the Project Area.

Migratory Bird Group	Species Examples	Type of Likely Site Use
Waterfowl	Geese (*Branta canadensis, Chen hyperborea*), Swan (*Olor columbianus*)	Fly over the site; may stop at the nearby Brownlee Reservoir
Waterbirds	Curlew (*Numenius americanus*), Great blue heron (*Ardea herodias*)	Fly over the site; may stop at the nearby Brownlee Reservoir

Songbirds	Black-capped chickadee (*Parus atricapillus*), Sage sparrow (*Amphispiza belli*), Western meadowlark, (*Sturnella neglecta*).	Fly over the site, may also use site for resting, feeding, breeding
Raptors	Red-tailed hawk (*Buteo jamaicensis*), Golden eagle (*Aquila chrysaetos*), American kestrel (*Falco sparverius)*	Fly over the site, may also use site for foraging. Some individuals may use the area year-round and move only locally. There are no known raptor nests in the project area
Nocturnal Hunters	Common nighthawk (*Chordeiles minor*)	Fly over the site, may also use site for resting, feeding, breeding, and nesting

3.2.9.2 Upland Game Species

A number of upland game species may occur in the project area. These include:

- Upland game birds, such as chukar (*Alectoris chukar*) and California quail (*Lyphortyx californicus*), and

- Ungulates, such as American pronghorn (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), and elk (*Cervus canadensis*).

Surveys were not conducted for these species and they are listed as examples of upland game species that may occur in the area, with the exception of the deer and pronghorn, which are known to occur within the project area. The proposed project area lies within designated mule deer winter range. A resident herd of pronghorn antelope frequents the area.

3.2.9.3 Endangered/Threatened/Sensitive/Species of Concern

The following terrestrial wildlife are listed as threatened, endangered, a candidate species, or a species of concern by either U.S. Fish and Wildlife Service (USFWS) or the BLM that potentially occur within the Lime Wind Energy project. Species that are either known to occur or those where habitat is available are: greater sage-grouse (*Centrocerus urophasianus*), western burrowing owl (*Athene cunicularia hypugaea*), bald eagle (*Haliaeetus Leucocephalus*), ferruginous hawk (*Buteo regalis*), California bighorn (*Ovis canadensis californiana*), and several bat species. For a full list of species that fit this criteria within Baker County please see **Exhibit IX**. Within the USWFS designated lists, Oregon Fish and Wildlife (ODFW) and BLM have identified that 11 of these species may occur within the project area (**Exhibit VIII**).

The descriptions of these species, as well as the impact assessments, are based on published data regarding habitat requirements and distribution, as described and cited in each individual species sections and not field surveys.

Greater Sage-grouse. The greater sage-grouse is a Bureau sensitive species, and habitat is available throughout the allotment. Sage-grouse are sagebrush obligates which requiring large areas covered with sagebrush communities to meet life-history needs. The loss of sage-grouse habitat has been the primary reason for the reduction in sage-grouse populations over the past 40 years. Because of the population decline, the USFWS is reviewing the status of the sage-grouse to warrant protection under the ESA as threatened or endangered. ODFW have routinely counted for sage-grouse sites and activity in this area.

Sage-grouse prefer a nesting sagebrush cover class of approximately 15-25% (Hagen 2005). These cover classes have at least 40-80 cm height distribution. Sage-grouse have traditional breeding sites called leks. Because the leks are traditional, they tend to be used annually for their breeding rituals. Examples of lek sites include old lake beds or playas, low sagebrush flats, and openings on ridges, roads, and burned areas (Schroeder et al. 1999). The lek is considered to be the center of year-round activity for resident sage-grouse populations and most nesting/brooding sites are located within 4 miles of a lek (Nowak 2004). Sage grouse require large areas covered with sagebrush to meet life-history needs. The species uses a wide variety of sagebrush mosaic habitats, as well as steppe dominated by native forbs and bunchgrasses, with the habitats varying slightly according to the life history stage (e.g., breeding, nesting, brood-rearing, wintering).

Hens typically nest in the same specific area in successive years (Fisher et al. 1993), generally choosing areas dominated by sagebrush (15 to 25 percent canopy cover [sometimes more than 30%], between 0.4 to 0.8 meters [16-32"] tall) and nesting beneath the taller shrubs in stands with greater lateral cover (Wakkinen 1990). Both a sagebrush overstory and an herbaceous understory of grasses and forbs (3 to 30% grass cover [15-25 %], and 0.1 to 0.3 meters in height) are important to provide shade and security (Connelly 1999).

Habitat for brood-rearing in early spring is critical to brood survival. Hens with broods tend to use sagebrush uplands adjacent to nest sites, but distance of movement varies (Connelly et al. 2000). Sagebrush overstory, herbaceous understory, and the presence of plentiful insects that provide a high-protein diet for broods (especially Hymenoptera and Coleoptera [species typical of sagebrush upland steppe]) are the three important factors (Connelly 1999).

During winter, access to sagebrush for food and cover in all snow conditions is critical to sage-grouse survival, and they require a landscape mosaic with a diversity of sagebrush canopy cover and heights tending to select stands with sagebrush above the snow level (Connelly 1999).

The project area is located on the fringe of the current and historic range. However, in April 2006 the project area was part of an aerial sage-grouse survey conducted by the ODFW. No active sage-grouse leks were located within a 5 mile radius of the project site (Nick Myatt, 2007. **Exhibit XI**). Although there is available habitat for sage-grouse life cycles, there are no known resident populations within the project area.

Western Burrowing Owl. The burrowing owl is a Bureau sensitive species and species of concern for the USFWS. Burrowing owl habitat is typified by short vegetation and presence of fresh small mammal burrows. The species is found in open grasslands, especially prairie, plains,

and savanna, and sometimes in open areas near human habitation (such as vacant lots, golf courses, agricultural field edges, irrigation canal banks). The burrowing owl nests and roosts in abandoned burrows dug by mammals (rodents), but rarely excavates its own burrow. Courtship generally occurs during March and April, with incubation and fledging occurring by June or July, although the family group will stay together longer. Burrowing owls tend to exhibit high fidelity to nest areas, although not necessarily to specific burrows within the area (USFWS 2003).

The burrowing owl is affected by habitat fragmentation, and mortality is higher in a fragmented agricultural landscape (> 90% of land area under cultivation) than in an unfragmented rangeland (< 20% cultivation) (Clayton and Schmutz 1997, as cited in USFWS 2003). The owl tends to use sites dominated by snakeweed, cheatgrass and bitterbrush, avoiding sites dominated by perennial bunchgrasses such as bluebunch wheatgrass or sandberg bluegrass (USFWS 2003). They prefer grasslands grazed by livestock or areas of high rodent activity.

Survival can be enhanced by providing short-grass sites for nesting (<5 cm, or elevated perches for hunting and predator detection if grass is taller), and ensuring the presence of burrowing mammals (e.g., ground squirrels), a prey base of small mammals and large insects, and large open fields for foraging.

The burrowing owl exists in the project vicinity, but it is unknown if it occurs on the project site or along any of the access roads.

Bald Eagle. Bald eagles were officially declared an endangered species in 1967 in all areas of the United States south of the 40th parallel, under a law that preceded the Endangered Species Act of 1973. Until 1995, the bald eagle had been listed as endangered under the Endangered Species Act in 43 of the 48 lower states, and listed as threatened in Wisconsin, Minnesota, Michigan, Washington and Oregon. In July of 1995, the USFWS upgraded the status of bald eagles in the lower 48 states to "threatened." On June 28, 2007 the Interior Department took the American bald eagle off the Endangered Species List. The bald eagle will still be protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The Bald Eagle Protection Act prohibits the take, transport, sale, barter, trade, import and export, and possession of eagles, making it illegal for anyone to collect eagles and eagle parts, nests, or eggs without a permit.

The Bald Eagle prefers habitats near seacoasts, rivers, large lakes, and other large bodies of open water with an abundance of fish. Studies have shown a preference for bodies of water with a circumference greater than 11 km (7 miles), and lakes with an area greater than 10 km^2 (3.8 square miles) are optimal for breeding bald eagles.

The bald eagle requires old-growth and mature stands of coniferous or hardwood trees for perching, roosting, and nesting. Selected trees must have good visibility, an open structure, and proximity to prey, but the height or species of tree is not as important as an abundance of comparatively large trees surrounding the body of water. Forests used for nesting should have a canopy cover of less than 60%, and as low as 20%, and be in close proximity to water.

The proposed project area is located approximately 1.5 miles west of Brownlee Reservoir and is located in a habitat type that is typically not supportive of bald eagle populations due to a lack of roost trees. There are no known bald eagle roost or nest sites within the project area. However, the bald eagle could migrate through the project area or use the project area for scavenging during winter. The bald eagle prefers fish when available, but will also prey on a variety of small mammals and birds, and often forages on carrion or cow-afterbirth in the winter or early spring.

Ferruginous Hawk. The ferruginous hawk is a Bureau sensitive species. The ferruginous hawk breeds in Oregon but is not a permanent resident. Habitat for the ferruginous hawk generally consists of open grasslands and shrub-steppe communities, but the hawk also uses pastures and cropland for feeding. Ferruginous hawk populations are tied to the abundance of prey, such as jackrabbits, ground squirrels and pocket gophers. The ability of native grasslands and shrublands to support viable prey populations can be compromised by the invasion of non-native species such as cheatgrass, and loss of native grassland (Olendorff 1993).

Nest site selection depends upon available substrates and surrounding land use, and can vary from tall trees or willows along streams, in junipers, on power line towers, sometimes on sloped ground on the plains or on mounds in open desert. Lone or peripheral trees are preferred over densely wooded areas when trees are selected as the nesting substrate. Nests are typically located less than 10 meters (33 feet) from the ground (Green and Morrison 1983). Foraging generally occurs as "still hunting" in which the hawk watches for prey from a low perch or on the ground and then quickly glide to the prey. Aerial hunting is mostly done fairly close to the ground.

Suitable habitat for the hawk occurs in the project area.

California Bighorn. The California bighorn is a Bureau sensitive species. The bighorn was extirpated from Oregon around 1915, due to unregulated hunting and diseases contracted from domestic sheep (ODFW, 2002). The first successful effort to re-introduce bighorn sheep to Oregon was completed in 1954, when 20 bighorns were moved from Williams Lake, British Columbia to Hart Mountain (ODFW, 2002). Other introductions followed and the bighorn sheep now occurs in the Eagle Caps of Wallowa County and in the Burnt River and Hell's Canyon areas of Baker County. In total, the bighorn population in Oregon is now estimated at between 3500 to 3700 individuals (ODFW, 2006). The Burnt River population occurs in the Burnt River Canyon west of Interstate 84 between Durkee and Bridgeport. The population was estimated at 70 sheep in 2006, with an additional 9 sheep added to the population by ODFW in 2007.

This species is often referred to as the "grassland bighorn" as it occurs in large expanses of open grasslands or shrub-steppe, often associated with native grasses such as bluebunch wheatgrass and Idaho fescue, and in relatively close proximity to escape terrain (100-800 meters). Escape terrain includes cliffs, rimrock, and rocky outcrops. Dense forests and chaparral that restrict vision are avoided. Bighorns are primarily grazers of grass and forbs, but diet can also include significant amounts of shrubs.

Loss and degradation of habitat, especially key winter forage sites, is a threat to the species.

Habitat degradation can occur through overgrazing by domestic stock, excessive off-road vehicle use, spread of rangeland weeds, the usurpation of water sources and fire suppression resulting in shrubland encroachment (Krausman et al. 1999).

The Burnt River bighorn population is located several miles west of the project area. The project area is not mapped as a key winter forage site. It is possible that bighorn sheep could expand into the area in the future.

Bat species. There are six bat species that have potential to occur in the project area. These are all Bureau sensitive species. They are nocturnal species that tend to forage over water, especially the Yuma myotis. These bat species need to have roost and maternity sites near foraging areas to minimize energy expenditure. They roost in caves, mine tunnels, buildings, under bridges, in rock crevices and under tree bark. Surrounding trees appear to be important for thermal protection and snags are often used for daytime roosts. Individuals generally return to the same maternity roost in successive years.

In general, bats are active April through September and either migrate or hibernate in mid October. Timing of breeding varies among species, but maternity colonies are generally formed in April with birth in late June to mid July, and the maternity colonies persisting through August or September. The exact dates of each life history stage vary with individual species, and also with the year according to weather patterns.

Bats are sensitive to disturbance during hibernation. Disturbance can cause the bats to use stored fat and starve to death. Bats are also sensitive to maternity colony disturbance and can cause young to lose their grasp and fall, resulting in injury or death. These species may also be sensitive to disturbance as they either arrive in the area from migration or emerge from hibernation.

Differences among species specific roost requirements (maternity, hibernation, daytime) and migratory/hibernation strategies are listed below in **Table 4**.

Table 4. Comparison of Sensitive Bat (Myotis) Species Habitat Requirements (EcoWest 2007, as modified based on Csuti et al. 1997)

Species	General Habitat	Roost Habitat (Maternity, Hibernation and/or Daytime)	Potential Habitat	Migration Status
Pallid bat	Desert and open grassland, often near rocky outcrops and water	Rock crevices and overhangs, buildings, bridges	Yes	Unknown
Small footed myotis	Desert and semi-arid areas	Rock crevices, caves, buildings	Yes	Hibernates in summer range

Long eared myotis	Forested habitat along streams, reservoirs especially with rock outcrops; most common in dense coniferous forest but also shrubland near reservoirs	Trees, buildings, occasionally caves or rock fissures	Maybe	Migratory
Fringed myotis	Desert and open grassland	Trees, buildings, caves, rock fissures	Yes	Mixed data on migratory status
Yuma myotis	Low to mid-elevation forest and forest edge, grassland, desert shrub; along water, more closely associated with water than other species	Buildings, rock crevices, caves, mines, bridges	Yes	Unknown
Silver haired bat	Coniferous forest adjacent to lakes, ponds, streams; prefers old growth but will occur in younger forest with high snag density; during migration sometimes uses arid or semi-arid areas	Tree foliage, cavities, loose bark; rarely in caves	Possibly during migration	Migratory

There is no data available regarding the presence of these bat species in or adjacent to the project area. However, suitable habitat exists for five of these species (pallid bat, small-footed myotis, fringed myotis, silver-haired bat, and Yuma myotis). The nearby cement plant and rock cliffs may provide habitat as they represent the types of habitats used by these species, but their actual suitability or use are unknown.

The long-eared myotis is another migratory species that may occur near Brownlee Reservoir, with a potential of passing through the project area (Csuti et al. 2001).

The BLM determined that there was insufficient evidence of bat usage of the project area to warrant additional field studies for bat populations and usage.

3.3 Other Important Elements of the Human Environment

Elements denoted by an "X" in the *not affected* column in the attached lists of Other Important Elements of the Human Environment **(Exhibit VII)** are not affected by the proposed action or alternatives and would receive no further consideration. Elements which are present and are likely to be affected are discussed below.

3.3.1 Availability of Access/Need to Reserve Access

The site can be accessed from the Marble Creek County Road then across approximately ¼ mile of private land before entering public land. Access via private property is allowed through Baker County Recorded Easement from Paul Vaden (property owner) to Joseph Millworks, Inc. (B08 15 0247).

3.3.2 Recreation

The project site is located within a popular recreation area that provides for a variety of outdoor recreational activities that include dispersed camping, hunting, hiking, boating, and off highway vehicle (OHV) use on existing roads. Hunting is a popular outdoor activity and resident populations of mule deer, pronghorn antelope, coyotes, chukar partridge, and hungarian partridge provide hunting opportunities from August thru March.

3.3.3 Existing and Potential Land Uses

The project area is included within a BLM grazing allotment used by three different public land grazing permittees. The project area lies within the South Pasture of Huntington Allotment. Cattle grazing is authorized each spring and scheduled from April 1st through the end of May of each year. Three permittees run a total of 317 cattle in the South Pasture of the allotment during this period, equating to 636 Animal Units Months (AUMs).

Mining for both gold and limestone has occurred outside of the project area and primarily on private lands. Currently there are no active mining claims on BLM lands on or adjacent to the proposed project area.

The Qwest Corporation has an existing right-of-way, OR-44207, for a buried fiber optic line in the NE1/4 of section 36. This grant was authorized in 1988.

The proposed project area is located on public land with split estate. The Bureau of Land Management owns and manages the surface while the subsurface is owned by Baker County.

3.3.4 Vegetation

Although the ridge slopes and the top of the project area have been seeded to crested wheatgrass (A*propyron cristatum*), the overall vegetation is dominated by native species as noted in the following sections. The habitat types include: big sagebrush (*Artemisia tridentata*)-rabbitbrush (*Chrysothamnus viscidiflorus*) / Idaho fescue (*Festuca idahoensis*)-bluebunch wheatgrass (*Pseudoroegnaria spicata*)-Sandberg bluegrass (*Poa secunda*) / arrowleaf balsamroot (*Balsamorhiza sagitata*) communities in fair (low to mid-seral) condition and a small area on the hill northwest of Binder Spring where threetip sagebrush (*Artemisia tripartita*) is a co-dominant shrub species.

List of Species by Form:
Shrubs:

- Amelanchier alnifolia (serviceberry) - locally uncommon, restricted to several rock outcrops

- Artemisia tridentata (big sagebrush) - common and widely scattered throughout
- Artemisia tripartita (threetip sagebrush) - common in vicinity, concentrated on one hilltop
- Chrysothamnus nauseosus (rubber rabbitbrush) - common and widely scattered throughout
- Chrysothamnus viscidiflorus (green or yellow rabbitbrush) - less common locally
- Eriogonum sphaerocephalum var. sphaerocephalum (rock buckwheat) - few locally
- Leptodactylon pungens (prickly phlox) - few in vicinity, concentrated on one hilltop
- Philadelphus lewisii (mock-orange) - locally uncommon, restricted to rock outcrops
- Tetradymia canescens (gray horsebrush) - common and widely scattered in vicinity

Grasses:

- Agropyrum cristatum (crested wheatgrass) - non-native, seeded, common throughout area
- Bromus tectorum (cheatgrass) - non-native, invasive annual, abundant throughout area
- Elymus elymoides (squirreltail grass) - common, widely scattered on slopes and ridge tops
- Festuca idahoensis (Idaho fescue) - less common in vicinity, limited by range condition
- Poa bulbosa (bulbous bluegrass) - non-native, invasive annual, very abundant throughout
- Poa secunda (Sandberg bluegrass) - very abundant throughout
- Pseudoroegnaria spicata - (Snake River bluebunch wheatgrass) - common in vicinity, limited by range condition
- Taeniatherum caput-medusae (medusahead rye) - noxious non-native annual, abundant, concentrated in one locale

Forbs:

- Achillea millefolium (yarrow) - common, scattered throughout area
- Alysum alyssoides (pale madwort) - common, scattered throughout area
- Antennaria dimorpha (pussytoes) - common, scattered throughout
- Arabis sp. (rockcress) - uncommon locally, scattered throughout
- Astragalus lentiginosus (freckled milkvetch) - common, concentrated on east aspects
- Astragalus purshii (woolypod milkvetch) - common, scattered throughout
- Astragalus salmonis (Trout Creek milkvetch) - common, scattered on ridgetops, south, and west aspects
- Balsamorhiza sagitata (arrowleaf balsamroot) - abundant, scattered throughout vicinity
- Calochortus elegans (elegant mariposa lily) - common, concentrated on east aspects
- Calochortus macrocarpus var. macrocarpus (sagebrush mariposa lily) - common, scattered throughout vicinity
- Cardaria draba (whitetop) - noxious weed, concentrated near Marble Creek Spring and lower (north) basin of seeding.
- Castilleja angustifolia (Indian paintbrush) - uncommon locally, widely scattered
- Ceratocephala testiculata (bur buttercup) - non-native invasive annual, abundant throughout vicinity
- Cirsium sp. (elk thistle) - uncommon, widely scattered
- Collinsia parviflora (blue-eyed Mary) - abundant, scattered throughout
- Commandra umbellata ssp. pallida (bastard toadflax) - common, concentrated in moist

swales

- Cordylanthus ramosus (bushy bird's beak) - uncommon locally, scattered on west aspects and ridges
- Crepis acuminata (tapertip hawksbeard) - common, scattered throughout
- Crepis sp. (hawksbeard) - common, scattered throughout
- Cymopterus sp. (springparsley) - abundant, scattered throughout
- Delphineum nuttallii (upland larkspur) - common, scattered throughout
- Draba verna (spring draba) - common, scattered
- Ericameria nana (dwarf goldenbush) - common, scattered on rocky slopes and ridge tops
- Erigeron lonchophyllus (shortray fleabane) - common, scattered on slopes and ridges
- Eriogonum niveum (snow buckwheat) - common, scattered on slopes and ridges
- Fritillaria pudica (yellow bells) - common, scattered throughout
- Grindelia squarrosa (curlycup gumweed) - common, scattered throughout (invasive on road surfaces)
- Hydrophyllum capitatum (ballhead waterleaf) - common, scattered on east and north aspects
- Lewisia rediviva (bitterroot) - unusual to few, restricted to shallow, rocky soils near ridge tops
- Lithophragma bulbiferum (bulbous woodland star) - common, scattered throughout
- Lithophragma parviflorum (smallflower woodland star) - common (but less than bulbous), scattered on east aspects
- Lithospermum ruderale (puccoon) - common, scattered on slopes
- Lomatium dissectum (biscuitroot) - common, scattered on north and east aspects
- Lomatium triternatum var. triternatum (nine-leaf biscuitroot) - abundant throughout vicinity
- Lupinus sericeus (silky lupine) - abundant, scattered throughout
- Mertensia oblongifolia (bluebells) - common, scattered throughout
- Microseris troximoides (prairie dandelion) - few to common, scattered throughout
- Onopordum acanthium (Scotch thistle) - noxious weed, few, southwest margin of area, and north on private land.
- Orogenia linearifolia (turkey peas) - common, scattered throughout
- Penstemon speciosus (royal penstemon) - locally uncommon, scattered at southwest end of project area
- Phacelia hastata (silverleaf phacelia) - common, scattered
- Phlox hoodii (Hood's phlox) - common, scattered on slopes and ridges
- Phlox longifolia (longleaf phlox) - common, scattered throughout
- Phoenicaulis cheiranthodes (daggerpod) - common scattered on ridgetops and rocky slopes
- Salsola kali (Russian thistle) - noxious weed, very unusual in project area, southwest edge of project area
- Senecio integerrimus (lambstongue ragwort) - common, scattered throughout
- Sidalcea oregana (Oregon checkerbloom) - unusual, restricted to moist swales
- Sysimbrium altissimum (tumble-mustard) - uncommon, rodent and cattle disturbed microsites

- Tritelia grandiflora (largeflower tritelia or brodiaea) - abundant, scattered throughout
- Viola nuttallii (Nuttall's violet)

3.3.5 Soils

There are three major soil types identified in the project area by the Natural Resources Conservation Baker County Soil Survey. The following soil types are well drained and the hazard of water erosion range from slight to very high.

- Lickskillet gravelly sand loam. A shallow, well drained soil with moderate permeability. Runoff is rapid, and the hazard of water erosion is very high.

- Redcliff gravelly loam. A moderately deep, well drained soil with moderate permeability. Runoff is rapid, and the hazard of water erosion is very high.

- Ukiah silty clay loam. A moderately deep, well drained soil with moderate permeability. Runoff is slow or medium, and the hazard of water erosion is slight or moderate.

3.3.6 Visual Resources

Visual sensitivity is dependent on scenic quality, sensitivity levels, and distance zones along with public attitudes, types of activities people are engaged in, and the distances from which the site would be visible.

In order to meet its responsibility to maintain the scenic values of the public lands, the BLM has developed a Visual Resource Management (VRM) system. The VRM inventory stage involves identifying the visual resources of an area and assigning them to inventory classes using BLM's visual resource inventory process. The process involves rating the visual appeal of a tract of land, measuring public concern for scenic quality, and determining whether the tract of land is visible from travel routes or observation points. The process is described in detail in BLM Handbook H-8410-1, Visual Resource Inventory (BLM 1986). Visual resources are then assigned to management classes with established objectives:

- Class I Objective: To preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

- Class II Objective: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

- Class III Objective: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may

attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

- Class IV Objective: To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The Baker Field Office has designated lands in the project area as a Visual Resource Management (VRM) Class IV under the 1989 Baker RMP, however the project's viewshed includes VRM Class II areas as well as VRM Class II & III areas located along the National Historic Oregon Trail. Although the BLM lands located within the project area are primarily visible only by users of those lands, the height of the turbine project as well as the location of the towers creates impacts to neighboring BLM lands and their Visual Classifications.

3.3.7 Economic and Social Values

Baker County is located in northeast Oregon with an area of 3,068 square miles and a population of 16,243 (2006 estimated) equating to 5.5 people per square mile with a State average of 35.6 people per square mile. From April 1st 2000 to July 1st 2006, Baker County's population declined by 3% while the State of Oregon's population grew by 8.2%. Persons 65 years of age and older comprise 20.5% of the County's population and only comprise 12.9% of the State's population. While home ownership is higher in Baker County than the State of Oregon (70.1% vs. 64.3%), the median value of owner-occupied housing is $84,700 vs. $152,100. Median household income for 2004 was $31,737 in Baker County compared to $42,568 for the State of Oregon and per capita money income for 1999 was $15,612 in Baker County vs. $20,940 for the State of Oregon with 15.2% of the County's population below the poverty line compared to 12.9% below the poverty line for the State (US Census Bureau QuickFacts).

Huntington, the closest town to the Lime Wind Project, has a median household income of $25,132, a per capita income of $13,396 and 17.7% of the population is below the poverty line (Wikipedia).

3.3.8 Noise

Noise is generally defined as unwanted sound. The basic unit of measurement for sound is the decibel (dB). The decibel system of measuring sound provides a simplified relationship between the intensity of sound and its perceived loudness to the human ear. The decibel system is logarithmic, meaning sound intensity increase or decreases exponentially with each decibel change. Therefore, a 10 dB level is ten times more intense than 1 dB, while a 20 dB level is one hundred times more intense and a 30 db level is one thousand times more intense. **Table 5** provides a range of common sounds.

Table 5 (Australian Wind Energy Association, 2007)

Source/Activity	Indicative noise level dB (A)
Threshold of hearing	0
Rural night-time background	20-50
Quiet bedroom	35
Wind farm at 350m	35-45
Busy road at 5km	35-45
Car at 65 km/h at 100m	55
Busy general office	60
Conversation	60
Truck at 50km/h at 100m	65
City traffic	90
Pneumatic drill at 7m	95
Jet aircraft at 250m	105
Threshold of pain	140

Natural noise sources include the wind, which is prevalent in the project are, and are expected to be in the range of 45 – 55 dBA. Other noise sources in the project area are vehicle traffic and hunting activities.

Noise-sensitive receptors are facilities or areas where excessive noise may cause annoyance or loss of business. There are no sensitive receptors in or near the project area.

3.3.9 Public Health and Safety

There are no known health or safety issues other than those common to a rural, rangeland setting.

4) ENVIRONMENTAL CONSEQUENCES

4.1. Introduction

The potential environmental consequences, or impacts, described in this chapter are based on the environmental effects that would result from the proposed Lime Wind Project. The proposed project includes twelve wind turbines and their associated transformer and collection system facilities, plus an estimated 7410 feet of roads (on county, private, and BLM lands) that have to be built or upgraded to construct and maintain the proposed project facilities. The BLM would grant a right-of-way (ROW) for those portions of the project that are on pubic land. The BLM would also grant to Idaho Power Company a ROW for approximately 2500 feet of public land for a new above-ground line extension, including 13 power poles, from the Lime Wind electrical collectors to the existing transmission line.

4.2 Impact Assessment Process

This EA evaluates the direct and reasonably foreseeable indirect impacts that may result from the proposed project. The nature and area of these potential impacts are described in detail later in this chapter.

Under the implementing regulations of the National Environmental Policy Act (NEPA) of 1969 (CFR 1500-1508) a determination concerning whether or not a particular action would cause a significant affect on the environment must consider the context and intensity of the effect of the action. "Context" refers to the region affected by the proposed project. It is also defined as relative importance of impact to the resource affected. For example, the resource affected may have national significance or may be locally important. "Intensity" refers to the severity of the impact or effect.

Where potential impacts to a resource were identified, an evaluation was conducted to determine if one or more mitigation measures would be effective in avoiding or reducing (e.g. intensity and/or duration) the potential impact. The proposed project (refer to Chapter 2) includes many mitigation measures committed to by Joseph Millworks to avoid or minimize the impacts of constructing and operating the proposed project. These mitigation measures are generally applied throughout the proposed project during construction and operation or to specific locations, and are considered part of the proposed project description. Refer to section 2.1.14 for a list of these measures.

Impact assessments were conducted for the proposed project and the No Action Alternative.

4.3 Impacts Associated with Critical Elements of the Human Environment

4.3.1 Air Quality

Proposed Action

Implementation of the Proposed Action would generate low levels of emissions of reactive organic gases, nitrogen oxides, and PM2.5 and PM10 during the 3-4 month construction period. These emissions would be generated by gasoline and diesel fuel combustion. Operation of vehicles on exposed soils would release some fugitive PM10 dust and may release some PM2.5 dust. Impacts from the operation of construction equipment would be reduced by maintaining a maximum speed limit of 20 miles per hour while traveling on unpaved access roads and by providing dust control measures during construction of the proposed project. Project construction would be required to meet Oregon Fugitive Emission Requirements under OAR 340-208-0200 and mitigation measures such as reclamation and regrowth of native vegetation would bring dust back to current levels. After construction there would be an increase of less than .3 acre of new roadway, adding minimal amounts of PM to existing levels.

No Action Alternative

Under the No-Action alternative, CO2 would not be emitted by vehicles and equipment during construction. Dust matter would not be increased by road and turbine pad construction and would remain at current levels. The production of clean renewable electricity would not be provided and 3000 tons of greenhouse gases may continue to be emitted into the atmosphere by coal-fired power plants.

4.3.2 Areas of Critical Environmental Concern

Proposed Action

See section 3.3.6 - Visual Resources, for impacts to Oregon Trail and ACECs

No Action Alternative
Under the No-Action alternative, the wind turbines would not be erected therefore there would be no visual impact to scenic or cultural areas. Current conditions and trends would continue.

4.3.3 Cultural Resources

Proposed Action

The proposed project right of way on BLM lands would have no effect on archaeological properties eligible or potentially eligible for the National Register of Historic Places.

No Action Alternative

Current condition and trend for cultural resources in the vicinity of the project would continue.

4.3.4 Invasive, Non-native Species

Proposed Action

Soil disturbance and vegetation removal provide opportunity for the introduction and spread of invasive, non-native species. Spreading gravel, road fill, and top soil can also introduce or cause increases of these species. Disturbed areas would be reseeded with native vegetation prescribed by the BLM as noted in section 4.4.4. In addition annual inspections would take place to identify any future influx of non-native weed species. Any noxious or invasive weed species would be sprayed with approved herbicides as needed. Minor presence of cheatgrass, which is already distributed in the local ecosystem, would not be treated unless it appears sufficiently dense to interfere with re-establishment of native vegetation. Particular attention would be given to ensure that the present infestations of white-top and medusahead rye would not spread along the road system.

No Action Alternative

Under the No Action alternative, plant communities within the project area would continue to be dependant on ecological processes currently in place if no action is taken.

4.3.5 Plants, Endangered/Threatened/Sensitive/Strategic

Proposed Action

The project would have no effect on any known federally listed threatened, endangered, or strategic plant species populations. However, potential habitat will be disturbed throughout the project site.

Snake River/ray goldenweed (*Pyrrocoma radiata*), and Oregon princeplume (*Stanleya confertiflora*) have been identified as Bureau Sensitive and the former is also Oregon Department of Agriculture listed as an endangered. Both species were thought to have potential to occur within the project area. A biological survey conducted in the spring of 2008 by Clair Button determined that neither species is present and chances of disturbance from the project would be unlikely. While the habitat type may be suitable for Snake river/ray goldenweed, the survey determined that no suitable soil substrate or habitat was present for Oregon princeplume.

A total of 3.2 acres would be removed from potential Snake river/ray goldenweed habitat.

No Action Alternative

Under the No-Action alternative, no construction would take place therefore there would be no effects to plants from construction activities. Current conditions and trends would continue.

4.3.6 Wastes, Hazardous or Solid

Proposed Action

No hazardous material, substance, or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S. C 9601, et seq., or the Resource Conservation and Recovery Act, 42 U.S.C 6901, et seq.) shall be used, produced, transported, released, disposed of, or stored within the right-of-way at any time by the applicant.

No Action Alternative

Under the No Action Alternative, current conditions would continue.

4.3.7 Surface Water and Groundwater Quality

Proposed Action

The locations of the twelve Mitsubishi wind turbines would be on ridges and these sites are not within any wetland or riparian zones. There would be potential positive impact to Marble Creek Spring during the road construction phase due to the proposed access route constructed 80 feet east of the existing route (**Exhibit IV**). This route will decrease runoff and impaction to the spring due to the increase distance between road traffic and the spring.

There would also be no long-term effects by erosion or runoff created by an improved road system due to construction and implementation of drainage structures and rolling dips for surface drainage (section 2.1.7). Surface drainage and erosion during construction would be at a

minimum due to the time of year.

No Action Alternative

Under the No Action alternative the existing road would continue to be used and current trends, including negative impacts to Marble Creek Spring, would continue.

4.3.8 Wilderness

Proposed Action

No wilderness characteristics have been identified. Documentation of this finding has been recorded and is part of the administrative record of this EA. The existing land use allocations, uses, management actions, and/or mitigation measures that are currently in place included roaded activities which eliminate the proposed action area's ability to meet criterion required for wilderness characteristics.

No Action Alternative

Under the No Action alternative current conditions would continue.

4.3.9 Wildlife

Proposed Action

Wind energy projects can affect wildlife species through a number of different mechanisms. According to the BLM (2005), key impact issues include:

- Introduction of pollutants and fugitive dust into habitats, especially into wetlands or streams
- Injury or mortality during construction
- Construction noise
- Habitat disturbance, loss, or alteration
- Operational noise
- Operational injury or mortality

The methods to assess impacts to wildlife are similar and described below for all wildlife species/groups. Impacts are subsequently described according to the species groups discussed in section 3.1.5 for general wildlife and by individual species for those species listed as threatened, endangered, sensitive or species of concern (TES species) by either the BLM or USFWS.

Introduction of contaminants would occur if there were accidental spills during construction from machinery or vehicles. These spills, if they occurred, would be short term and localized. Measures to prevent such accidents will be addressed in a safety plan which will be developed and are not discussed further here.

Direct injury or mortality of individuals is possible during construction as the turbine pads are cleared and access roads constructed. Impacts could occur by being buried, run-over by a vehicle or by striking a vehicle. Potential impacts are assessed based on the species' mobility, likelihood of being in the project area during the construction time period of July to November, and flight patterns.

Construction Noise: Noise can affect wildlife by startling and stressing individuals, but the most common effect of noise is through masking of vocal communication and other sounds necessary for breeding, navigation, social organization and both prey location and predator avoidance. The effects of noise on wildlife is species-specific, and specific details as to how noise affects individuals (e.g., reduced density, reduced reproductive success, area avoidance) are unknown due to the multitude of variables.

Data obtained from other wildlife studies were reviewed to identify threshold levels of noise at which wildlife activities could be disrupted. Most of these studies have looked at breeding bird response to highway noise. Jones and Stokes (2004) modeled the potential responses of several breeding birds including waterfowl, songbirds, raptors, nocturnal hunters, and upland game birds to various levels of highway and associated construction noise. This study identified that noise levels greater than 45 decibels generally had the potential to affect most breeding birds, whereas noise levels less than 45 decibels generally did not disrupt breeding. Other studies have suggested that impacts generally occur at 47 decibels, but that they can occur at noise levels as low as 42 decibels for the most sensitive birds (BLM 2005).

For purposes of this assessment, potential impacts to wildlife were based on breeding bird data. The potential impact area was defined as the area in which the noise level could exceed 45 decibels, except where species-specific data for TES species indicated that a different threshold value was appropriate. Nominal noise levels of 85 decibels during construction of the Lime Wind Project and 55 decibels for associated truck traffic were used to calculate impacts[1].

Noise attenuation with linear distance was calculated using the methods described in Reagan and Grant (1977). Without any sound barriers, such as canyon walls or irregular topography, turbine construction noise would be reduced to a level below 45 decibels 1.2 miles from the source; truck noise would be attenuated within 200 feet of the road.

Habitat disturbance, loss, or alteration: There would be a total of 8.89 acres of grassland and open sagebrush steppe initially disturbed during construction and 3.20 acres of habitat permanently disturbed. 5.7 acres of the initially disturbed area would be reseeded with native species to re-establish the pre-construction habitats and to prevent the establishment of nonnative or invasive plants.

The potential impacts of this disturbance are discussed in conjunction with the impacts of operational noise to determine the total acreage of habitat affected by either direct habitat loss or

1 Noise levels during construction would generally be between 81-85 decibels within 50 feet of the turbines and during access road clearing. The exception would be during the time period in which the turbines are erected, as the crane noise levels can reach up to 90-100 decibels at 50 feet.

indirect displacement effects.

Operational Noise: Operational noise is different than construction noise, as wind turbines produce noise over a larger range of frequencies, thereby adding noise more evenly across the noise spectrum. Turbines make noise when the wind is blowing creating a strong relationship between turbine noise and wind noise. As a result, the distinction between ambient or background noise in windy conditions is often blurred (Dooling 2002).

There have been few studies of wind facility noise on wildlife with most of the operational noise data obtained from breeding bird studies (including: songbirds, raptors, upland game birds, and other birds) on a mix of utility projects. These studies have shown that in general:

- Bird density can be reduced with continuous noise levels of 40-50 decibels or greater (transmission lines, gas well compressors), but that birds may not be able to distinguish turbine noise from ambient noise so that the results from different utilities are not directly transferable to wind energy projects (BLM 2005).

- The distinction between wind and turbine noise is lost at a distance of 82 feet from the turbine (Dooling 2002).
- Grassland songbirds have exhibited area avoidance in some utility studies (Leddy et al. 1999); conversely pre and post monitoring at the Stateline Wind project (454 turbines) in eastern Oregon and Washington demonstrated very small changes in grassland songbird densities which was mostly attributed to construction disturbance, the natural slowness of revegetation, and not operational disturbance (Erickson et al. 2003). The primary displacement distances tended to occur within 25-50 meters from the turbines (approx 82-166 feet), with a potential to decrease over time as the area revegetates.

- Few studies have shown an operational effect on nesting raptors or ungulates (Johnson et al. 2000, Erickson et al. 2003, 2004).

Based on these studies, the combined permanent impact area for noise-sensitive species (songbirds, some upland game birds, and some TES species) could extend 82 to 166 feet from the turbines for large projects with more than 100 turbines. The Lime Wind Energy project is a small project with only a single line of 12 turbines, so the lower end of the impact scale was assumed. A potential combined displacement area with a radius of 82 feet around each turbine was used to calculate impacts. This would result in a total turbine impact area of 6.2 acres (3.2 acres of direct permanent habitat disturbance and an additional 3.0 acres of potential habitat displacement disturbance).

The combined permanent impact area for species in which operational studies have shown no effect (ungulates, raptors, waterfowl, and waterbirds) was identified to be just the direct area of habitat disturbance (3.2 acres).

Operational Injury or Mortality

Transmission Lines: The primary mechanism through which impacts occur to wildlife is through electrocution, with the potential for electrocution mostly a function of wing span and

perching habitats. These impacts are discussed individually by species group. Some of these impacts will be avoided by placing bird diverters on all transmission lines.

Tower/Rotor Strikes: Wildlife can be affected by collisions with wind towers, particularly the rotors. Because the rotors would be elevated 15 meters (approximately 50 feet) above the ground, this impact type is generally limited to wildlife that flies well above ground level, such as waterfowl, waterbirds, songbirds, raptors and bats.

Factors affecting the potential for bird and bat collisions are listed below in **Table 6**. Design factors that are included in the project to minimize collisions are tubular towers, single row of turbines, low (43 revolutions per minute) rotor speed, and unlit towers. These factors apply to all birds and bats.

Table 6. Factors Affecting Bird and Bat Collisions with Wind Towers BLM 2005, Strickland 2008, Erickson et al. 2004)

Factor Affecting Collisions	**Factor Description**	**Lime Wind Design Measures to Minimize Factor Effects**
The number and size of turbines	Higher mortality with increased turbine numbers	12 turbines
Spatial arrangement of turbines	Multiple rows of turbines can be harder to navigate through	Single row of turbines
Turbine design	Bird mortality is higher on the older lattice design turbines which enable raptors to perch or nest on the cross-beams than on the “new generation” tubular towers.	Tubular turbine design preventing raptor nesting
Turbine speed	Older turbines rotate faster and this can result in “motion smear” in which the rotors appear to be transparent to birds	Rotor speed of 43 rpm, (1 revolution every 1.4 seconds) does not produce motion smear
Habitat types around the towers	Towers within key breeding areas or known concentrations of birds can result in higher mortalities	Tower site outside of key breeding areas
Construction activities that increase prey abundance	Increased bare ground can increase small mammal populations which attract raptors near the towers	Area around towers to be revegetated with native bunchgrasses, not left bare or surrounded by rock piles, to avoid attracting rodents and rabbits
Presence or absence of lights	Mortality can be higher near lit towers	Towers to be unlit

Even with incorporation of these design, siting, and operational features, bird and bat fatalities through tower collisions or rotor strikes may occur. Fatality data from operating wind farms was used to estimate the likely magnitude of impacts that could occur during the Lime Project operation. The data used to address impacts to different groups of birds is described below in section 4.3.9.1. The data used to address bat impacts is described separately in section 4.3.9.3.

4.3.9.1 Migratory and Neotropical Birds

Proposed Action

The impact analysis in this section is described by species group: waterfowl, waterbirds, songbirds, and raptors.

Direct injury or mortality may occur during construction as the turbine pads are cleared and access roads constructed.

- ***Waterfowl:*** There is no waterfowl habitat on site and waterfowl primarily migrate through the area by flying over the site during the spring and fall. There will likely be no impact to waterfowl during construction.

- ***Waterbirds:*** There is no waterbird habitat on site and waterbirds primarily migrate through the area by flying over the site during the spring and fall. There will likely be no impact to waterbirds during construction.

- ***Songbirds:*** Injury or mortality through burial or being run-over could occur to nesting or young birds during construction, as they have limited mobility during the nesting period. However, the potential impacts would be minimal as construction would be scheduled after June 30, which is after the nesting season has ended.

- ***Raptors:*** Raptors are highly mobile birds that are not known to nest on-site and would not be subject to being buried or run-over by vehicles.

Construction Noise: As described in section 4.3.9, nominal noise levels of 85 decibels during construction of the Lime Wind Project and 55 decibels for associated truck traffic were used to calculate impacts. Without any sound barriers, such as canyon walls or irregular topography, turbine construction noise would be reduced to a level below 45 decibels 1.2 miles from the source; truck noise would be attenuated within 200 feet of the road.

- ***Waterfowl:*** There is no waterfowl habitat on site and waterfowl primarily migrate through the area by flying over the site during the spring and fall. Waterfowl may use Brownlee Reservoir, which is located 1.5 miles from the project site for feeding or resting during migration or during the summer or early fall months. Construction would occur outside of the spring migration period, and construction noise levels would be attenuated below 45 decibels at Brownlee Reservoir. There will likely be no impact to waterfowl during construction.

- ***Waterbirds:*** Impacts to waterbirds would be the same as described for waterfowl.

- ***Songbirds:*** Communication disruption during breeding could occur for those songbirds breeding within 1.2 miles of the site. However, construction will not occur during the breeding or nesting season so that breeding disruption or nest abandonment is not anticipated.

- ***Raptors:*** There are no known raptor nests within 1.2 miles of the project area that could be disrupted by construction noise.

Combined habitat disturbance, loss, or alteration/displacement: There would be a total of 8.89 acres of grassland and open sagebrush steppe initially disturbed during construction and 3.20 acres of habitat permanently disturbed. There would be an additional displacement area of 3.0 acres for some species due to noise. The combined effects of habitat loss and displacement are discussed below.

- ***Waterfowl:*** There is no waterfowl habitat on site and waterfowl primarily migrate through the area by flying over the site during the spring and fall. There would be no loss of waterfowl habitat or displacement of waterfowl from occupied habitat. The nearest waterfowl habitat is at Brownlee Reservoir (1.5 miles from the site) which is well outside the estimated displacement distance of 88 feet identified in section 4.3.9.

- ***Waterbirds:*** Impacts to waterbirds would be the same as described for waterfowl.

- ***Songbirds:*** There would be initial impacts to 8.89 acres of songbird habitat that could potentially be used for breeding, 5.7 acres of which would be revegetated for no long term loss of this habitat, leaving 3.2 acres permanently disturbed. As described in section 4.3.9, studies have shown a displacement area for some songbirds extending 88 feet from wind turbines which would equate to a total displacement area of 3.0 acres. As a result, there would be a combined permanent loss or displacement of breeding birds within 6.2 acres of potential breeding habitat. This would be too small of an area to affect a population-level response for any individual species because the project is not located in key breeding, nesting, brooding, and/or fledging habitat.

- ***Raptors:*** There would be initial impacts to 8.89 acres of habitat that could be used for raptor foraging, 5.7 acres of which would be revegetated for no long term loss of this habitat, leaving 3.2 acres permanently disturbed. As described in section 4.3.9, no studies have indicated an operational displacement effect on raptors. There would be a total permanent loss of 3.2 acres of foraging habitat, with no additional loss of habitat through displacement. This would be too small of an area to affect a population-level response for any individual raptor species because the project is not located in key breeding, nesting, brooding, and/or fledging habitat.

Operational Injury or Mortality

Transmission Lines:

Waterfowl: The new transmission line could pose a risk of electrocution to those birds that perch or nest on transmission lines. There is no waterfowl habitat in the project area and waterfowl are not known to perch or nest on power lines. There will not likely be an impact to waterfowl from a new transmission line.

- ***Waterbirds:*** Impacts to waterbirds would be the same as described for waterfowl.

- ***Songbirds:*** The new transmission line could pose a risk of electrocution to those birds that perch or nest on transmission lines. Although songbirds may rest on transmission lines, their wingspan is not great enough to complete an electrical circuit by touching one wire and either another wire or a structure such as a transmission line pole at the same time. As a result, there is not likely to be an impact to songbirds from electrocution.

- ***Raptors:*** The new transmission line could pose a risk of electrocution to raptors, as they both perch on transmission lines and their wing span is great enough to complete an electrical circuit. However, the potential of this impact would be minimized by constructing the transmission line in accordance with the standards outlined in "Suggested Practices for Avian Protection on Power lines, The State of the Art in 2006" (APLIC 2006). The transmission lines and power poles would also be designed to discourage their use as perching or nesting substrates by birds, especially raptors.

Tower/Rotor Strikes: Erickson et al. (2001) estimated that, on average throughout the US, there are an estimated 2.10 bird fatalities per wind turbine per year (including all bird species groups), with a range from 0 bird fatalities per turbine per year to 4.45 bird fatalities per turbine per year. This range reflects the variation in wind farm design, and types/composition of habitat and bird communities among sites, as well as differences in monitoring studies. Excluding data from California (which has a number of older lattice design turbines with higher mortality rates and some problematic siting issues), fatalities average 1.83 birds per turbine per year. Because of differences in turbine sizes among sites, the rotor swept area (or RSA) is considered a better metric to compare fatality rates among facilities with different turbine sizes. The RSA is expressed in terms of 100,000 m2 of area[2].

Table 7 compares the bird mortality rates for four sites in eastern Oregon and Washington. Although in a slightly different ecological region along the Columbia River, these facilities are all in grassland/shrub steppe habitat (although with cropland mixed in with some of the sites). It may not be possible to completely and accurately predict mortality rates at a new site from other sites (Kunz et al. 2007), as there are some differences between predicted pre-construction and actual fatality rates. However, the relationships between predicted vs. actual fatalities have been fairly close (Strickland 2008) and this data can be used to generate an idea of the likely magnitude of impacts. Based on the existing data from eastern Oregon and Washington, approximately 7 total bird fatalities could occur per year at the proposed Lime Wind Project site.

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2 Birds/ RSA is comparable to the newer related metric of birds/nameplate MW, but is used here as the existing, published data is expressed in terms of the RSA and not nameplate MW. Additionally the data reported in the BLM Programmatic EIS are expressed as birds/RSA.

Table 7: Comparison of Bird Mortality Rates (number of bird fatalities per turbine per year) at Wind Farm Sites in Eastern Oregon and Washington.

Site Name	Turbines (#)	All Birds/100,000 m2 RSA per year	Raptors/100,000 m2 RSA per year
Klondike	16	na	Na
9Canyon	37	119.8	2.6
Stateline	454	96.6	Na
Vansycle	38	38	0
Average		84.8	1.3
Estimated-Lime*	12	7.2	0.11
* Based on a RSA of 8478 m2			

The most recent Oregon bird fatality compositional data available is from the Stateline site monitoring (Erickson et al. 2004). These percentages are fairly similar to nationwide estimates of bird fatalities by species group (Strickland 2008). This data is used to estimate the relative proportion of total bird fatalities that might occur by group on the proposed Lime Wind Project site. Because the total number of projected fatalities is so small (7), these estimates can be used only to assess the general magnitude of impacts to any one bird species group.

- ***Waterfowl and waterbirds:*** Together, waterfowl and waterbirds typically represent 1% of the bird fatalities at a wind site. It is highly unlikely that this level of impact (1% of an estimated total 7 birds) would affect populations of either species group.

- ***Songbirds:*** Songbirds represent the group with the highest operational mortality rates (approximately 75%), which would average an estimated 5 songbirds a year. This number is not sufficient to have population level effects on any individual species.

- ***Raptors***: Raptor strikes range from 0 to 6% of total bird mortality, depending on the site, with an estimated average of 1 raptor fatality every 10 years for the Lime site. The prevalence of collisions is most related to the raptor hunting style and the degree to which construction results in an increase in prey species. Erickson et al. (2002) concluded that red tailed hawks and kestrels tend to be at a greater risk of collisions than other raptor species due to their tendency to float on updrafts while hunting. Conversely, ground-feeding scavengers, such as turkey vultures are not susceptible to collisions. Golden eagles are susceptible to collisions at the lattice type towers, but not the tubular towers proposed for this project.

  Correlations between nest densities and raptor fatalities are also very low, and very few raptor species observed during nest surveys have been observed as fatalities (see for example, Erickson et al. 2004). Overall, most raptors seem to be generally able to avoid wind turbines and towers, and the BLM (2005) concluded that no monitoring studies of wind energy projects using the tubular design have demonstrated a population effect on raptors. It is unlikely that this level of impact (average of 1 raptor every 10 years) would

affect raptor populations.

No Action Alternative

Under the No Action Alternative, migratory and neotropical bird species would not be impacted in the ways described in section 4.3.9. The animal communities would continue to be dependant on ecological processes that are currently in place.

4.3.9.2 Upland Game Species

Proposed Action

The impact analysis in this section is described by species group: upland game birds and ungulates.

Direct injury or mortality may occur during construction as the turbine pads are cleared and access roads constructed.

- ***Upland Game Birds:*** Injury or mortality through burial or being run-over could occur to nesting or young birds during construction, as they have limited mobility during the nesting period. However, the potential impacts would be minimal as construction would be scheduled after June 30, which is after the nesting season has ended.

- ***Ungulates:*** Ungulate species, such as mule deer, elk or antelope are highly mobile and would likely move into adjacent areas during construction.

Construction Noise: As described in section 4.3.9, nominal noise levels of 85 decibels during construction of the Lime Wind Project and 55 decibels for associated truck traffic were used to calculate impacts. Without any sound barriers, such as canyon walls or irregular topography, turbine construction noise would be reduced to a level below 45 decibels 1.2 miles from the source; truck noise would be attenuated within 200 feet of the road.

- ***Upland Game Birds:*** Communication disruption during breeding could occur for those upland game birds breeding within 1.2 miles of the site. However, construction would not occur during the breeding or nesting season so that breeding disruption or nest abandonment is not anticipated.

- ***Ungulates:*** Ungulate species, such as mule deer, elk or antelope are highly mobile and would likely move into adjacent areas during construction. With the construction schedule during summer and early fall, construction impacts on wintering ungulates would be minimal.

Habitat disturbance, loss, or alteration/Displacement: There would be a total of 8.89 acres of grassland and open sagebrush steppe initially disturbed during construction and 3.20 acres of habitat permanently disturbed. There would be an additional displacement area of 3.0 acres for some species due to noise. The combined effects of habitat loss and displacement are discussed

below.

- ***Upland Game Birds:*** There would be initial impacts to 8.89 acres of upland game bird habitat that could potentially be used for breeding, 5.7 acres of which would be revegetated for no long term loss of this habitat, leaving 3.2 acres permanently disturbed. As described in section 4.3.5.1, studies have shown a displacement area for some birds extending 88 feet from wind turbines which would equate to a total displacement area of 3.0 acres. As a result, there would be a combined permanent loss or displacement of upland game birds within 6.2 acres of potential breeding habitat. This would be too small of an area to affect a population-level response for any individual species because the project is not located in key breeding, nesting, brooding, and/or fledging habitat.

- ***Ungulates:*** There would be initial impacts to 8.89 acres of habitat that could be used by deer, elk or antelope, 5.7 acres of which would be revegetated for no long term loss of this habitat, leaving 3.2 acres permanently disturbed. Theoretically, multiple rows of wind turbines placed across a travel corridor could affect ungulate movements in the area. However, the Lime Wind Energy project would consist of a single row of turbines through which these species could easily navigate. Additionally, studies of ungulate movement at the larger Foote Creek Rim project in Wyoming have not demonstrated any ungulate displacement impacts (Johnson et al. 2000). There would be a total permanent loss of 3.2 acres of habitat, with no additional loss of habitat through displacement. This would be too small of an area to affect a population-level response because the project is not located in key breeding, nesting, brooding, and/or fledging habitat.

Operational Injury or Mortality

Transmission Lines:

- ***Upland Game Birds:*** The new transmission line could pose a risk of electrocution to those birds that perch or nest on transmission lines. Upland game birds, such as chukar, are not known to perch or nest on power lines. There would be no impact of the new transmission line on upland game birds.

- ***Ungulates:*** It is not likely that any ungulates would come into contact with the new transmission line, and therefore the transmission line would not likely have an effect on ungulates.

Tower/Rotor Strikes:

- ***Upland Game Birds:*** Upland game birds are generally low-flying species, and studies have indicated that upland game birds represent approximately 15% of the total bird fatalities at a wind site (Erickson et al. 2004). These studies warn though, that it is unclear if upland game bird mortality occurs as a result of tower strikes or raptor attacks. These estimates may also be high for the Lime site as the other sites used to develop these estimates were located in areas with fairly high concentrations of pheasants and partridge which are not likely to occur in the Lime project area. Even at the rate of 15%

of the total estimated 7 bird strikes a year, it is unlikely that this level of impact would affect upland game bird populations.

- ***Ungulates:*** The ground-dwelling deer, elk and antelope are not susceptible to tower or rotor strikes, especially since the minimum rotor distance above the ground would be 15 meters (approximately 50 feet).

No Action Alternative

Under the No Action Alternative, upland game species would not be impacted in the ways described in section 4.3.9. The animal communities would continue to be dependant on ecological processes that are currently in place.

4.3.9.3 Threatened/Endangered/Sensitive/Species of Concern

Proposed Action

Introduction

There are no threatened or endangered wildlife species in the project vicinity. However, there are potential sensitive and species of concern species located adjacent to this project area and there may be instances where these species are within the project area. Wind energy projects could affect sensitive wildlife species through the mechanisms listed in section 4.3.9. Impacts to TES species are analyzed according to the methods described in section 4.3.9.

Introduction of contaminants would occur if there were accidental spills during construction from machinery or vehicles. These spills, if they occurred, would be short term and localized. Measures to prevent such accidents will be addressed in a safety plan which will be developed and are not discussed further here.

Direct injury or mortality of individuals during construction may occur. Of the 11 sensitive species considered in detail in this EA, the ground nesting and brooding sage-grouse and burrowing owl would be most susceptible to this type of impact.

- ***Sage grouse:*** No sage grouse leks exist in the project area so the likelihood of injury or mortality during road construction and excavation is low to nonexistent.

- ***Burrowing owl:*** The burrowing owl would be susceptible to such impacts if active nests occurred in near the project vicinity, which is currently unknown. Because burrowing owls often fly low to the ground, there is also the potential for collisions with vehicles during construction.

Construction Noise: As described in section 4.3.9, construction noise would be reduced to a level below 45 decibels 1.2 miles from the source; truck noise would be attenuated within 200 feet of the road. Construction noise would occur during a single 4-5 month construction period or two shorter construction periods spread over two years. Construction would occur in the

summer through fall. Potential impacts to sensitive species are discussed below.

- ***Sage grouse****:* Sage-grouse are particularly susceptible to noise during breeding which can result in breeding area abandonment or reduced reproductive success. However, the known leks are located more than 5 miles from the project area, with the nests likely near the leks (see **Exhibit XI**), which is well beyond the area potentially affected by construction noise, thereby minimizing impacts on sage grouse reproductive success.

- ***Burrowing owl:*** Construction would occur outside of the sensitive wintering, mating and breeding seasons so that noise impacts on wintering and reproductive success are not anticipated.

- ***Bald eagle:*** The bald eagle is not known to nest in the project area. Since no nesting habitat exists within the project area, there would be minimal effects of construction noise on the eagle's reproductive success. There could be temporary foraging displacement of the eagle from an approximately 1-mile radius around the turbines during construction.

- ***Ferruginous hawk:*** The ferruginous hawk is not known to nest in the project area. Since no nesting habitat exists within the project area for the hawk, there would be minimal effects of construction noise on the hawk's reproductive success. There could be temporary foraging displacement of the hawk from an approximately 1-mile radius around the turbines during construction.

- ***California bighorn:*** The bighorn sheep herd is located west of highway 84, outside of the construction noise area of influence. There would be no effects of construction noise on the population.

- ***Sensitive bats:*** Construction would avoid two of the most sensitive times for bats which are during winter hibernation and either just after emergence from hibernation or return from migration (Csuti et al. 1997). There are no structures for bat roosting in the turbine construction areas, but there are some caves that could be used for roosts in the vicinity. As a result, there could be some noise disturbance to any maternity colonies established in cliffs along the access roads, or within 1.2 miles of the turbines.

Habitat Disturbance: There are no known nests, roosts, breeding areas or other key habitats for sensitive species in the project area. However, there is habitat that could be used for foraging by these species. The potential impacts of habitat disturbance on sensitive species foraging are discussed in conjunction with the impacts of operational noise.

Operational Noise: Operational noise is different than construction noise, as wind turbines produce noise over a larger range of frequencies, thereby adding noise more evenly across the noise spectrum. Turbines make noise when the wind is blowing creating a strong relationship between turbine noise and wind noise. As a result, the distinction between ambient or background noise in windy conditions is often blurred (Australian Wind Energy Association. 2007).

The total operational habitat loss as a result of both habitat disturbance and noise is estimated as 6.2 acres (3.2 acres of habitat loss plus an additional avoidance area of 3 acres).

- ***Sage-grouse**:* Sage-grouse are particularly susceptible to noise and visual disturbance but the center of sage grouse activities occurs greater than 5 miles from the project area (Nick Myatt, 2007. **Exhibit XII**). The habitat that would be lost by construction is grassland habitat and not sagebrush. It is not likely that sage grouse would be adversely affected by habitat loss and operational noise of the Lime Wind Project.

- ***Burrowing owl**:* Construction would not occur in an active burrowing owl breeding area, and the loss of 6.2 acres of grassland habitat would not likely affect the species. Burrowing owls have been shown to successfully nest within wind energy farms, nesting as close as 366 feet to turbines, and maintaining similar population levels for two years of operation at the large (454 turbine) Stateline Wind Energy site (Erickson et al. 2004), with natural shifts in burrow use unrelated to the turbine operation. It is not likely that burrowing owls would be adversely affected by habitat loss and operational noise of the Lime Wind Project.

- ***Bald Eagle:*** Loss of 3.2 acres of foraging habitat would not likely affect the bald eagle.

- ***Ferruginous hawk**:* Loss of 3.2 acres of foraging habitat would not likely affect the ferruginous hawk.

- ***California bighorn:*** The bighorn sheep herd is located west of highway 84, outside of the operational area of influence. There would be no effect on the bighorn.

- ***Sensitive bats***: Previous studies in Oregon and Washington (e.g., Erickson et al. 2002, 2004) have identified that the majority of the impacts to bats occur to migrant or dispersing bats and not residents, and that impacts are almost exclusively due to turbine strikes during the fall migration period and not other operational impacts. Potential impacts through turbine strikes are addressed in the next section.

Operational Injury or Mortality: Potential impacts from transmission lines to sensitive wildlife species would be minimized by the same measures as described in section 4.3.9. The potential for increased raptor predation on sage-grouse associated with transmission line construction would be minimized by using a design that discourages power pole use as perching or nesting substrates by raptors to Bureau of Land Management stipulations.

Tower/Rotor Strikes: Factors influencing sensitive bird and bat collisions with wind turbines, as well as design and operational measures to reduce collisions, are the same as those described in section 4.3.9.1. Approximately 7 total bird strikes for the whole project area could occur on an annual basis, with 1 raptor fatality every 10 years. Potential impacts on the three sensitive bird species are discussed below by species.

- ***Sage-grouse**:* No studies were found indicating that sage grouse are susceptible to

collisions with wind turbines.

- ***Burrowing owl**:* Although burrowing owl strikes have been recorded, these fatalities were from collisions with the older, lattice type tower designs in California. There have been no records of fatalities associated with the tubular turbine designs, and the monitoring of the much larger Stateline Wind Project identified no operational impacts of any kind on the burrowing owl. It is highly unlikely that the Lime Wind Project would result in burrowing owl fatalities associated with turbine/rotor strikes.

- ***Bald Eagle:*** There is the potential for bald eagle strikes as the species may forage in the area. Based on data from the Stateline project, none of the recorded strikes were eagles. As a result, although it is possible that this sensitive species could strike one of the towers and there is an estimated 1 raptor fatality every 10 years, the probability of it being a bald eagle is low.

- ***Ferruginous hawk:*** There is the potential for ferruginous hawk strikes as the species may forage in the area and it is somewhat susceptible to tower collisions. Based on data from the Stateline project, only 1 of the 13 raptor fatalities (7% of the total) were ferruginous hawks (Erickson et al. 2004). As a result, although it is possible that this sensitive species could strike one of the towers and there is an estimated 1 raptor fatality every 10 years, the probability of it being a ferruginous hawk is low.

- ***Sensitive bats**:* Use of the newer tubular towers at wind farms has drastically reduced the number of bat fatalities due to tower collisions. However, as described in section 4.3.9, even with the design, siting and operational features listed in table 6, some fatalities through tower collisions may still occur. Bats mortality rates nationally range from 0.74 to 3.21 per turbine (BLM 2005), with an average of 1.5 bats per turbine with the new generation tubular turbines (Kunz et al. 2007). Most fatalities occur during fall migration, peaking in September, with minimal fatalities during the summer and winter.

  Table 8 compares the bat mortality rates for four sites in eastern Oregon and Washington. The correlation between predicted and actual bat mortality rates is lower than for avian fatalities (Kunz et al. 2007), and actual rates can vary substantially based on local migration patterns. This data is used only to generate an idea of the likely magnitude of impacts at the Lime Wind Project. Based on this data and using the rotor swept area, approximately 5 total bat fatalities could occur per year.

Table 8. Comparison of Bat Mortality Rates (number of bat fatalities per turbine per year) at Wind Farm Sites in Eastern Oregon and Washington.

Site Name	Turbines (#)	Bats/Turbine	Bats/100,000 m2 RSA per year
Klondike	16	NA	33.3
9Canyon	37	3.21	106.6
Stateline	454	1.12	53.3
Vansycle	38	0.74	45.0
Average		1.69	59.6

Estimated-Lime*	12	.42	59.6
* Based on a RSA of 8478 m2			

Most of the bat fatalities at existing Oregon and Washington wind facilities are comprised of two species, the silver haired bat (a sensitive species) and the hoary bat (*Lasiurus cinerus*), a very common and widespread bat species. Together, they comprise more than 96% of all bat fatalities. No other sensitive bat species fatalities have been observed at any wind facilities. Although it is not possible to accurately predict bat mortality at a site, it is likely that a total of around 5 bat fatalities per year could occur at the Lime Wind project, of which approximately half would likely be silver haired bats (potential of 2 to 3 bats per year). In contrast, silver-haired bat strikes at larger projects can average 250 fatalities a year (at the Stateline Project, with similar results reported in Johnson et al. [2004]), with no significant adverse population effects noted.

In general, bat mortality is restricted to obligate tree-roosting, migratory species and not resident species. Based on (1) the habits of the other sensitive bat species that could occur in the Lime Wind Project vicinity or migrate through it, and (2) the lack of any fatalities of these species at any other projects, it is not likely that the Lime Wind Project would have any effect on any other sensitive bat species. Any strikes that occur would be gathered and taken to ODFW for record and reported to appropriate authorized BLM officer.

No Action Alternative

Under the No Action Alternative, threatened/endangered/sensitive/species of concern would not be impacted in the ways described in section 4.3.9. The animal communities would continue to be dependant on ecological processes that are currently in place.

4.4 Impacts Associated with Other Important Elements of the Human Environment

4.4.1 Availability of Access/Need to Reserve Access

Proposed Action

The proposed action would improve road access to the site and would not restrict public access. There is not presently nor would the proposed action provide the public with a right to cross private land to enter the BLM administered lands in Section 36.

No Action Alternative

Under the No-Action alternative, present forms of access to the public would continue.

4.4.2 Recreation

Proposed Action

Since the project site occupies a relatively small area and wind turbines would be located on ridges that do not have dispersed camping areas, there would be no significant impact to campers, target shooters, or off-highway vehicle (OHV) users. There would be a visual and audible impact to recreationists in the immediate project area. These impacts would deter recreational activities and cause those recreationists to move to adjacent areas. These impacts are expected to be minimal due to the small number of recreational users and remote access to the area. Game herds may avoid the site during the construction phase in summer and early fall, potentially moving fall hunters to adjacent locations within the immediate area. However, the impact to this recreational activity should be minimal as the native wildlife becomes accustomed to the turbines and return to the area.

Public access into the area would not be restricted and could potentially increase recreational use of the area on a small scale by the improved road access and curiosity about wind turbines. Section 36 is, by most standards, remote and the distance from any town or populated area keeps its recreational use relatively low. Any increased impact of OHVs, campsite development, and general recreational use due to improvement to the access road is expected to be minimal.

No Action Alternative

Under the No-Action alternative, current conditions for recreationalists and hunters would continue.

4.4.3 Existing and Potential Land Uses

Proposed Action

The project area lies within the South Pasture of Huntington allotment. Cattle grazing is authorized each spring and scheduled from April 1st thru the end May of each year.
The construction period is planned to start July 1st after the spring grazing period. Therefore spring grazing would not be impacted during the year of construction. Grazing in following years will be minimally impacted due to reseeding and mitigation of vegetation loss. Because this range is rated at three acres per AUM, permanent loss of vegetation on 3.20 acres would affect 1.07 AUMs. 1.07 AUMs affected is approximately one fifth of 1 % of total AUMs grazing.

Road access would be open to the public and the permittees (see Availability of Access).

After reclamation 3.20 acres would be permanently removed from production. Reseeding of disturbed areas will mitigate any loss of forage to grazing permittees. The applicant would install a cattle guard at the Private/BLM boundary to mitigate grazing conflicts.

Prior to construction Qwest would be called on site to locate their fiberoptic line. There would be no activity by the applicant or the construction process within 20 feet of this located line.

As managers of the surface estate in this split estate situation, the BLM recognizes the superior

right to the mineral estate. If the owner of the mineral estate wishes to extract their minerals, the BLM will consider the surface values which need protection from the mineral extraction operation and restrict these actions accordingly, however the mineral extractions will not be altogether denied.

No Action Alternative

Under the No-Action alternative, 3.20 acres would not be permanently removed from grazing production. Existing conditions would continue.

4.4.4 Vegetation and Rangeland Resources

Proposed Action

Road construction and the operation of machinery and vehicles during construction of wind turbine foundations would result in the direct loss and alteration of up to 8.89 acres of native plant communities within the disturbed area. The disturbed area would be reseeded with a certified weed-free native grass mix as prescribed by the BLM. The planned seed mix would include bluebunch wheatgrass, Sandberg's bluegrass, and possibly blue wildrye, and Idaho fescue if these occur naturally within the project area. Applicant would continue to monitor the site annually and reseed as needed to approximate the pre-existing cover densities. Requirement to reseed the site would be determined by BLM. When re-vegetation occurs, seeded native grass species are expected to increase over time. Additional natural regeneration of shrub and wildflower species would also occur from seed sources in near proximity to the disturbance. In the long term beyond five to ten years, density of native plant species should recover completely except for the turbine foundation footprint, transformer pads, and roads necessary to the project totaling 3.20 acres. Road surfaces not regularly graded or graveled, but used for routine access and maintenance would partially revegetate.

No Action Alternative

Under the No Action alternative, vegetation and rangeland resources would be subject only to current conditions.

4.4.5 Soils

Proposed Action

During the short-term construction process, 8.89 acres will be initially impacted. Due to reclamation procedures and long-term monitoring, only 3.20 acres are expected to be permanently lost.

Heavy construction equipment, including dozers, excavators, graders and rollers would be used to build or improve roads, and construct wind turbine foundations. The three soil types that would be impacted by activities associated with the proposed action range from a slight to very high water erosion potential. The soils would be impacted through disturbance of heavy

machinery, removal for foundations, grading of roadway, and compaction on roadway and in the vicinity of the turbine sites.

Foundation construction would remove topsoil to an adjacent location, for replacement during reclamation. The foundations are expected to displace 1,000 to 1,500 yards of material with concrete. The overburden material would be used to rock project roads.

The impact to soils within the construction zone can be minimized by the time of year construction commences, construction duration, construction practices, and reclamation methods. The construction window would be from July thru October taking advantage of the dry weather conditions. The construction phase is expected to take 3-4 months. Reclamation is expected to take one week and would begin as soon as roads are completed and wind turbine foundations are backfilled. Disturbed areas would be shaped, water-barred, compacted and seeded with native vegetation prescribed by the BLM. The Applicant would provide long term monitoring and reseeding as necessary. The project area would be revegetated immediately after construction and long term monitoring would occur, therefore minimal impact to soils is expected.

No Action Alternative

Under the No-Action alternative soils would be subject only to current conditions.

4.4.6 Visual Resources

Proposed Action

The VRM analysis stage involves determining whether the potential visual impacts from proposed surface-disturbing activities or developments would meet the management objectives established for the area, or whether design adjustments would be required. A visual contrast rating process is used for this analysis, which involves comparing the project features with the major features in the existing landscape using the basic design elements of form, line, color, and texture. This process is described in BLM Handbook H-8431-1, Visual Resource Contrast Rating (BLM 1986). The analysis can then be used as a guide for resolving visual impacts.

The proposed turbines would be located near the tops of ridgelines where they would have impacts on visual resources or scenic vistas seen from the adjacent VRM Class II areas of Farewell Bend, Spring Recreation Site, and the Brownlee Reservoir. Therefore, the impact analysis examines the following potential results:

- Result in substantial damage to scenic resources, such as trees, rock outcroppings, or historic resources along a designated state scenic highway;

- Substantially degrade the existing visual character or quality of a site and its surroundings.

- Create a new source of light or glare that affects day or nighttime views in an area.

A viewshed analysis (Appendix A of Attachment A) indicates that the Lime Wind project may also be visible in the background from vantage points in the Oregon Trail ACEC at Birch Creek and Tub Mountain to the south and at Chimney Creek to the north. The analysis is based upon a calculation using an observation height of 60 meters for the wind turbines and a 10 meter digital elevation model raster image to identify locations on the surrounding landscape where the project, or portions of the project, may be visible.

From Birch Creek, the Lime Wind Project is about 9.25 miles to the northwest, and may be visible from several locations along the Oregon Trail route. From a portion of the historic Oregon Trail route north of Tub Mountain Reservoir, the Lime Wind Project may be visible at a distance of about 15 miles to the north. The Chimney Creek area is located about 4.87 miles northwest of the Lime Wind Project. The turbines may be visible from a small area at the extreme southeast portion of the Oregon Trail route where it crosses BLM land at Chimney Creek.

For all locations, the Small Angle Formula (see Appendix D of Attachment A) was used to simulate the turbines visual impact. This formula gives each location's viewable height of the turbines measured 30 inches from the eye. **Table 9** gives relative heights of the turbines for each KOP.

Table 9: KOP Turbine Heights using the Small Angle Formula

Location	Distance to Lime Wind Site (air miles)	Height at Arms Length (inches)
Spring Recreation Area	2.5	.33
I 84 South Bound	3.5	.23
I 84 North Bound	4.25	.19
Farewell Bend State Park	7	.11
Birch Creek ACEC	9.25	.09
Tub Mountain ACEC	15	.05
Brownlee Reservoir South (first view)	6	.13
Brownlee Reservoir North (first view)	2.75	.29
Brownlee Reservoir (closest)	1.75	.47

Using the Small Angle Formula it was found that the turbines would present a height of .05 inches thirty inches (arms length) from the eye when viewed from Lookout Mountain. The blades would be .001 inches wide, making the motion imperceptible to the casual viewer.

Construction of the project would require 3-4 months. These construction activities may be visible from nearby roads and Interstate 84. These would be short term impacts to the visual resources due to construction requirements to place the turbines. Once erected, the turbines would be left in place for 30 years, at which time an extension for another 30 years may be requested.

See **Appendix C** of **Attachment A**, for a list of Key Observation Points (KOP) and their relation to the proposed project site.

The turbines would be visible from many areas and high points within the Baker Field Office boundaries at a variety of distances due to the height and location of the towers. However, the analysis of the visual impacts utilizes the Key Observation Points identified earlier which take into account sensitive areas as well as those areas with high concentrations of visitor use that would be able to see the Lime Wind Project.

The turbines would be visible at different points from the Spring Recreation Site, Farewell Bend State Park, and Lookout Mountain areas. They would also be able to be seen by the boating traffic on the Brownlee Reservoir from 6 river miles along the reservoir from points 2.5 miles north of Spring Recreation Area to 3.5 miles south of Spring Recreation Area. All of these viewpoints are located within VRM Class II areas adjacent to the project area. The turbines would also be visible from the northbound lanes of I-84 from milepost 345 to 358 and from the southbound lanes from milepost 340 to 342, which fall under VRM Class IV management. In addition, the turbines would be visible from parts of Birch Creek ACEC, Tub Mountain ACEC, and Chimney Creek ACEC, all of which are components of the National Historic Oregon Trail. Although the Birch Creek ACEC and Tub Mountain ACEC are contained within the Malhuer Field Office boundaries with a VRM Class II classification, the analysis incorporated the impacts of these sensitive sites as well as the sites contained within the Baker Field Office boundary to ensure a comprehensive VRM analysis.

Visual Contrast Rating Analyses have been completed for each of the previously mentioned sites, excluding Lookout Mountain, Chimney Creek and the Brownlee Reservoir. Lookout Mountain was inaccessible due to winter road conditions at the time this document was produced, Chimney Creek is not accessible via public roads and the private road is gated and locked not allowing access for an on site analysis. The Brownlee Reservoir analysis would be comparable to Farwell Bend and Spring Recreation Areas due to the minimal change in distance zones from these KOP's and the center of the reservoir where the analysis would take place. Therefore Visual Contrast Rating Worksheets were not completed specifically for these areas. The viewshed analysis (see **Appendix A** of **Attachment A**) indicates that the Lime Wind Project may be visible for 6 river miles along the Brownlee Reservoir from points 2.5 miles north of Spring Recreation Area to 3.5 miles South of Spring Recreation Area.

After utilizing the Visual Contrast Rating Analyses to determine the impacts of the Lime Wind Project, it was determined that the project design would not detrimentally impact the visual resource management objectives of the area (see **Appendices E – J** of **Attachment A**). Though the project would be visible in areas of higher VRM classifications (highest being a Class II), the impact from the project would be in compliance with the management direction for Class II which states that "management activities may be seen, but should not attract the attention of the casual observer".

One of the primary impacts from the turbines which is not covered under the usual Visual Contrast Rating Analysis is the "motion" created by the turbine blades. Motion is always noticed and draws the attention and eyes of public users and travelers. However, with the large distance zones at which the turbines would be visible and the reduced scale of the project due to that distance, the spinning motion of the turbines is not expected to have a significant impact.

No Action Alternative

Under the No-Action alternative, there would be no visual impact to the recreational or scenic areas.

4.4.7 Economic and Social Values

Proposed Action

The proposed Lime Wind Project is based on the idea of creating a community-based renewable energy source within Baker County. There are broad advantages as a result of the wind turbines themselves, as well as the economic impact of the construction project.

The installation costs are projected at 4.9 million dollars to provide the infrastructure, turbines, erection, and road work. Twenty five percent of the projected installation cost would enter the local economy as wages and locally purchased materials for the construction of roads, foundations, and the erection of turbines.

The State of Oregon would complete an assessment of the Lime Wind Project to determine the tax value after construction of the project is completed. The Lime Wind Project would be taxed at the appropriate rate by Baker County.

The State of Oregon and the Federal Government have made renewable energy on public lands a priority. This project would create approximately 8,229 Megawatts of electricity annually, enough to power 800 homes in the Pacific Northwest. The power generated may replace coal power there by offsetting the burning of 1600 tons of coal each year, helping to reduce the emission of greenhouse gases by 3000 tons annually.

No Action Alternative

Under the No-Action alternative, over 3 million dollars would not be added to local tax roles, 8,229 megawatt hours (MWH) of electricity would not enter the grid annually, 3000 tons of greenhouse gases emitted into the atmosphere by coal-fired power plants would not be displaced by wind energy, and over one million dollars will not enter the local economy for wages and materials. Other non-hydropower renewable energy projects located on public lands would need to be created in order to be in accordance with the Energy Policy Act of 2005.

4.4.8 Noise

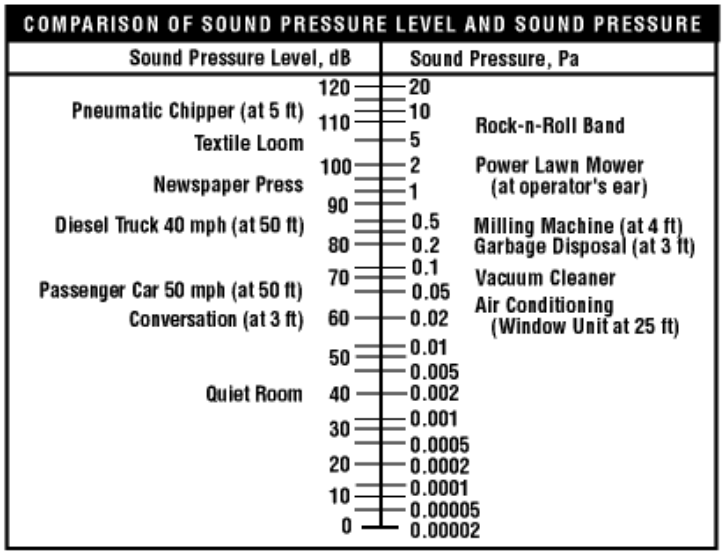
Proposed Action

The twelve 250 KW wind turbines would create noise which would be audible at the site to wildlife and the general public that access the site. The wind turbines will create broadband noise as their revolving rotor blades encounter turbulence in the passing air. Broadband noise is usually described as a "swishing" or "whooshing" sound. Noise levels would range between 35-

45 dB at 350 feet (The Scottish Office 1994). Turbines do not seem exceptionally noisy close because the sound does not come from a concentrated spot but from the large area of the rotor.

Below is **Table 10**, showing the loudness ("sound pressure level") of some common noises

Table 10: (Canadian Centre for Occupational Health and Safety, 2008)



Noise from the turbines would not be audible from any nearby recreational points of interest or residences.

See “Wildlife” for impacts of projected noise on wildlife, birds, and bats.

No Action Alternative

Under the No-Action alternative, noise levels would not be increased by construction or wind turbines. Noise levels would continue at current levels.

4.4.9 Public Health and Safety

Proposed Action

Flaggers and traffic controllers would be provided by the applicant during the construction phase. A speed limit of 20 mph would be posted and enforced during this time.

All turbines are remotely located on ridge tops. Access up to the project site would be open to those accessing the BLM property. There is no inherent danger (after construction) associated with exterior access as towers, transformers and electrical collectors would be locked at all times and access would only be available to the Applicant or its agent.

No Action Alternative

Under the No-Action alternative, there would be no increase of traffic from construction and therefore no increase of the possibility of traffic injuries. Health and safety concerns would continue at current levels.

4.5 Cumulative Impacts

The Council on Environmental Quality (CEQ) defines cumulative effects as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). A June 2005 CEQ memorandum states:

> The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision making regarding the proposed action. This can occur in two ways:
>
> First, the effects of past actions may warrant consideration in the analysis of the cumulative effects of a proposal for agency action. CEQ interprets NEPA and CEQ's NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the agency proposal for action and its alternatives may have a continuing, additive and significant relationship to those effects. In determining what information is necessary for a cumulative effects analysis, agencies should use scoping to focus on the extent to which information is "relevant to reasonably foreseeable significant adverse impacts," is "essential to a reasoned choice among alternatives," and can be obtained without exorbitant cost (40 CFR 1502.22). Based on scoping, agencies have discretion to determine whether, and to what extent, information about the specific nature, design, or present effects of a past action is useful for the agency's analysis of the effects of a proposal for agency action and its reasonable alternatives. Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined. Agencies retain substantial discretion as to the extent of such inquiry and the appropriate level of explanation (*Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 376-77 [1989]). Generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.
>
> Second, experience with and information about past direct and indirect effects of individual past actions may also be useful in illuminating or predicting the direct and indirect effects of a proposed action. However, these effects of past actions may have no cumulative relationship to the effects of the proposed action. Therefore, agencies should clearly distinguish analysis of direct and indirect effects based on information about past actions from a cumulative effects analysis of past actions.

The following cumulative impact analysis is limited to past, present, and reasonably foreseeable future actions that involve impacts on a resource value that overlaps with the Proposed Action's impacts on that same resource value. Thus, not all actions identified are discussed for each resource. The cumulative visual resource area is comprised of the twelve 250 KW wind turbines and the surrounding area from which they can be seen.

Currently, one other project with the potential to contribute to cumulative impacts around Lime, Oregon has been identified. Elkhorn Valley Wind Farm (Horizon Wind Energy) has erected larger turbines east of North Powder, Oregon, approximately 60 miles north of the Proposed Action analyzed in this document.

There would be no cumulative effects on wild and scenic rivers, wilderness areas, floodplains, wetlands/riparian zones, environmental justice, farm lands, threatened/endangered fish, threatened or endangered or Bureau Sensitive plant species, Indian trust resources, fisheries, forest resources, wild horse and burro designated herd management areas or mineral resources because these elements do not occur in or immediately adjacent to the Proposed Action.

The analysis of effects of the Proposed Action on cultural resources, paleontological resources, hazardous or solid wastes, air quality, surface water and groundwater quality, availability of access or ACECs indicated that the Proposed Action would not affect these elements. Therefore, implementation of the Proposed Action would have no cumulative effects on these elements.

The analysis of effects of the Proposed Action on visual resources, biological resources (e.g., plants, noxious and invasive weeds, migratory birds, wildlife, threatened and endangered species), and recreation, existing and potential land uses, vegetation, soils indicated that effects on these elements would be minor. Cumulative effects of the Proposed Action on these elements would be negligible for the following reasons.

- The habitat types the Proposed Action would affect are abundant in the region.
- The Lime Wind Project is located in a relatively remote area and therefore is removed from other major projects that would contribute to cumulative effects.
- The contribution of clean, renewable energy added to the power grid by the Proposed Action and other wind power projects in the area is significant enough to offset the cumulative effects on recreation and visual resources.

The Proposed Action would result in approximately 8.89 of initial disturbance but would likely cause negligible cumulative impacts because of the rehabilitation of the disturbed area resulting in only 3.20 acres of permanent disturbance as well as the lack of other projects in the vicinity.

The cumulative impact to the Visual Resources of this area as well as surrounding areas is speculative. Additional construction projects are not currently underway; however other studies are being performed in surrounding areas that could lead to additional wind energy developments.

Cumulative impacts from further developments could become a visual issue if additional projects are planned in adjacent areas to this project. These impacts would need to be assessed through

the VRM analysis process for those projects based on their placement within VRM Classifications, proximity to the Lime Wind Project as well as the scope and size of those developments.

With the development of the Lime Wind Project as the first wind energy site in this area, along with no definite construction projects planned for adjacent lands, it is determined that there are no cumulative impacts resulting from the Lime Wind Project.

4.6 Summary

No significant individual or cumulative impacts are anticipated as a result of the proposed action.

5) CONSULTATION AND COORDINATION

5.1. Persons and Agencies Notified or Consulted:

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Catherine Dickson – Cultural Resources, Confederated Tribes of the Umatilla Indian Reservation
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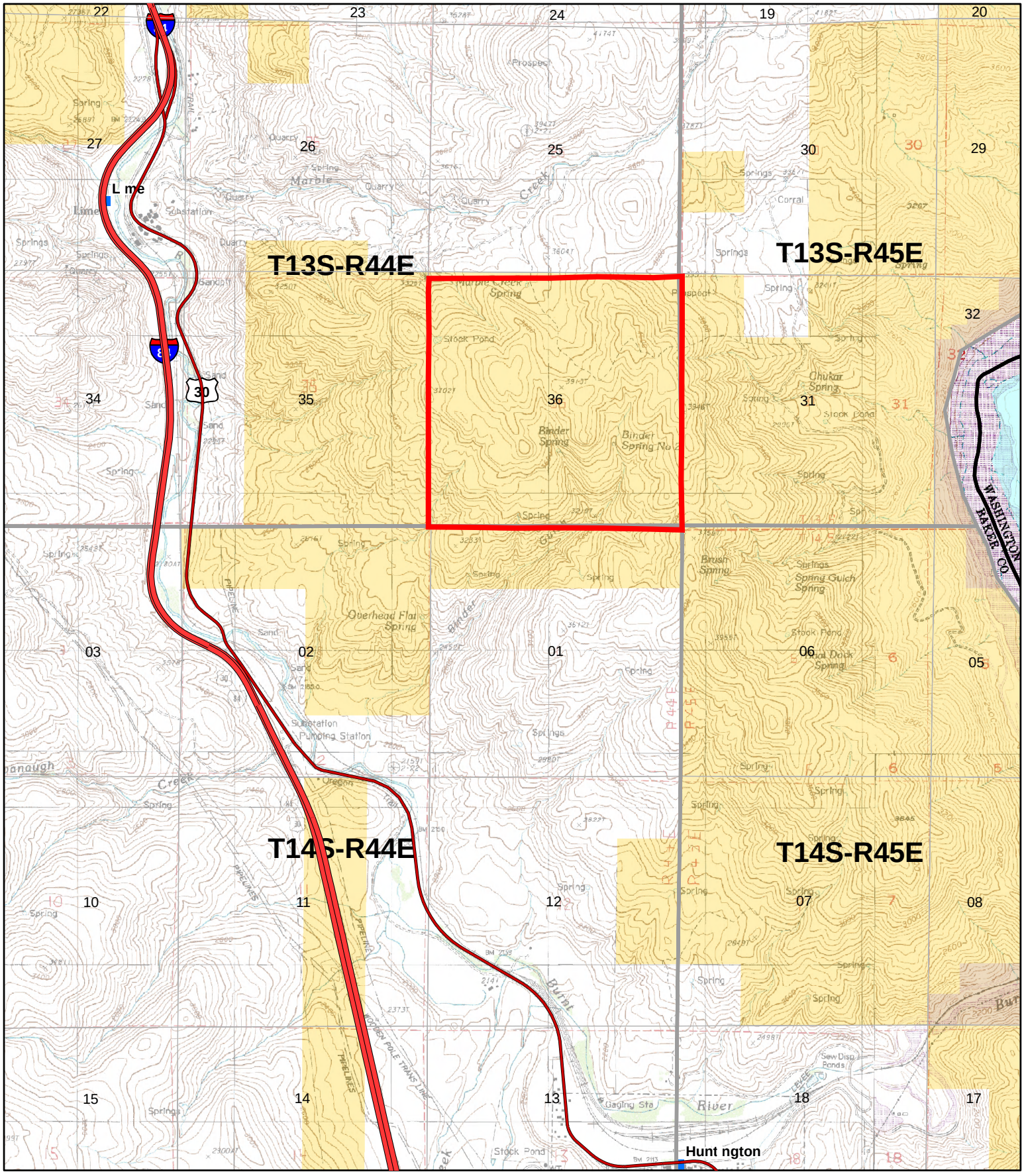
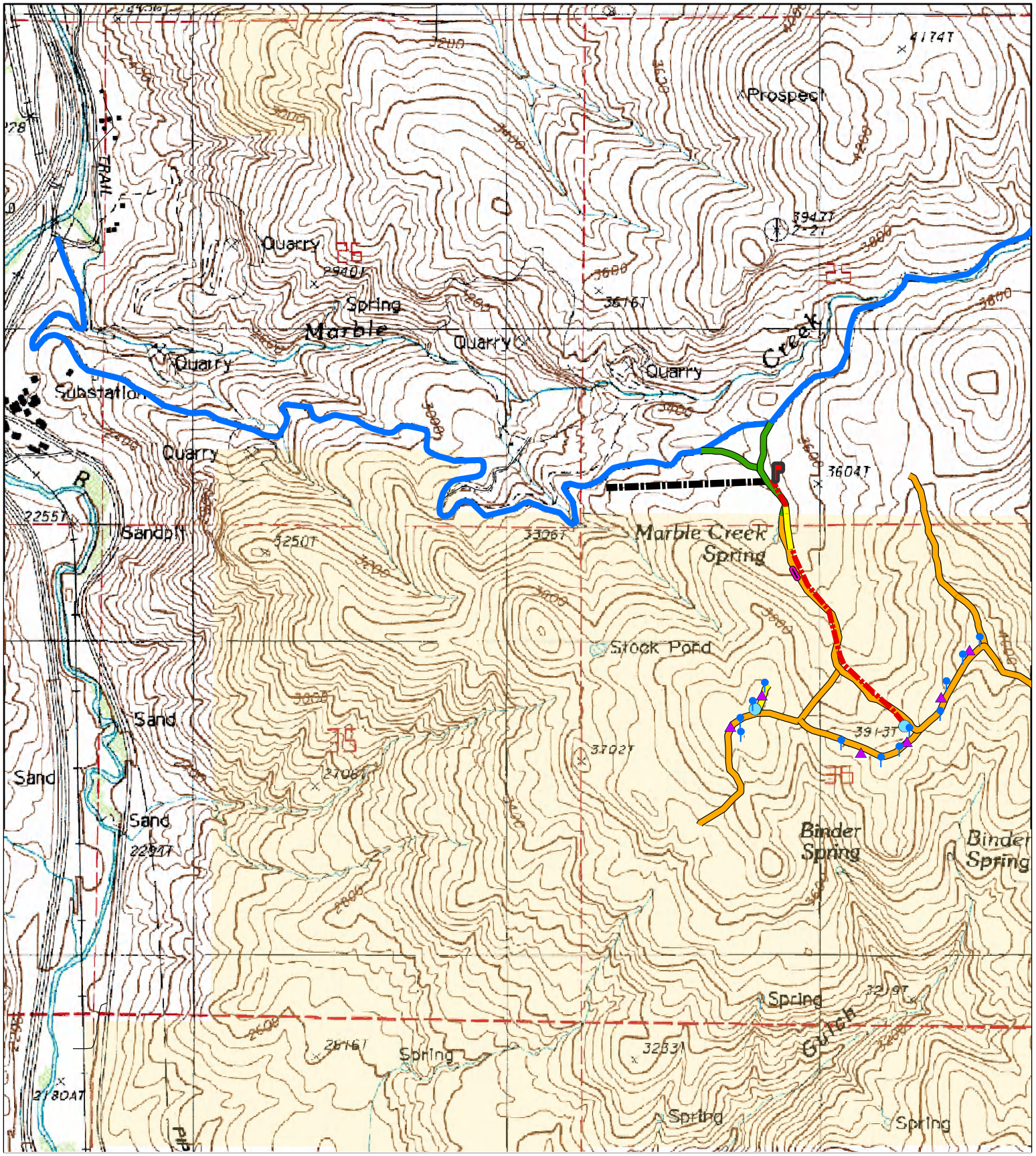




Legend

- Interconnection Point
- Collector
- Transformer
- Turbine
- County Road
- Existing Road
- Private Road
- Proposed Road
- Turnout
- Existing Electrical Transmission
- Overhead Electrical
- BLM
- Private

0 0.2 0.4 Miles

0 355 710 1,420 2,130 2,840 Feet

N

Project Location

Oregon

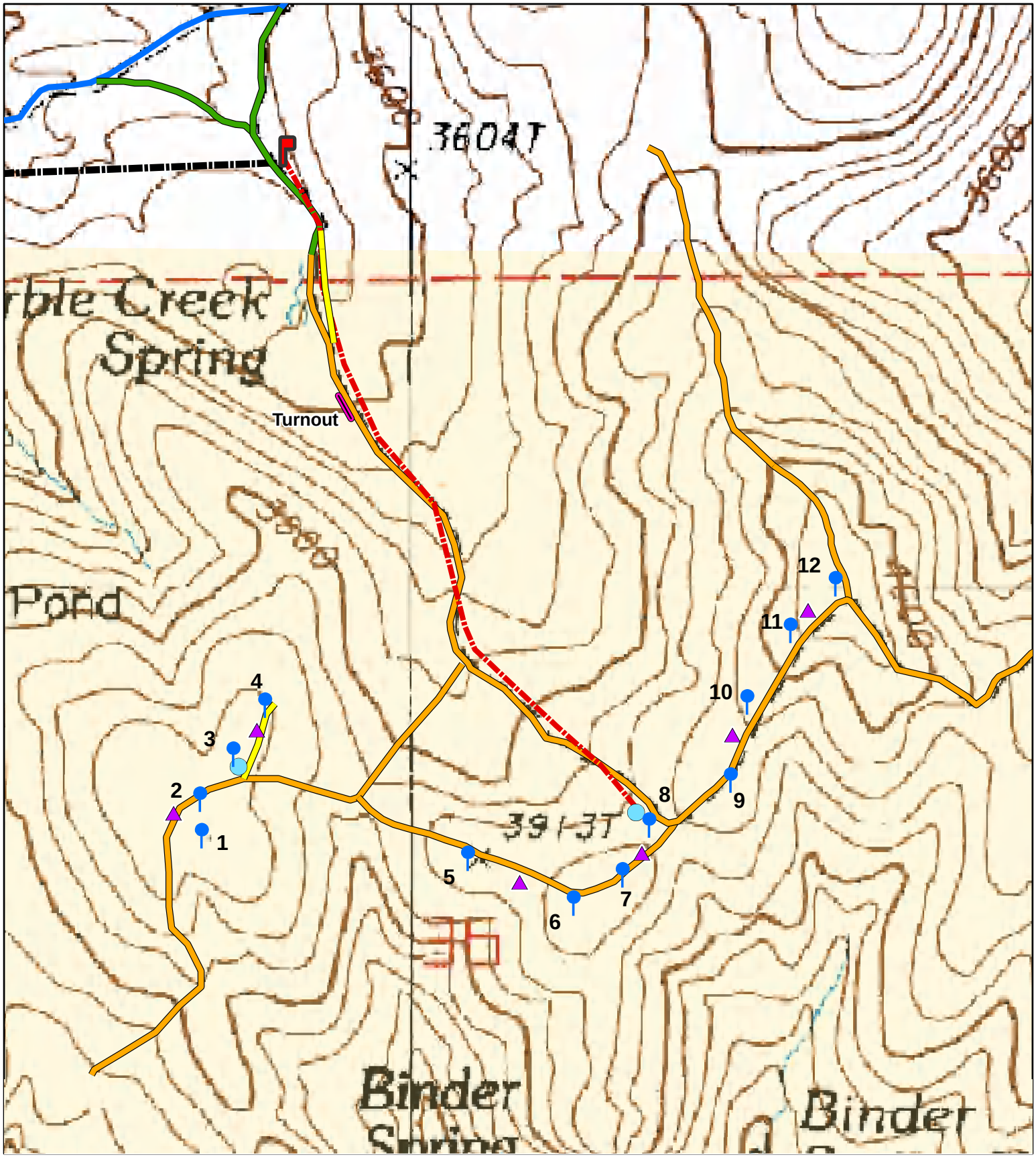
Lime Wind Energy Proposal
Exhibit II

U.S. Department of Interior
Bureau of Land Management

Vale District

Baker Resource Area

September 4, 2008



Legend

- Interconnection Point
- Collector
- Transformer
- Turbine
- County Road
- Existing Road
- Private Road
- Proposed Road
- Turnout
- Existing Electrical Transmission
- Overhead Electrical
- BLM
- Private

0 0.05 0.1 Miles

0 130 260 520 780 1,040 Feet

N

Project Location

Oregon

Lime Wind Energy Proposal
Exhibit III

U.S. Department of Interior
Bureau of Land Management

Vale District

Baker Resource Area

September 4, 2008

0 0.1 0.2 Miles

0 130 260 520 780 1,040 Feet

Legend

Proposed Road

*Existing two-track roads (A to B)
*New and existing two-track roads (B to D)
*Existing two-track roads (D to E)
*Existing two-track roads (C to F)
*Existing two-track roads (Dt to G)

Lime Wind Energy Proposal
Exhibit IV

N

Project Location

Oregon

U.S. Department of Interior
Bureau of Land Management

Vale District

Baker Resource Area

September 4, 2008

Exhibit V

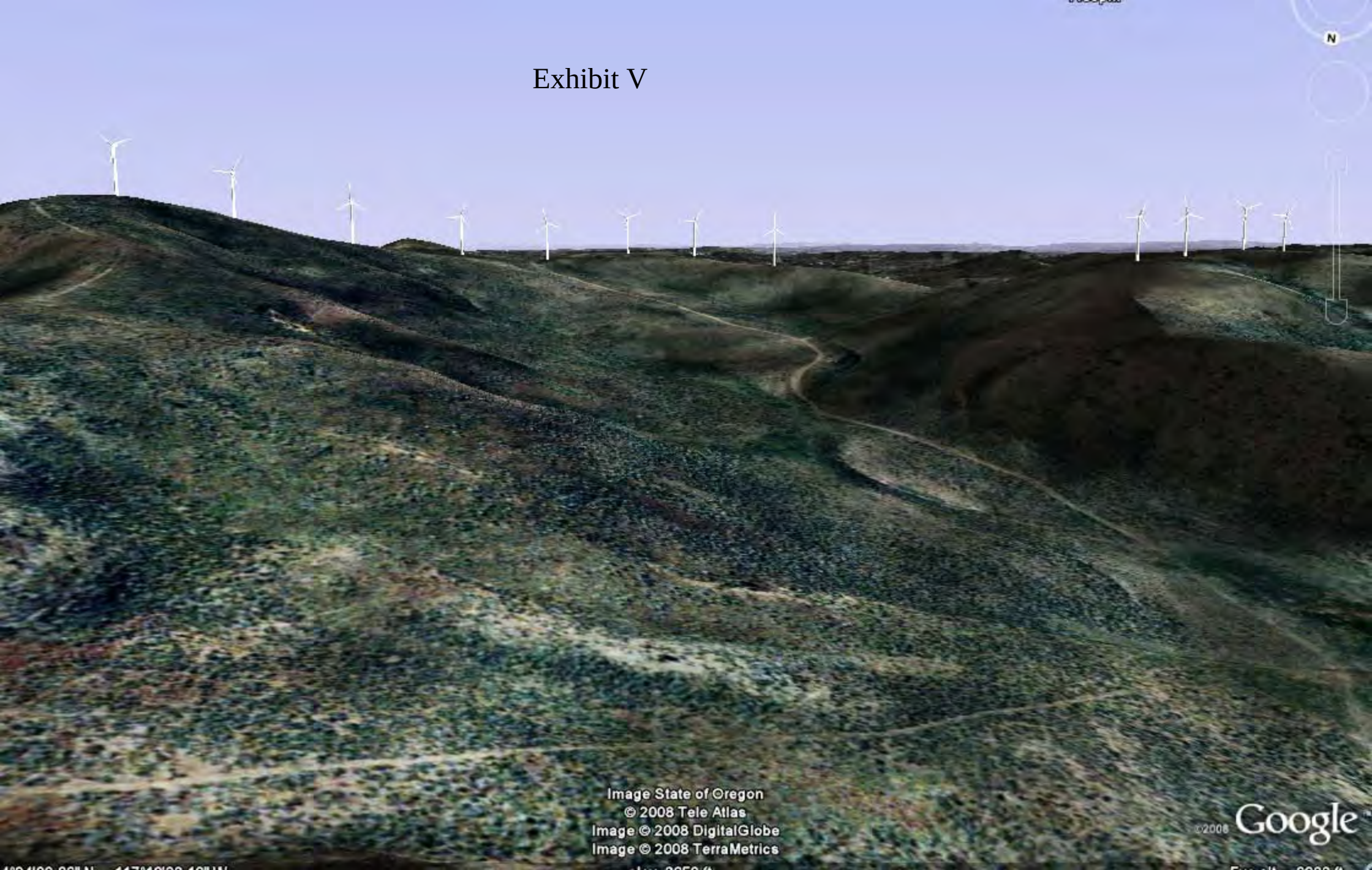

N
Image State of Oregon
© 2008 Tele Atlas
Image © 2008 DigitalGlobe
Image © 2008 TerraMetrics
©2008 Google

Exhibit VI

MODEL MWT-250 TECHNICAL PARTICULARS

TOYOWEST WIND FARM (CALIFORNIA)

TURBINE

Type	:	Blade-pitch controlled upwind type
Rated output	:	275kW
Rotor diameter	:	92ft (28m)
Rotor speed	:	48 rpm
Number of blades	:	3 (FRP material)
Rated wind speed	:	28.9mph (12.9m/s)
Cut-in wind speed	:	11.2mph (5m/s)
Cut-out wind speed	:	53.7mph (24m/s)
Survival wind speed	:	134mph (60m/s)

GENERATOR

Type	:	Induction generator
Rated output	:	275kW
Voltage, phase & frequency	:	480V, 3-phase, 60Hz

TOWER

Type	:	Monopole
Height (to center of nacelle)	:	100ft (30m)

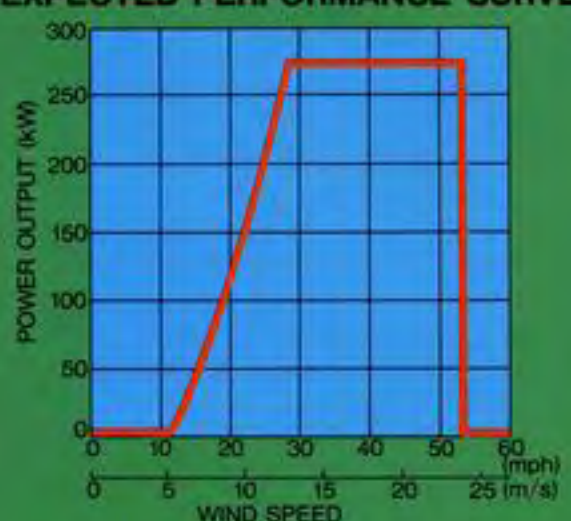
CONTROL SYSTEMS

Power regulation	:	Pitch control
Yaw orientation	:	Yaw control

SAFETY INTERLOCKS

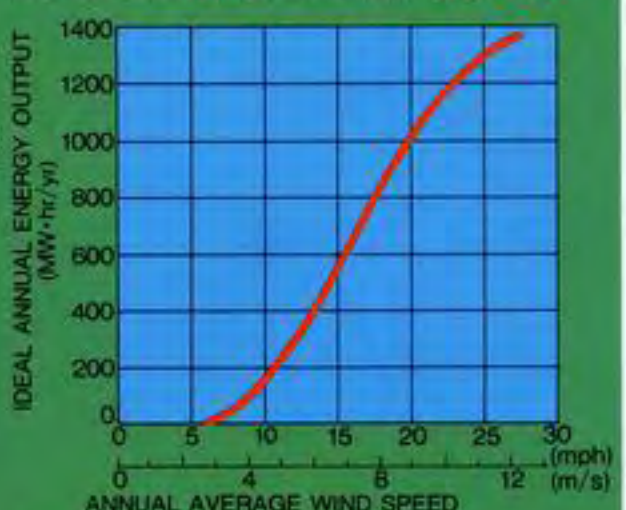
Overspeed
Low governor oil pressure
Excessive nacelle vibration
Yaw control disorder
Generator overcurrent
Controller disorder

EXPECTED PERFORMANCE CURVE



ATMOSPHERIC PRESSURE: 1013.3 hPa
ATMOSPHERIC TEMPERATURE: 20°C

IDEAL ANNUAL ENERGY OUTPUT



WIND DISTRIBUTION:
WEIBULL'S DISTRIBUTION
SHAPE PARAMETER: K = 2.0
ATMOSPHERIC PRESSURE: 1013.3 hPa
ATMOSPHERIC TEMPERATURE: 20°C

Exhibit VII

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT	OTHER IMPORTANT ELEMENTS OF THE HUMAN ENVIRONMENT
The following elements of the human environment are subject to requirements specified in treaty, statute, regulation, or executive order and must be considered in all environmental assessments	The elements of the environment listed below are not included on the "critical elements" list, but are important to consider in assessing all impacts of the proposal(s).

All the following elements have been analyzed. Elements denoted by an "X" in the *not affected* column are not affected by the proposed action or alternatives and would receive no further consideration.

Elements	Not Affected	Affected	Elements	Not Affected	Affected
Air Quality		X	Paleontological Resources	X	
Areas of Critical Environmental Concern	EA will discuss		Indian Trust Resources	X	
Cultural Resources	EA will discuss		Availability of Access/Need to Reserve Access		X
Environmental Justice (EO 12989) (minority and low-income populations)	X		Recreation Use, Existing and Potential		X
Farm Lands (prime or unique)	X		Existing and Potential Land Uses		X
Floodplains	X		Vegetation types, communities; vegetative permits and sales; Rangeland resources		X
Invasive, Non-native Species		X	Fisheries	X	
Native American Religious Concerns	None Known		Forest Resources	X	

Exhibit VII

Threatened/Endangered Plants; Sensitive Plants		X	Soils		X
Threatened/Endangered Fish; Sensitive Fish	X		Wild Horse and Burro Designated Herd Management Areas	X	
Wastes, Hazardous or Solid		X	Visual Resources		X
Water Quality – Surface		X	Economic & Social Values		X
Wetlands/Riparian Zones (including uplands)	X		Mineral Resources	X	
Wilderness	EA will discuss		Noise		X
Wild & Scenic Rivers	X		Public Health & Safety	EA will discuss	
Wildlife (including Migratory Birds and Threatened/Endangered/ Sensitive/Species of Concern)		X			

Exhibit VIII. TES Wildlife Species Potentially Occurring Within the Lime Wind Energy Project Area as Identified by ODFW.	
Species	**Status**
BIRDS	
Western burrowing owl *Athene cunicularia hypugaea*	Species of Concern
Greater sage-grouse *Centrocerus urophasianus*	Species of Concern
Ferruginous hawk *Buteo regalis*	Species of Concern
Bald eagle *Haliaeetus Leucocephalus*	Species of Concern
MAMMALS	
Pallid Bat *Antrozous pallidus pacificus*	Species of Concern
Silver-haired bat *Lasionycteris noctivagans*	Species of Concern
Small-footed myotis *Myotis ciliolabrum*	Species of Concern
Long-eared myotis *Myotis evotis*	Species of Concern
Fringed myotis *Myotis thysanodes*	Species of Concern
Yuma myotis *Myotis yumanensis*	Species of Concern
Desert Bighorn *Ovis canadensis nelsonii*	Species of Concern

Exhibit IX

Table 1. Federally Listed Threatened, Endangered or Candidate Species that May Occur in Baker County.			
Scientific Name	**Federal Status**	**Habitat Summary**	**Habitat in Lime Project Area of Influence**
Fish Species			
Salvelinus confluentus (Bull tout [Columbia River Basin])	Threatened	Cool, clear tributaries to the Powder and North Power Rivers. Not known from the Burnt River Basin.	No
Amphibians and Reptiles			
Rana luteiventris (Columbia spotted frog)	Candidate	Open, non-turbid, slack or ponded water. Often found in association with seeps and springs, open water with floating vegetation, and larger bodies of ponded water such as lakes and stream backwaters.	No
Plant Species			
Thelypodium howelli spp. *spectabilis* (Spectacular thelypody)	Threatened (also OR Endangered)	Moist, alkaline meadows within valley bottoms between 3,000-3,500 feet	No

Table 2. Other Federal Species of Concern that May Occur in Baker County.			
Common Name	**Scientific Name**	**Habitat Summary**	**Habitat in Lime Project Area or Vicinity**
BIRD SPECIES			
Northern goshawk	*Accipiter gentilis*	Mature or old growth forest	No
Western burrowing owl	*Athene cunicularia hypugea*	Open grasslands	Yes
Ferruginous hawk	*Buteo regalis*	Open grassland and shrub-steppe	Yes
Greater sage-grouse	*Centrocercus urophasianus*	Sagebrush steppe or occasionally grassland	Yes
Olive-sided flycatcher	*Contopus cooperi*	High elevation coniferous forest	No
Willow flycatcher	*Empidonax trailli adastus*	Riparian scrub shrub	No
Yellow-breasted chat	*Icteria virens*	Dense deciduous shrubs	No
Lewis' woodpecker	*Melanerpes lewis*	Open ponderosa pine forest	No
Mountain quail	*Oreortyx pictus*	Tall, very dense shrubs in steep canyons, near water	No
White-headed woodpecker	*Picoides albolarvatus*	Coniferous forest	No

Columbian sharptailed grouse	*Tympanuchus phasianellus columbianus*	Shrub steppe, meadow steppe, deciduous shrub; extirpated from OR and only known from re-introductions in Wallowa County	No
FISH SPECIES			
Pacific lamprey	*Lampetra tridentata*	Columbia River tributaries below dams; does not occur in Burnt or Powder Rivers.	No

AMPHIBIANS AND REPTILES			
Tailed frog	*Ascaphus montanus*	Very cold, swift moving streams at high elevation	No
Northern sagebrush lizard	*Sceloporus graciosus graciosus*	Sagebrush and bitterbush communities on sandy soil	No
INVERTEBRATE SPECIES			
Blue Mountains cryptochian caddisfly	*Cryptochia neosa*	Shaded, high gradient, headwater streams with abundant small wood and bark.	No
MAMMAL SPECIES			
Pygmy rabbit	*Brachylagus idahoensis*	Dense sagebrush habitat in deep, loose soils	No
Pallid bat	*Antrozous pallidus pacificus*		
Pale western big-eared bat	*Corynorhinus townsendii pallescens*		
Townsends's western big-eared bat	*Corynorhinus townsendii townsendii*		
Silver-haired bat	*Lasionycteris noctivagans*		
Small-footed myotis (bat)	*Myotis ciliolabrum*		
Long-eared myotis (bat)	*Myotis evotis*		
Fringed myotis (bat)	*Myotis thysanodes*		
Long-legged myotis (bat)	*Myotis volans*		
Yuma myotis (bat)	*Myotis yumanensis*		

California wolverine	*Gulo gulo luteus*	Subalpine forest and alpine meadows and fellfields	No
Gray wolf	*Canus lupus*	Known only from forested habitats in Oregon	No
Preble's shrew	*Sorex preblei*	Marshes and creeks within shrub-grass associations	No

Exhibit X

Baker County Planning & Community Development Department

March 24, 2008

Randy Joseph
Joseph Millworks
37123 Hansen Lane
Baker City OR 97814

RE: Lime Wind Project located T13S, R44E, Sec. 36 USDOI/BLM property

Dear Mr. Joseph:

The Baker County Zoning and Subdivision Ordinance #83-3 Section 105, (Application) states the following: This Ordinance shall apply to all land in the County outside the incorporated cities and their adopted urban growth boundaries except:

A. Land managed by agencies of the federal government.

The theory behind this exception is the federal government land use approval system exceeds the oversight by the county. Additionally the federal government through intergovernmental agreements with the county and NEPA requirements provides numerous opportunities for the county to participate in the decision making process.

In the event that Baker County can provide further assistance please feel free to contact our office.

Sincerely

Mark Bennett, Director
Planning and Community Development
Office: 541.523.8219

Exhibit XI

Oregon
Theodore R. Kulongoski, Governor

Department of Fish and Wildlife
Baker City Field Office
Grande Ronde Watershed District
2995 Hughes Lane
Baker City, OR 97814
(541) 523-5832
FAX (541) 523-5874

December 17, 2007

Nancy K. Lull
Bureau of Land Management
Baker Field Office
P.O. Box 947
Baker City, OR 97814

Re: Randy Joseph application for wind development project on BLM land

Dear Nancy:

The purpose of this letter is to provide a correction to the comment letter I submitted on Randy Joseph's application to the BLM for a right-of-way for a wind development project near Lime, OR.

In my original letter, I said that "minimal effort has been made to survey the area for the presence of sage grouse leks" and I recommended "the project area and surrounding areas be intensively surveyed for the presence of sage grouse leks before the initiation of the project". After submitting the letter, it came to my attention that my statement was incorrect.

The area of proposed development was surveyed by ODFW for the presence of sage grouse from the air during April 2006. No active sage grouse leks were located within a 5 mile radius of the project site.

I apologize for this oversight. If you have any questions or need further information please contact me at (541) 523-5832.

Sincerely,

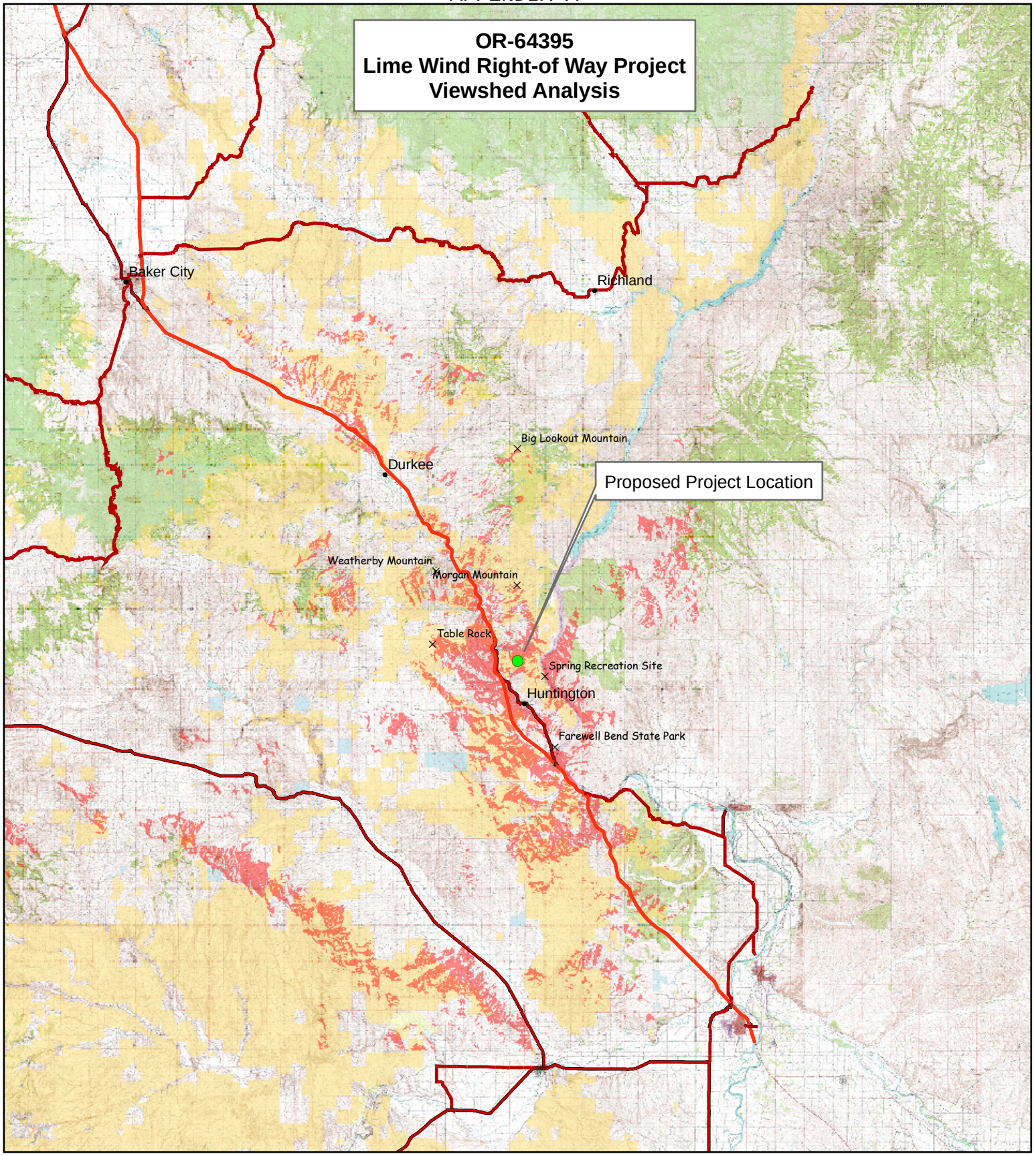
Nick Myatt
District Wildlife Biologist

cc: Bruce Eddy, ODFW Grande Ronde Watershed Manager

Attachment A
Visual Resource Management

Appendix A	Visual Resource Analysis Map – BLM large
Appendix B	Visual Resource Analysis Map – Oregon Power Solutions
Appendix C	Key Observation Points Map – Joseph Millworks
Appendix D	Small Angle Formula
Appendix E	Visual Contrast Rating Worksheet – Tub Mountain
Appendix F	Visual Contrast Rating Worksheet – Birch Creek
Appendix G	Visual Contrast Rating Worksheet – Farewell Bend Park Entrance
Appendix H	Visual Contrast Rating Worksheet – Spring Recreation
Appendix I	Visual Contrast Rating Worksheet – I 84 Southbound
Appendix J	Visual Contrast Rating Worksheet – I 84 Northbound
Appendix K	Photo I 84 Northbound (with turbines inserted)
Appendix L	Photo I 84 Southbound (with turbines inserted)
Appendix M	Photo Farewell Bend Entrance (with turbines inserted)
Appendix N	Photo Farewell Bend Kiosk
Appendix O	Photo Spring Recreation
Appendix P	Photo Birch Creek
Appendix Q	Photo Tub Mountain

APPENDIX A



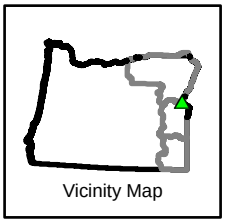
Legend

Visibility
- Not Visible
- Visible

- Bureau of Land Management
- Bureau of Reclamation
- U.S. Forest Service
- State Lands
- Private

N W E S

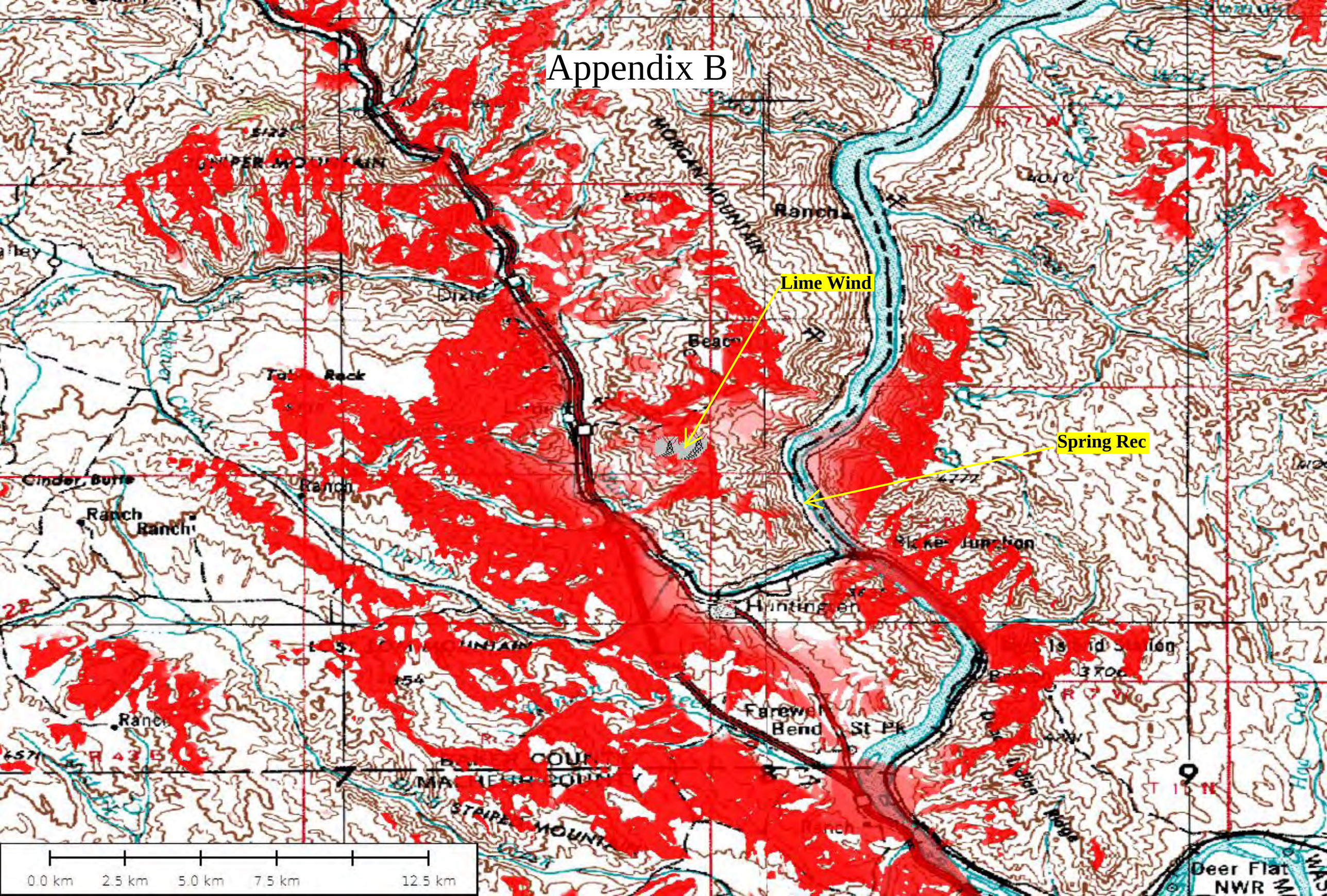
0 5 10 Miles



U.S. Department of Interior
Bureau of Land Management

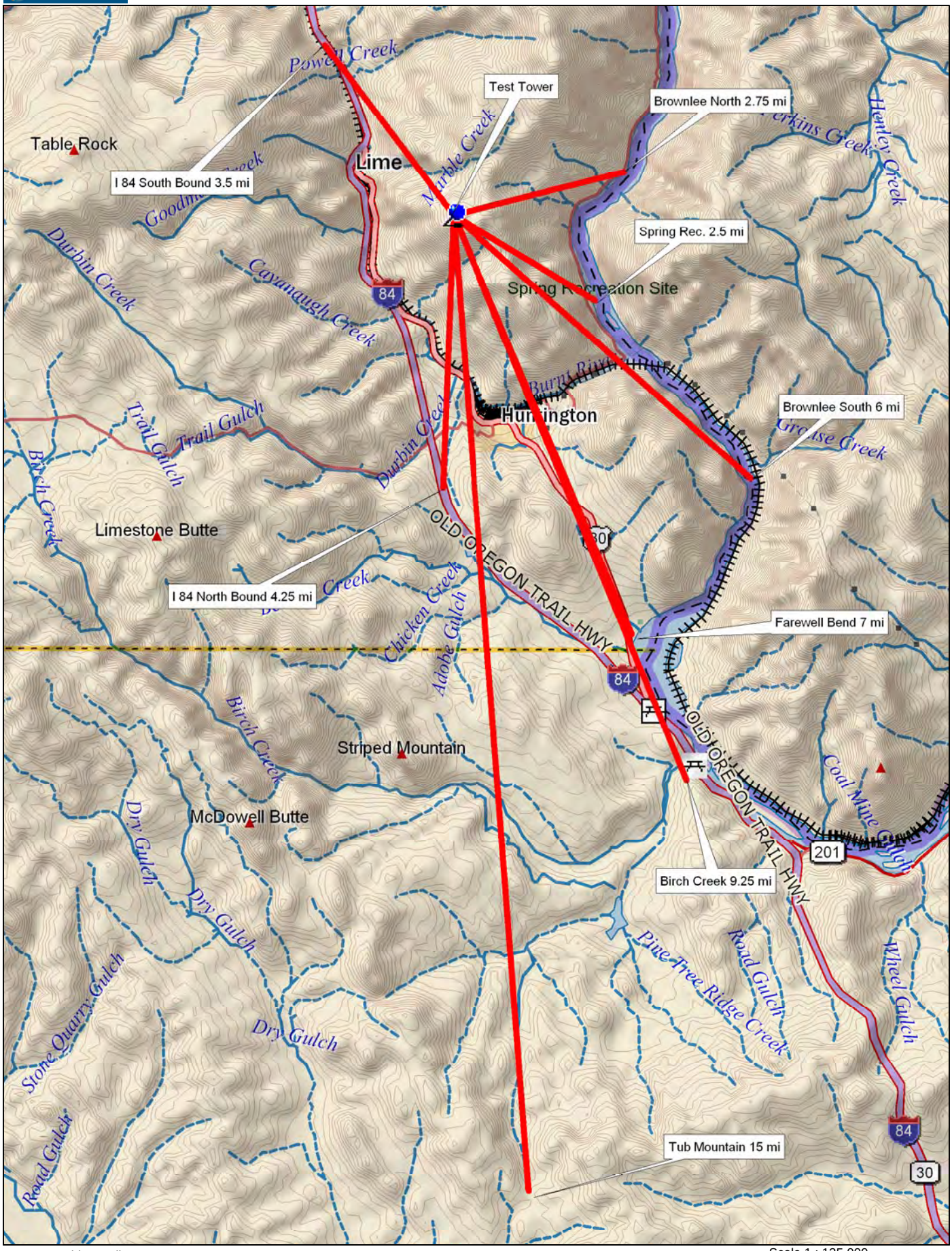
Vale District
Baker Resource Area

Appendix B


Lime Wind
Spring Rec
Ranch
Dixie
Beaver
Rock
Cinder Butte
Ranch
Ranch
Ranch
Huntington
Farewell Bend St Pk
Deer Flat NWR
0.0 km
2.5 km
5.0 km
7.5 km
12.5 km

DeLorme

DeLorme Topo USA® 7.0



TN

MN (15.1°E)

Scale 1 : 125,000

1" = 1.97 mi

Data Zoom 10-0

Appendix D

Small Angle Formula: $(\Theta/360) = (s/2\pi r)$

Where Θ is the angular size of an object in degrees, s is the height of the object, and r is the distance from the object.

By using basic algebra Θ can be expressed as $\Theta = (360*s) / (2\pi r)$

Using this formula we can determine the angular size of an object if the distance from the object and the height of the object are known.

Angular size can be converted to viewed height by multiplying Θ by .5236 inches, which gives us the relative height of the object 30 inches from the eye.

Form 8400-4
(September 1985)

APPENDIX E

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: April 16th, 2008
District: Baker
Resource Area:
Activity (program): Wind

SECTION A. PROJECT INFORMATION

1. Project Name: Lime Wind
2. Key Observation Point: Tub Mountain
3. VRM Class: Class I viewing Class IV
4. Location
   Township: 16S
   Range: 45E
   Section: 6
5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat and rolling to rugged	Complex and short to smooth and indistinct	Smooth
LINE	Weak horizontals to complex diagonals	Irregular and complex to soft and smooth	Curved
COLOR	Gray and tan to blue and brown	Brown, gray and green	Brown
TEXTURE	Smooth to striated to medium	Medium to smooth	Medium

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat and rolling to rugged	Complex and short to smooth and indistinct	Short, simple and vertical
LINE	Weak horizontals to complex diagonals	Irregular and complex to soft and smooth	Verticals
COLOR	Gray and tan to blue and brown	Brown, gray and green	Gray
TEXTURE	Smooth to striated to medium	Medium to smooth	Smooth

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form				X				X				X
Line				X				X				X
Color				X				X				X
Texture				X				X				X

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names: Loran Joseph, Linda Joseph
Date: 4/16/2008

Form 8400-4
(September 1985)

APPENDIX F

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: April 16th, 2008
District: Baker
Resource Area:
Activity (program): Wind

SECTION A. PROJECT INFORMATION

1. Project Name: Lime Wind
2. Key Observation Point: Birch Creek
3. VRM Class: Class I viewing Class IV
4. Location
   Township: 15S
   Range: 45E
   Section: 9
5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling and rounded to rugged and angular	Complex and amorphous to smooth and indistinct	Smooth and linear
LINE	Weak horizontals to complex diagonals	Irregular and complex to soft and smooth	Strong diagonals and verticals
COLOR	Gray and tan to blue and brown	Grays and greens	Gray
TEXTURE	Fine and smooth to medium	Medium to smooth	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling/rounded - rugged /angular/short verticals	Complex and amorphous to smooth and indistinct	Short, simple and vertical
LINE	Weak/horizontal -complex /diagonal/short/vertical	Irregular and complex to soft and smooth	Verticals
COLOR	Gray and tan to blue and brown	Grays and greens	Gray
TEXTURE	Fine and smooth to medium	Medium to smooth	Smooth

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form			X					X			X	
Line			X					X				X
Color				X				X				X
Texture				X				X				X

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names: Loran Joseph, Linda Joseph
Date: 4/16/2008

Form 8400-4
(September 1985)

APPENDIX G

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: April 16th, 2008
District: Baker
Resource Area:
Activity (program): Wind

SECTION A. PROJECT INFORMATION

1. Project Name: Lime Wind
2. Key Observation Point: Farewell Bend Park Entrance
3. VRM Class: Class II viewing Class IV
4. Location
   Township: 14S
   Range: 45E
   Section: 33
5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling and rounded to angular	Tall and irregular to smooth and indistinct	Smooth and linear
LINE	Weak horizontals to diagonals	Irregular and complex to soft and smooth	Strong diagonals, verticals, & horizontals
COLOR	Green, gray and tan to blue and brown	Grays and greens	Grays and browns
TEXTURE	Fine and smooth to medium	Medium to smooth	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling and rounded to angular with verticals	Tall and irregular to smooth and indistinct	Short, simple and vertical
LINE	Weak horizontals to diagonals with verticals	Irregular and complex to soft and smooth	Verticals
COLOR	Green, gray and tan to blue and brown	Grays and greens	Gray
TEXTURE	Fine and smooth to medium	Medium to smooth	Smooth

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

	FEATURES											
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS: Form			X					X				X
Line			X					X				X
Color				X				X				X
Texture				X				X				X

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names: Loran Joseph, Linda Joseph
Date: 4/16/2008

Form 8400-4
(September 1985)

APPENDIX H

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: April 16th, 2008
District: Baker
Resource Area:
Activity (program): Wind

SECTION A. PROJECT INFORMATION

1. Project Name: Lime Wind
2. Key Observation Point: Spring Recreation
3. VRM Class: Class II viewing Class IV
4. Location
   Township: 16S
   Range: 45E
   Section: 6
5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rounded and rolling	Complex to smooth and indistinct	Defined horizontals and curves
LINE	Complex diagonals	Irregular and complex to soft and smooth	Horizontals, verticals
COLOR	Green, gray and tan	Brown, gray and green	Gray and brown
TEXTURE	Smooth with coarse spots	Medium to smooth	Medium

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rounded and rolling with geometric shapes	Complex to smooth and indistinct	Geometric and linear
LINE	Complex diagonals with verticals	Irregular and complex to soft and smooth	Vertical and diagonal
COLOR	Green, gray and tan	Brown, gray and green	Gray
TEXTURE	Smooth with coarse spots	Medium to smooth	Smooth

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form			X					X			X	
Line			X					X			X	
Color				X				X				X
Texture				X				X				X

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names: Loran Joseph, Linda Joseph
Date: 4/16/2008

Form 8400-4
(September 1985)

APPENDIX I

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: April 16th, 2008
District: Baker
Resource Area:
Activity (program): Wind

SECTION A. PROJECT INFORMATION

1. Project Name: Lime Wind
2. Key Observation Point: I-84 Southbound
3. VRM Class: Class IV
4. Location
   Township: 13S
   Range: 44E
   Section: 12
5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling and rounded	Complex and vertical to smooth and indistinct	Smooth and linear to curving
LINE	Complex diagonals	Irregular and complex to soft and smooth	Strong diagonals, verticals, horizontals
COLOR	Gray, green and brown	Brown, gray and green	Grays and browns
TEXTURE	Medium to smooth	Medium to smooth	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling/rounded with short verticals	Complex and vertical to smooth and indistinct	Short, simple and vertical
LINE	Complex diagonals with short verticals	Irregular and complex to soft and smooth	Verticals
COLOR	Gray, green and brown	Brown, gray and green	Gray
TEXTURE	Medium to smooth	Medium to smooth	Smooth

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form		X						X			X	
Line		X						X				X
Color				X				X				X
Texture				X				X				X

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names: Loran Joseph, Linda Joseph
Date: 4/16/2008

Form 8400-4
(September 1985)

APPENDIX J

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: April 16th, 2008
District: Baker
Resource Area:
Activity (program): Wind

SECTION A. PROJECT INFORMATION

1. Project Name: Lime Wind
2. Key Observation Point: I-84 Northbound
3. VRM Class: Class IV
4. Location
   Township: 14S
   Range: 44E
   Section: 14
5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat to rolling and rounded	Complex and short to smooth and indistinct	Smooth and linear
LINE	Complex diagonals	Irregular and complex to soft and smooth	Strong horizontals and verticals
COLOR	Gray, green and brown	Brown, gray and green	Grays and browns
TEXTURE	Smooth to medium	Medium to smooth	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat to rolling with short verticals	Complex and short to smooth and indistinct	Short, simple and vertical
LINE	Complex diagonals with short verticals	Irregular and complex to soft and smooth	Verticals
COLOR	Gray, green and brown	Brown, gray and green	Gray
TEXTURE	Smooth to medium	Medium to smooth	Smooth

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form		X						X			X	
Line		X						X				X
Color				X				X				X
Texture				X				X				X

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names: Loran Joseph, Linda Joseph
Date: 4/16/2008

Appendix K

Appendix L

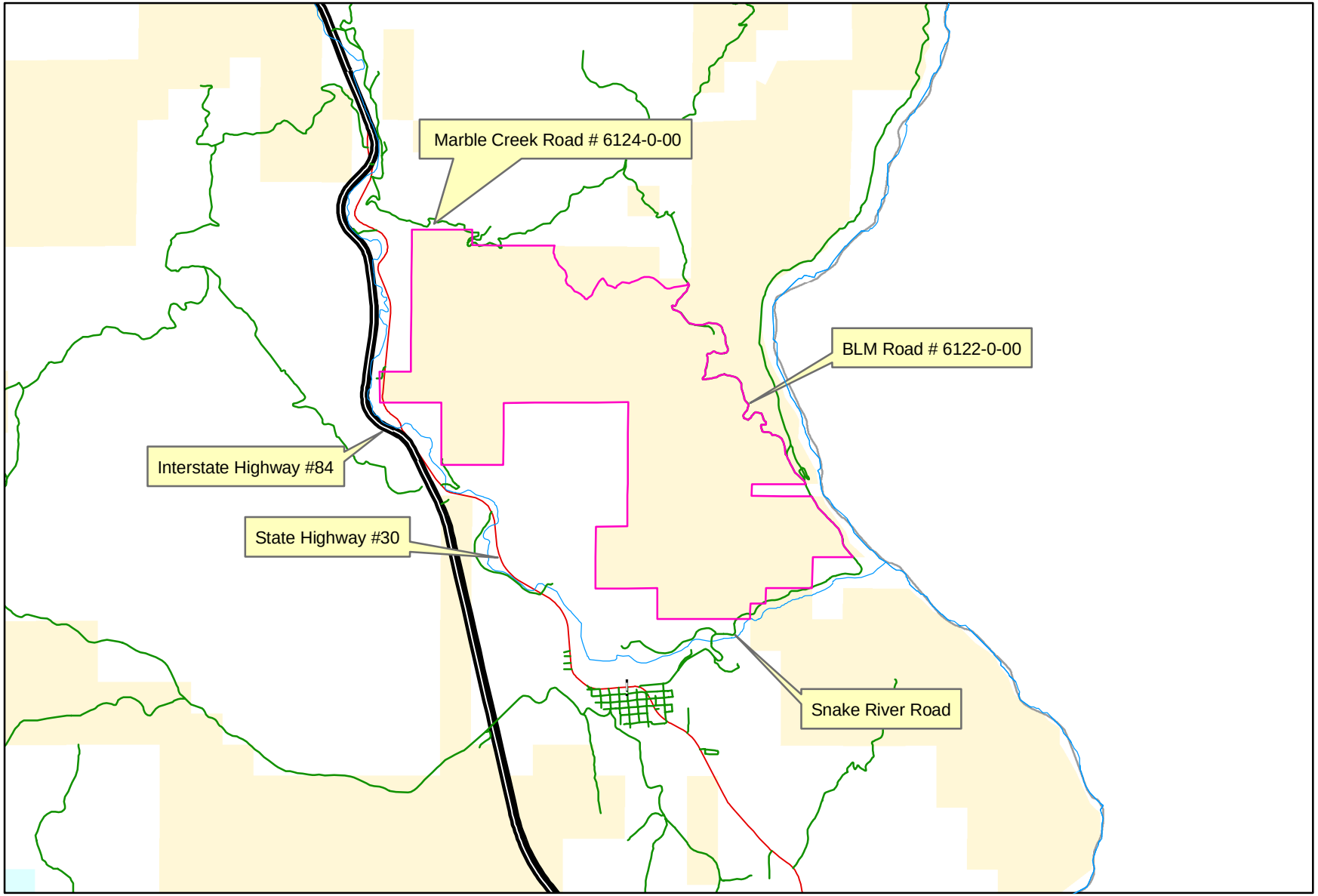
Appendix M

Appendix N

Appendix O

Appendix P

Appendix Q



Legend

- Huntington
- Rivers
- Interstate
- US-State HWY
- Wilderness Characteristics Review Area
- Bureau of Land Management
- State Lands
- Private

0 0.4 0.8 1.6 Miles

U.S DEPARTMENT OF THE INTERIOR
Bureau of Land Management

VALE DISTRICT
BAKER RESOURCE AREA
October 17, 2008

Attachment B
Lime Hill
Wilderness Characteristics Review Area
3,591 Acres

OREGON