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<b>Project Title:</b>	Fountain Wind Project
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<b>Organization:</b>	Stantec Consulting Services, Inc.
<b>Submitter Role:</b>	Applicant Consultant
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<b>Docketed Date:</b>	8/1/2023



Dustin Lindler  
Jefferson Resource Company, INC  
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July 31, 2023

ConnectGen  
ATTN: John Kuba, Director of Environmental Affairs  
1001 McKinney, Suite 700  
Houston, TX 77002

Mr. Kuba,

This memorandum is provided to supplement Fountain Wind LLC's submission of an application to the California Energy Commission. The memo provides additional detail on timber harvest activities for the proposed Fountain Wind Project (Project) to support the CEC's preparation of a more comprehensive forestry analysis pursuant to the California Environmental Quality Act. Specifically, this memo is responsive to request from the CEC to provide estimates on the quantity of timber anticipated to be removed, the process for removing the timber, where the timber will be shipped and processed and site treatment activities following timber removal.

The Project Area as proposed is in Shasta County, California and occupies portions of sections 21 and 22, 25, 26, 35 and 36, T35N, R1E, sections 29-32, T35N, R2E; section 5-8, T35N, R2E; section 1-4, 10-12, 13-15, 21-23, 26-28, T34N, R1E, all MDBM. The Project Area includes thirty-seven parcels in which the project components will be sited and encompasses approximately 16,108 acres. The Project Site boundary encompasses approximately 2,855 acres within the Project Area and includes where all infrastructure would be sited and where potential temporary and permanent disturbance activities may occur, including associated construction and maintenance corridors. Total area of permanent and temporary disturbance activities is anticipated to be 1058 acres, of which 510 are anticipated to be permanent conversion, the remaining 548 acres are anticipated to be temporarily impacted.

### **Timber Quantity**

There are 318 acres in second growth "natural" stands in the Project Site. Based upon landowner inventory these stands average 17,000 board feet per acre. This is more commonly expressed as 17 MBF / acre. Anticipated volume to be removed is approximately 5,400,000 board feet or more commonly expressed as 5.4 MMBF. Estimating a log load average of 4.5MBF per load, there are approximately 1,200 loads of logs to be removed from the project footprint.

Timber in 740 acres of the Project Site is comprised of plantations resulting from reforestation efforts after the 1992 Fountain Fire. These stands currently average 3.2 MBF / acre. While some of these trees do in theory present an opportunity to be manufactured and sold as sawlogs, the realities of recent log markets in the area would indicate it is much more likely that this material will be processed and sold as hogfuel chips to feed biomass energy plants. Pine has been and is likely to continue to be an economically undesirable product both as peeler stock and dimensional lumber. With a lack of secondary product plants, such as pulp or OSB facilities, in California these small and heavily tapered plantation pine trees are more of a disposal issue than an opportunity to produce net revenue. Using a conversion factor of 3 bone dry tons (BDT) per MBF<sup>1</sup> it is estimated that 7,100 bone dry tons of biomass will come from these plantations within the project footprint.

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<sup>1</sup> Winn, Matthew F.; Royer, Larry A.; Bentley, James W.; Piva, Ronald J.; Morgan, Todd A.; Berg, Erik C.; Coulston, John W. 2020. Timber products monitoring: unit of measure conversion factors for roundwood receiving facilities. e-Gen. Tech. Rep. SRS-251. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 148 p.

Tops and slash byproduct from manufacturing logs in the second growth stands will be ground and shipped in chip vans to biomass plants to produce energy. I estimate that there will be another 120 loads of hogfuel material derived from this effort, equating roughly to another 1,800 BDT of hogfuel.

Total hogfuel produced from the Project Site is estimated to be 8,900 BDT. At an average of 15 BDT / van load from byproduct of second growth stands and roughly 12 BDT/load from plantations, due to more needles and branches relative to second growth stand byproduct, there are approximately 720 loads of hogfuel to be removed from the project footprint. Total sawlog removed from the Project Site is estimated to be 5.4MMBF or approximately 1,200 loads presuming a rough average of 4.5MBF / load. See Table 1.

**Table 1. Estimated Inventory to be Harvested**

Stand Type	Acreage	Inventory Estimates	Total Inventory Volume to be Harvested	Haul Loads
Second Growth "natural" stands	318 acres	17 MBF/acre	5.4 MMBF	1,200
Second Growth "natural" stands secondary product from tops and slash	318 acres	5.7 BDT/acre	1,800 BDT	120
Pine Plantation	740 acres	3.2 MBF/acre	7,100 BDT	600

### Harvest/Removal Process

Forest products will be removed from harvest units with mechanized logging equipment. This will include feller-buncher harvesters, rubber tire skidders, crawler tractors, material handlers equipped with processing heads, shovel style log loaders. A combination of this equipment operating in concert is known as a logging "side." Trees will be cut with feller bunchers, the only hand felling involved will be on oversized trees, which are typically 25" and larger at stump height, and in some instances on steep slopes or "long corner" areas where it is physically difficult or economically undesirable for feller bunchers to operate. Tops and slash will be processed on site with drum chippers or horizontal grinders. Forest products will be transported with both long and short log trailers as well as chip vans towed by standard highway legal logging trucks. Support equipment will include water tenders, fire pumper trailers, service trucks for mechanical support, fuel trucks, chainsaws fire extinguishers, and a variety of other hand tools.

The process for removing timber will be phased in accordance with several limiting factors that may include, but would not be limited to seasonal access, fire weather, limited operating periods due to biologic or botanical protections, soil moisture and a myriad of other factors that are difficult to forecast given multi-agency input during discretionary permit review. The most likely scenario is for operations to start two to three weeks after spring snowmelt, once roads exhibit a stable operating surface and soils are not saturated. Cutting with feller bunchers should start one to two weeks prior to start of skidding and processing to ensure adequate lead time for cutting. This could be adjusted depending upon efficiency of cutting relative to efficiency of skidding, as well as truck availability. It is estimated that a feller buncher will cut approximately six acres per day on this project and there will be two feller bunchers per logging side and, depending upon project timelines, several sides will likely be operating on the project in unison.

Removal of woody material from the Project Site will be concomitant with a construction project rather than a standard logging operation. This is necessary to avoid residual woody material interfering with development. Thorough cleanup of residual forest byproducts (slash) also ensures that said byproducts do not present an inordinate fire hazard to the project itself. In order to achieve this level of thorough removal, nearly all harvested material will be removed from cutting units and yarded to landings. Once at landings, the material will be processed further prior to shipping via logging trucks.

## **Shipping and Processing**

Logs will be processed down to an approximate inside bark diameter of 6" and 10'6" in length and shipped to purchasing facilities as logs for dimensional lumber milling. In better markets it is possible that some material from the Project Site would be processed as peeler logs and shipped to manufacturing facilities in Siskiyou County or southern Oregon; however, trucking is likely a limiting factor on these longer haul times at present. This is due to recent cost increases and current scarcity of trucks. At present it is likely that smaller logs would be sent to Sierra Pacific Industries (SPI) in Burney, California and larger logs being sent to SPI in Shasta Lake City, California. The approximate mid-point haul distance to SPI Burney is 12 miles, half of which is on gravel and native surface road. Haul time to SPI Burney from project mid-point including standby (time to load and unload logs) is estimated to be 1.7 hours round trip. The approximate mid-point haul distance to SPI Shasta Lake is 45 miles, 6 miles of which are on gravel and native surface road. Haul time to SPI Shasta Lake from project mid-point including standby is estimated to be 2.8 hours round trip. Burney Forest Power (BFP) is the most likely purchaser for hogfuel produced during project development. BFP is located in close proximity to SPI Burney, and after accounting for slower load time and haul speeds with chip vans, the total haul time to BFP is estimated to be a 2.2 hour round trip.

## **Site Treatment Activities**

Site treatment activities following timber removal will differ between areas of permanent disturbance and areas of temporary disturbance. Where timber removal is expected to be permanent (i.e. permanent conversion to non-timber for the life of the Project) it is anticipated that follow-up treatments will be nominal and typical of infrastructural maintenance in a wildland setting. This will likely include periodic grading of roads, routine crossing maintenance, occasional right-of-way vegetation treatments and infrastructural upgrades so as to be compliant with applicable regulations and ensure safe and efficient ingress / egress into the wind farm.

Where impacts are to be temporary (i.e. temporary disturbance area), forest regeneration will be performed. In temporary impact areas re-establishment of brush will be carefully monitored to avoid allowing full site occupancy by pioneer species, which can significantly impair reclamation to a conifer forest. This brush occupancy can be avoided in several ways, however greatest efficacy will be achieved through chemical treatments. Herbicide use as part of this project will require a written recommendation by a licensed Pest Control Advisor (PCA) and application by a licensed Pest Control Operator (PCO).

After project completion a suite of additional treatments will be utilized for reclamation. Being that timber operations will remove nearly all woody material from the Project Site, no additional slash treatment is likely necessary; however, it is possible that small accumulations could be treated by piling and burning, mastication or chipping and broadcasting on site if regeneration specialists deem it necessary.

If brush was not adequately controlled prior to completion of construction, a herbicide application will be necessary to temporarily retard the growth of brush and weeds that compete with conifers for nutrients and sunlight while the conifers are young. It is not possible to predict (without speculation) which herbicide, in which area, in which concentration, at which time will be used. However, herbicides commonly used and approved in forest management practices that may be used include imazapyr, triclopyr, hexazinone, 2,4-D, glyphosate, clopyralid, and aminopyralid and 2,4-D.

After this site preparation herbicide treatment, trees will be planted at a density to achieve 150-250 trees per acre. Seedlings will be sourced from the correct seed zones selected from trees of good phenotypic quality. Two to four different species of native conifers will be planted, varied by elevation, aspect and other factors. These will include ponderosa pine, Douglas-fir, white fir and / or incense cedar. It is likely that one to three years after plantation establishment another chemical treatment will be necessary, known as a "release" treatment, to ensure established conifers are free to grow and end target stocking is achieved.

Sincerely,

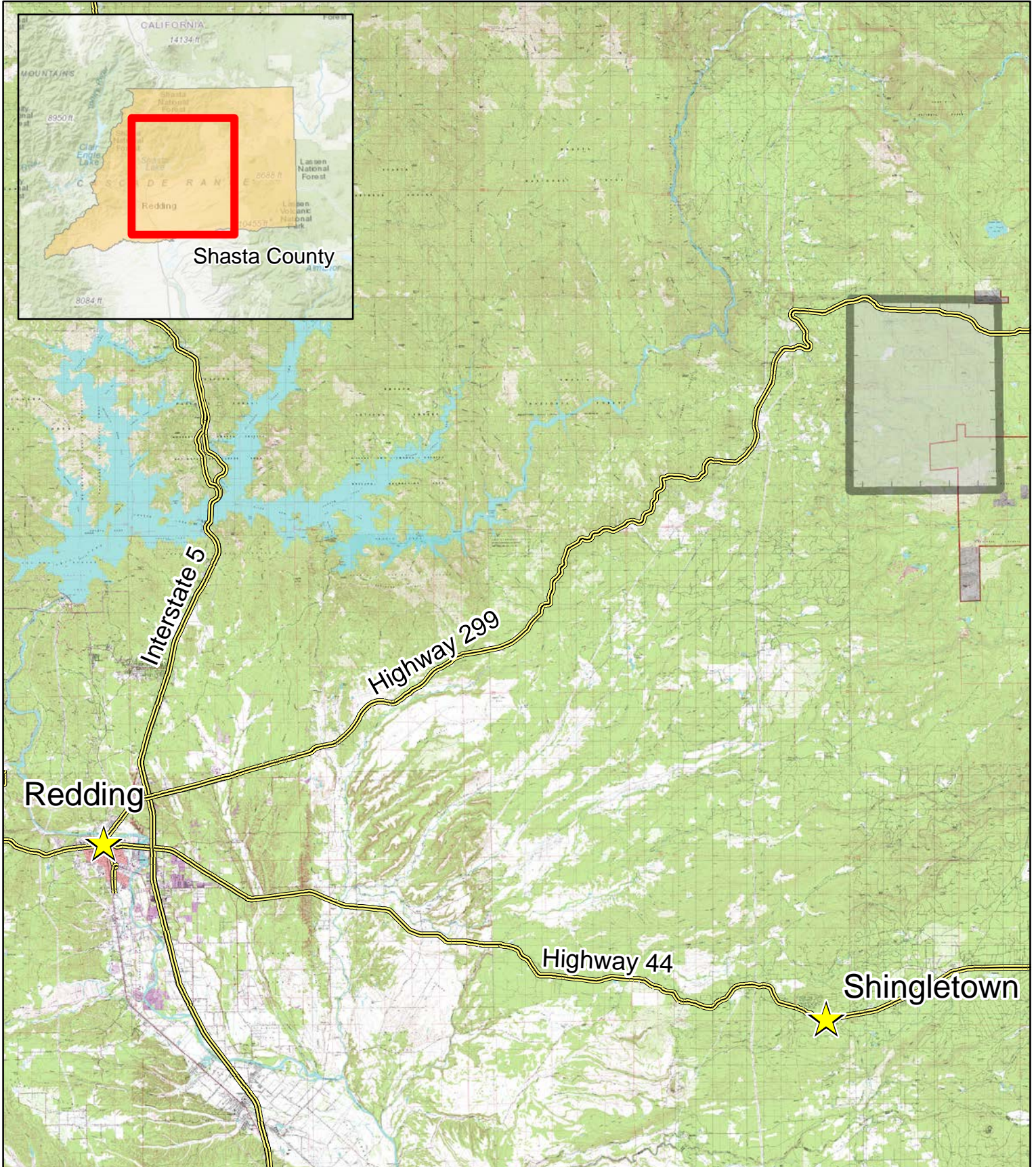
A handwritten signature in blue ink, appearing to read "Dustin Lindler". The signature is fluid and cursive, with the first name "Dustin" and last name "Lindler" clearly distinguishable.

Dustin Lindler  
COO, RPF#2710




# Fountain Wind

Project Location



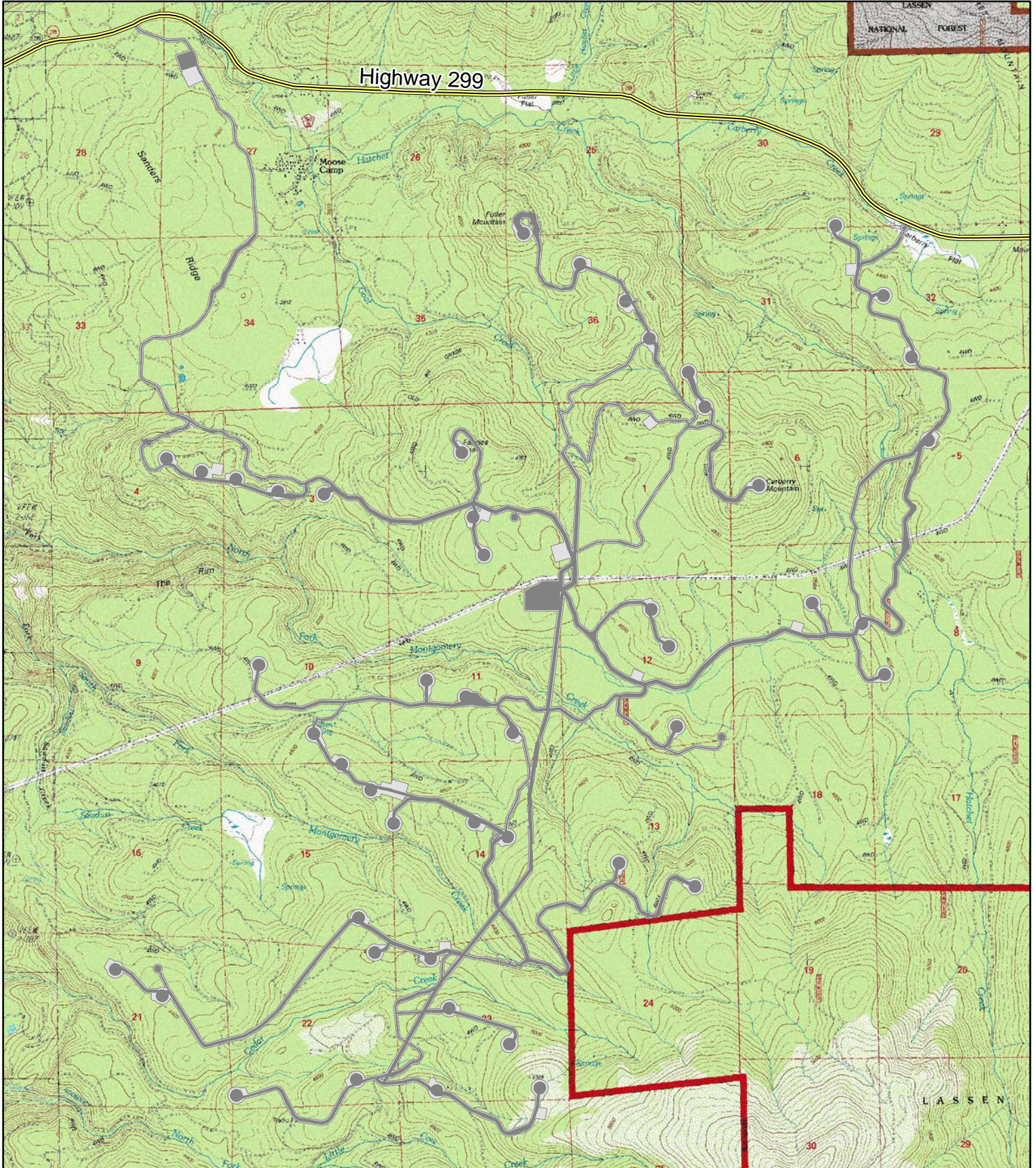
 Project Area



1:300,000  
1 inch = 25,000 feet  





# Fountain Wind

Project Impacts



 Project Temporary Impacts  
 Project Permanent Impacts

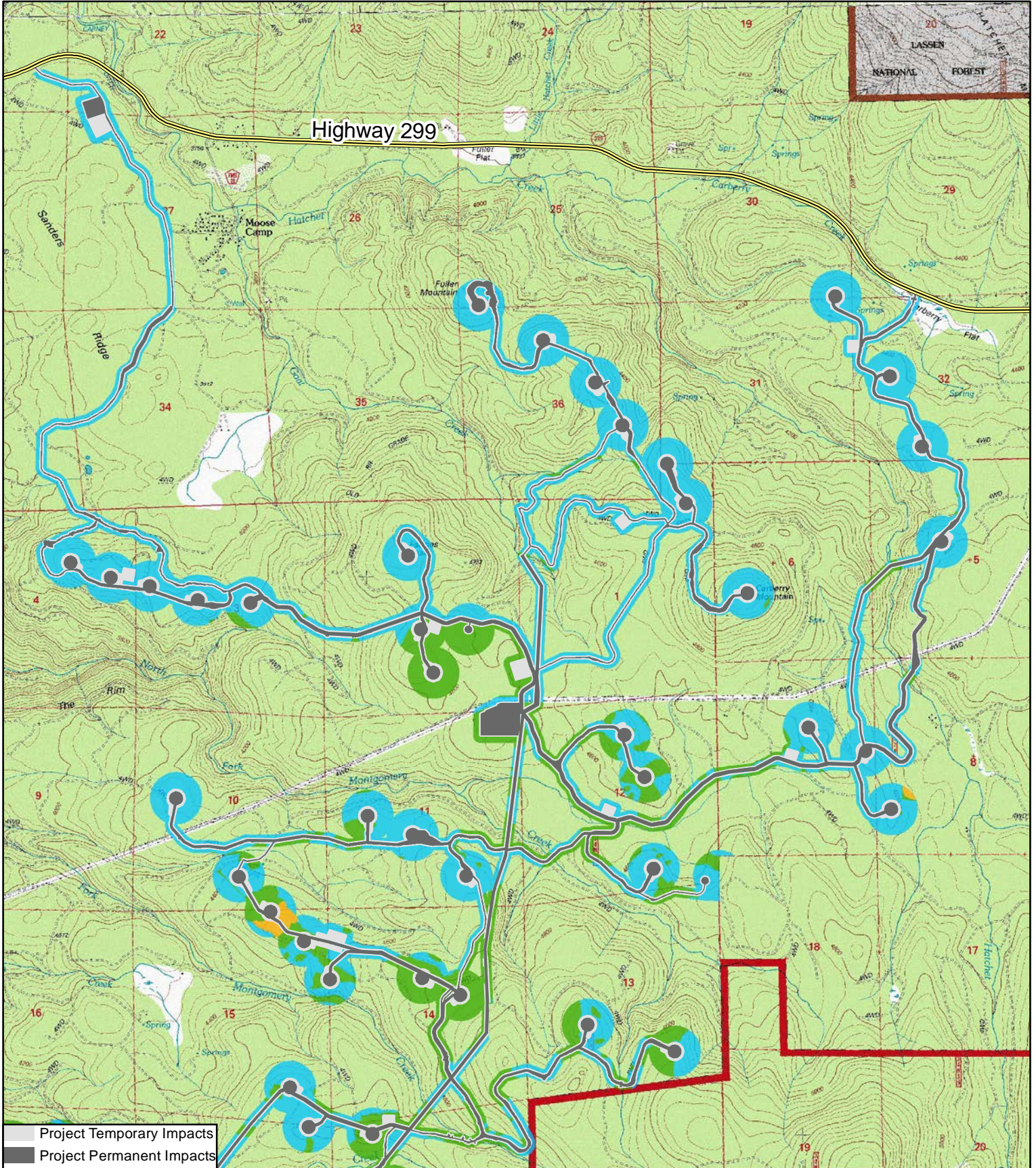
1:48,000  
1 inch = 4,000 feet





# Fountain Wind

Stand Types (North)



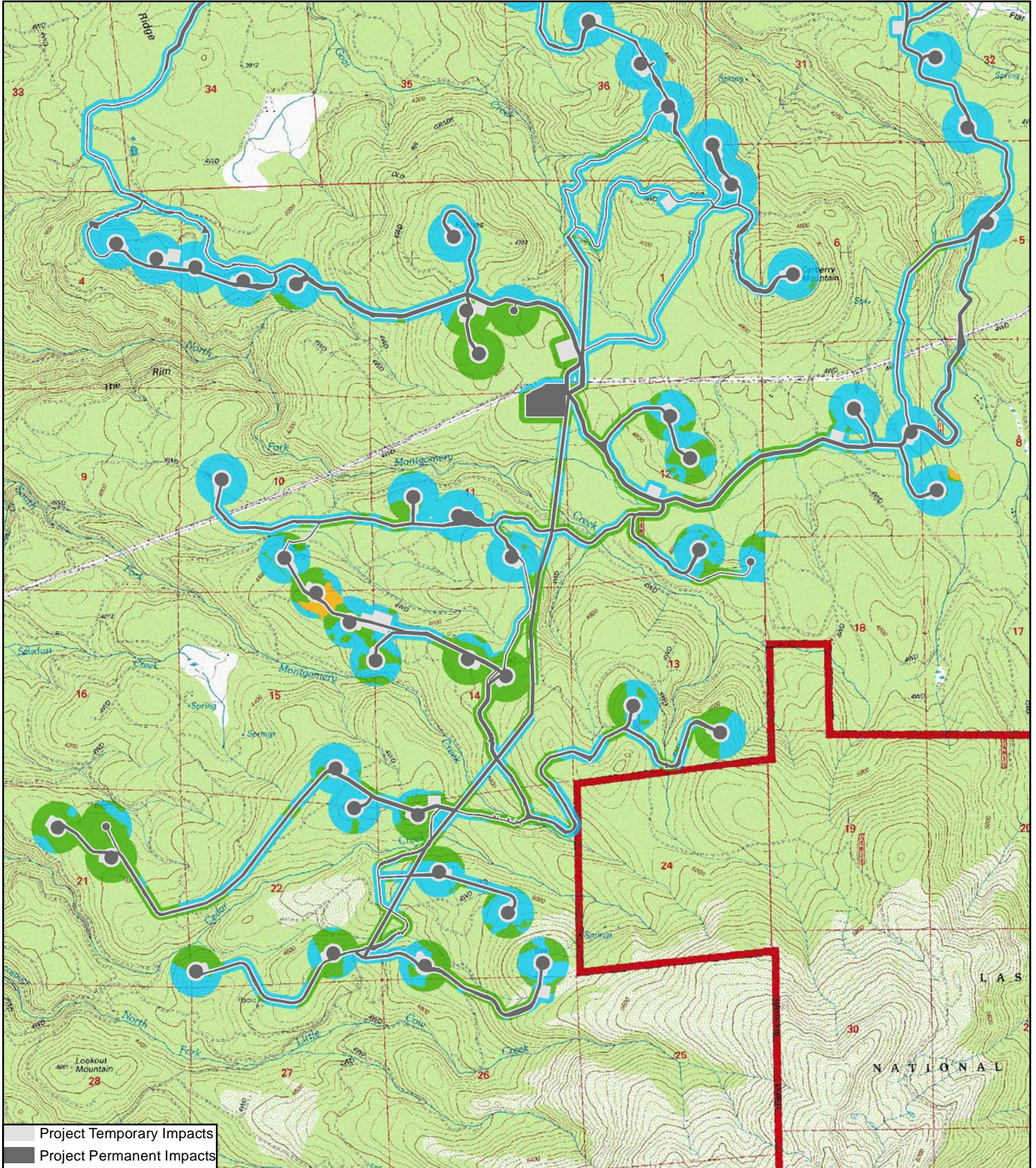
Light Gray	Project Temporary Impacts
Dark Gray	Project Permanent Impacts
<b>Stand Type</b>	
Green	Natural
Blue	Planted
Orange	Unplanted

1:42,000  
1 inch = 3,500 feet



# Fountain Wind

Stand Types (South)



Light Gray	Project Temporary Impacts
Dark Gray	Project Permanent Impacts
Green	Natural
Light Blue	Planted
Orange	Unplanted

**Stand Type**

- Natural
- Planted
- Unplanted

1:42,000  
1 inch = 3,500 feet



**AUTHOR'S EXPERIENCE AND QUALIFICATIONS**  
**DUSTIN LINDLER**

**Education**

Humboldt State University - Arcata, CA. Bachelors of Science in Forestry, production emphasis. Minors in Business Administration and Environmental Ethics. Graduated *Cum Laude* May 1998.

**Licenses / Accreditations**

California Registered Professional Forester #2701  
Qualified Spotted Owl Expert per 14 CCR § 919.9 [939.9].

**Selected Experience**

March 2001 to present: Chief Operating Officer. Jefferson Resource Company, Weed, CA. Responsible for final oversight of day-to-day operations of the company, developing operational strategies to preserve and enhance market value and ensuring delivery of professional services in a timely manner. Annual receipts and full time staffing have increased well over 25x each under his guidance. Provide strategic advice for client's natural resource and infrastructure management projects which includes over 30,000 acres under long-term and routine company management. Provide both day to day and final oversight of forest practice and other CEQA compliance during post-fire disaster recovery programs; act as principal liaison between client and public agency representatives on both procedural and technical details covering most major wildfires in California from 2020 to 2022. Provide intermediary services between NGOs, public and private sector professionals for development and implementation of grant-driven fuel reduction projects. Act as final operational representative during implementation and review of client projects which have included nearly all major industrial timberland owners in California, as well as public and private sector projects extending into central Oregon; these projects include but are not limited to timber inventories, timber sale development, carbon sales, infrastructure development and improvements, fuel break installations and biologic surveys. Prepare and provide oversight and review of Timber Harvest Plans (THPs) and Nonindustrial Timber Management Plans (NTMPs) prepared by company foresters, act as final agency liaison during development and review of such projects. Prepare and defend timber appraisals for both public and private land acquisitions, review timberland for acquisition potential. Review and assist in development of conservation easements (CE) on timberland in northern California, review agency and NGO derived CE limitations on behalf of clients. Develop and provide final review of Northern Spotted Owl survey and management programs for both industrial and nonindustrial clients, including multiple enrollments into long term Spotted Owl Resource Plan. Manage and provide final oversight on log sale and logging program, exceeding 20mmbf on good market years. Managed vegetation clearing contracts on large natural gas transmission projects, covering hundreds of miles in rural portions of Modoc, Siskiyou, Shasta, Mendocino, Sonoma as well as portions of Contra Costa Counties. Manage USFS and BLM natural resource contracts including on-call contracts covering California, Oregon and Washington.

1999 to 2000: Planning Forester / GIS Specialist. Alpine Land Information Services, Redding, CA. Responsibilities included writing and layout of THPs, development and maintenance of a GIS database, conducting archaeological surveys. Responsible for harvest scheduling in conjunction with option "a" THP development on large industrial ownerships. Supervised six-person field crew during THP layout and GIS development on timberlands near McCloud, Bieber, Weaverville, Sonora and Arnold, CA. Provided quality control of field crews during layout activities across Northern California.

1997 to 1999: Forester. Fruit Growers Supply Company, Hilt, CA. Worked as assistant to district forester. Work involved layout and writing of timber harvest plans, including silvicultural determination, yarding method determination and most other operational issues common to THP development. Performed variable and fixed plot inventory on Klamath River, Scott Valley, Trinity and Foresthill timberlands. Conducted pre-harvest timber inventory for calculation of sale volume. Provided oversight of two other field technicians during marking, layout and inventory activities.