

APPENDIX E

Noise Report

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NOISE REPORT

CASA DIABLO 4 (CD-4) GEOTHERMAL DEVELOPMENT PROJECT

June 29, 2011

Ormat Nevada Inc.
6225 Neil Road
Reno, NV 89511

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APPENDIX

Qualifications of Preparer

1.0 INTRODUCTION

1.1 Purpose of Report

ORNI 50, LLC, a wholly owned subsidiary of Ormat Nevada Inc. (Ormat), proposes to build the Casa Diablo 4 Geothermal Development Project (CD-4) in the vicinity of the existing MPLP geothermal project. The project area is east of the town of Mammoth Lakes in Mono County, California. The proposed CD-4 power plant would be located east of U.S. Highway 395 and north of the existing plants at Casa Diablo. The power plant and the well field would be located on public lands managed by the United States Forest Service (USFS), U.S. Department of Agriculture. While the USFS manages the surface lands of the project area, the US Bureau of Land Management (BLM), U.S. Department of the Interior, manages the geothermal resource.

This application is for the construction of a new 33 net megawatt (MW) binary power plant composed of two (2) Ormat Energy Converters (OEC), a geothermal well field, pipelines to bring the geothermal brine to the power plant, pipelines to take the cooled brine to injection wells, an electric transmission line to interconnect to the Southern California Edison (SCE) Substation at Substation Road. The additional power will be sold to a utility company. The project is described in detail in the Application Package dated February 17, 2010 that was submitted to the BLM and USFS.

The primary purpose of this report is to provide information on existing noise and estimated new noise levels from the proposed project. Some information is provided on anticipated impacts from these noise levels, but a full impact evaluation is not included, as this will be performed by the NEPA/CEQA consultant.

1.2 Basic Noise Terminology and Fundamentals

Noise is customarily measured in decibels (dB), units related to the apparent loudness of sound. A-weighted decibels (dBA) represent sound frequencies that are normally heard by the human ear. On this scale, the normal range of human hearing extends from about 3 dBA to 140 dBA. Speech normally occurs between 60 and 65 dBA. Table 1 shows the noise levels of different activities and the response criteria of various noise levels.

A logarithmic decibel scale is used to measure sound, because hearing sensation increases with the logarithm of the stimulus intensity. Each 10-dBA increase in the level of a continuous noise is a ten-fold increase in sound energy, but is judged by a listener as only a doubling of loudness. For example, 60 dBA is judged to be about twice as loud as 50 dBA and four times as loud as 40 dBA. Each 3 dBA increase in sound is a doubling of sound energy, such as doubling the amount of traffic on a street, but is judged as only about a 20 percent increase in loudness, and is a just-noticeable difference to most people. Increases in average noise of about 5 dBA or are more noticeable to most people, and is the level required before any noticeable change in community response would be expected. A 10 dBA change would almost certainly cause an adverse change in community response (*EPA, 1981*).

Because environmental noise levels fluctuate over time, a time-averaged noise level in dBA is often used to characterize the acoustic environment at a given location. The average noise intensity over a given time is the energy equivalent noise level (Leq).

Table 1**Weighted Sound Levels and Human Response**

<u>Sound Source</u>	<u>dB(A)¹</u>	<u>Response Criteria</u>
Carrier Deck Jet Operation	140	Painfully Loud
	130	Limit Amplified Speech
Jet Takeoff (200 feet)	120	
Discotheque		Maximum Vocal Effort
Auto Horn (3 feet)		
Riveting Machine	110	
Jet Takeoff (2,000 feet)		
Shout (0.5 feet)	100	
New York Subway Station		Very Annoying
Heavy Truck (50 feet)	90	Hearing Damage (8 hours)
Pneumatic Drill (50 feet)		
	80	Annoying
Freight Train (50 feet)		
Freeway Traffic (50 feet)	70	Telephone Use Difficult
		Intrusive
Air Conditioning Unit (20 feet)	60	
Light Auto Traffic (50 feet)		
	50	Quiet
Living Room		
Bedroom	40	
Library		
Soft Whisper (15 feet)	30	Very Quiet
Broadcasting Studio	20	
	10	Just Audible
	0	Threshold of Hearing

¹ Weighted sound levels taken with a sound-level meter and expressed as decibels on the scale.

Source: U.S. Environmental Protection Agency, 1981. *Noise Effects Handbook*. Office of Noise Abatement and Control, Fort Walton, FL. EPA 550-9-82-106.

1.3 Applicable Noise Policies and Regulations

Bureau of Land Management: All federal geothermal lessees must comply with the BLM Geothermal Resources Operational (GRO) Orders. GRO Order No. 4 (General Environmental Protection Requirements) requires that geothermal operations shall not exceed a noise level of 65 dBA, as measured at 0.5-mile from the source or at the lease boundary line, if closer.

Mono County: Mono County is the local agency responsible for adopting and implementing policies as they relate to noise levels and their affect on land uses within its jurisdiction. The Noise Element of the Mono County General Plan identifies goals and policies to attain and maintain acceptable noise levels within the county (County of Mono Planning Department 2010). Chapter 10.16 (Noise Regulation) of the Mono County Code sets noise standards for different types of land uses and also prohibits noise that would exceed these standards on other property

within the County. Both acceptable and unacceptable noise levels associated with construction activities and exterior noise levels at various land use zones have been defined and quantified.

The State guidelines indicate that residential uses are normally acceptable in exterior noise environments up to 60 dBA CNEL and conditionally acceptable in exterior noise environments up to 70 dBA CNEL. For planning purposes, the 65 dBA CNEL (at receptors) is considered by many local jurisdictions as the exterior noise standard for transportation related noise impacts.

Town of Mammoth Lakes: For properties or receptors within the Town of Mammoth Lakes, the Town of Mammoth Lakes noise ordinances. Town of Mammoth Lakes Municipal Code Chapter 8.16 of the Town of Mammoth Lakes Municipal Code limits excessive noise. Section 8.16.090 (Prohibited Acts) sets noise limits for construction work. As discussed in the Basalt Canyon EA/EIR (EMA, 2005), the USFS campgrounds within the Town of Mammoth Lakes boundary could be considered within the “Type II Areas - Multifamily Residential” land use category. In these areas noise from mobile construction equipment is limited to 80 dBA during the day (from 7:00 a.m. to 8:00 p.m.) except on Sundays and legal holidays. At night (from 8:00 p.m. to 7:00 a.m.) and all day on Sundays and legal holidays the maximum permitted noise level from mobile construction equipment is 65 dBA. In these same areas noise from stationary equipment is limited to 65 dBA during the day (from 7:00 a.m. to 8:00 p.m.) except on Sundays and legal holidays. At night (from 8:00 p.m. to 7:00 a.m.) and all day on Sundays and legal holidays the maximum permitted noise level from stationary equipment is 55 dBA.

Per the Basalt Canyon EA/EIR, Shady Rest Park could be considered within the “Type III Areas – Semi-Residential Commercial” land use category. In these areas noise from mobile construction equipment is limited to 85 dBA during the day (from 7:00 a.m. to 8:00 p.m.) except on Sundays and legal holidays. At night (from 8:00 p.m. to 7:00 a.m.) and all day on Sundays and legal holidays the maximum permitted noise level from mobile construction equipment is 70 dBA. In these same areas noise from stationary equipment is limited to 70 dBA during the day (from 7:00 a.m. to 8:00 p.m.) except on Sundays and legal holidays. At night (from 8:00 p.m. to 7:00 a.m.) and all day on Sundays and legal holidays the maximum permitted noise level from stationary equipment is 60 dBA at the receptor area.

2.0 EXISTING NOISE CONDITIONS

2.1 Noise-Sensitive Land Uses in the Project Area

Occupants in such land uses as schools, hospitals, housing, religious, educational, convalescent, and medical facilities are more sensitive to noise than commercial, agricultural, and industrial uses. Sensitive receptors include, but are not limited to, residences, schools, hospitals, parks and office buildings.

The potential noise-sensitive receptors within or next to the Project area consist of concentrated public use areas (parks and campgrounds). There are no other noise-sensitive receptors (residences, schools, hospitals, daycare centers, long-term care facilities) located within or immediately next to the Project area.

The only area of concentrated public use within the Project area is Shady Rest Park, a Town of Mammoth Lakes-developed sports and recreation park located on USFS land. Outside of the project area are three USFS campgrounds, located to the southwest of the Project area: Pine Glen Group Campground; New Shady Rest Campground and Old Shady Rest Campground. Pine Glen Group Campground is the campground located closest to the pipeline corridor area and any well site.

There are no sensitive receptors in the immediate vicinity of the proposed power plant. The closest noise-sensitive concentrated land use to the CD4 Project is Sherwin Creek Campground, located approximately 1.5 miles to the southwest. Chance Ranch is the closest residence, approximately 1.5 miles to the east. Hot Creek Hatchery residences are located about three miles to the east-southeast. The John Muir Wilderness Area is located about 2.5 miles to the south of the project site. Mono County office buildings are located approximately 1.25 miles to the east.

2.2 Existing Sources of Noise in Project Area

In Basalt Canyon, existing sources of noise consists of recreational activities at Shady Rest Park, and dispersed motorized vehicle recreation use of the area such as off-road vehicles, all terrain vehicles, motorcycles, and snowmobiles in the winter. These vehicles can create fairly high noise levels in their vicinities. Pedestrian uses such as dog walking and snowshoeing along the public roadways in the vicinity of the site (primarily Substation Road/Old Highway) are also a common occurrence. There is also localized noise adjacent to the two existing production wells in Basalt Canyon.

Dispersed recreation use occurs within one mile of the project site on lands in the Inyo National Forest, though some of this recreation is itself noise-generating such as the use of off-road vehicles, all terrain vehicles, motorcycles, and target shooting. Pedestrian uses such as dog walking and snowshoeing along the public roadways in the vicinity of the site (primarily Substation Road/Old Highway) are also a common occurrence.

On the east side of the highway, noise sources include the three existing geothermal power plants, MP-1, MP-2 and PLES-1; traffic from Highway 395; off-road vehicles (as described for Basalt Canyon above); and a target shooting range northeast of the proposed CD-4 plant site as well as other recreational (and illegal) target shooting in the area, which generate loud and intermittent noise levels. Wood-cutting activities also are loud sources of noise in the area. Aircraft noise is audible intermittently from aircraft approaching and departing the Mammoth Yosemite Airport, located about three miles southeast of the project site.

In January 2011, Ormat measured noise levels in the Casa Diablo area on the east side of Highway 395. The most applicable noise monitoring locations were

At the intersection of Route 203 and Old Highway (about 460 feet south of PLES-1), measured at 65.3 dBA (primarily noise from the existing power plants)

By the entrance to the kiosk area off Route 203, measured at 60.3. The noise at this location was primarily traffic noise from Highway 395 and Route 203; the existing geothermal plants were not audible.

3.0 NOISE EVALUATION OF PROPOSED PROJECT

3.1 Noise from Well Pad Construction and Drilling

Site construction and drilling activities would introduce new but temporary noise sources to the Project area which would result in noise levels above the ambient noise levels in the immediate vicinity of each well site during construction and drilling. The principal noise sources would likely be the diesel engines on the construction equipment and drilling rig and the movement of pipe and casing. This would be temporary and only occur during the actual construction and drilling operations.

No receptors especially sensitive to noise (schools, hospitals, etc.) would be affected by the project. The nearest human noise receptors would be the temporary and dispersed recreation in the area (see discussion above).

Pipeline and well site construction and decommissioning activities would be conducted only during daylight hours. Pipeline construction also would appear from any given point to be intermittent as each construction task moved by.

The Basalt Canyon EA/Draft EIR provided estimates of construction noise levels, and concluded that the adverse effects of these short-term, temporary construction noise impacts are below the level of significance because they do not expose persons to or generate noise levels in excess of the applicable standards or result in a substantial temporary or periodic increase in ambient noise levels. Information below was obtained from the Basalt Canyon EA/Draft EIR.

As shown in the Basalt Canyon document, there is considerable distance between the well sites and nearest sensitive receptors. Sound levels from the Project at the nearest sensitive receptors are projected to range from 39-49 dBA within the normally acceptable range. As such, the Project would not be in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies to residents within the Project area.

Ormat measured noise from a drill rig on October 21, 2010. This rig was drilling a geothermal well on a geothermal lease located in rural Mineral County, Nevada. The drill site was near the bottom of a flat, wide valley, with high desert brush. The weather was cloudy with little to no wind, and there were no other background noise sources other than the rig. The rig was GeoDrill Rig #2. Noise measurements were taken at 7 locations, ranging from about 50 feet to a half mile from the drill rig. The calculated average noise level from these seven locations was 60.6 dBA at 400 feet from the rig.

The forest surrounding the drill sites for the CD-4 project would be expected to give some sound attenuation that would decrease the projected noise levels.

Again, the drilling activities are both short-term and infrequent.

The louder noises produced from Project construction and decommissioning activities in the immediate vicinity would be audible at Shady Rest Park. However, these noises are not expected to be intrusive, considering the infrequent nature of the noises and the relatively intense recreational activities typically conducted at the park. The louder noises may occasionally be audible at the campgrounds, but at much lower levels and only during daylight hours when construction is occurring. The total construction

period for the drilling of wells would be 20 days per well. Construction noise would continue on and off for the expected two to three month construction period of the pipeline area.

Dispersed recreational users of the Project area may be able to hear the occasional louder construction and drilling activities when within one-quarter to one-half mile of any active construction site. Most construction activities would be quieter. The number of persons exposed to Project construction noise would be small, and comparable areas for dispersed recreation are available in the vicinity of the Project during the short construction period. The construction activities would be short-term and temporary. The proposed well construction will not expose persons to or generate noise levels in excess of the applicable standards or result in a substantial temporary or periodic increase in ambient noise levels. As such, the adverse effects of Project construction noise on dispersed recreational users are considered to be less than significant.

Groundborne vibrations generated by the Project drill rig would be low-level, short-term and would dampen naturally a short distance from the sources. The adverse impacts of any groundborne noise and vibrations generated by the Project drill rig are considered to be below the level of significance.

3.2 Noise from Plant Construction

Construction of the proposed power plant would involve the short-term use of heavy equipment such as backhoes, cranes, loaders, dozers, graders, excavators, compressors, generators, and various trucks for mobilizing crew, transporting construction material and debris, line work, and site watering. The principal noise sources during construction would be the diesel engines on the construction equipment. This would be temporary and only occur during the actual construction..

Construction noise is usually made up of intermittent peaks and continuous lower levels of noise from equipment cycling through use. Noise levels associated with individual pieces of equipment can generally range between 70 and 90 dBA (U.S. DOT, 2006). Short-term increases in noise levels within the immediate project vicinity would result from construction activities.

As described above, the nearest noise-sensitive receptors to the power plant would be at least two miles away. At this distance and with topographic barriers, the noise level from power plant construction would not be audible at sensitive receptors. Thus, the noise levels generated by plant construction would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Some plant construction activities will take place on a 24 hour basis, seven days per week, to take advantage of the short summer construction season. However, due to the distance to the nearest receptors and the resulting noise levels, the noise impacts will be less than the applicable significance criteria.

Construction activities would comply with the applicable requirements of the Mono County Noise Regulations (Mono County Code §10.16). Construction noise impacts would be less than significant due to the short-term nature of this noise, the distance to applicable land uses, and due to compliance with all requirements of the Mono County Noise Regulations (Mono County Code §10.16).

3.3 Projected Noise Levels from Proposed CD-4 Power Plant

The ongoing normal binary power plant operations are less noisy than construction activities. The principal noise sources would be turbine operations and noise generated from the fans in the air condensers. For this report, noise levels measured at various distances from the Galena-3 geothermal power plant located near Reno, Nevada are used to be representative for CD-4. The Galena-3 plant is relatively new with similar technology and equipment as the CD-4 plant. Average measured and calculated noise levels at Galena-3 that can be used to be representative for CD-4 are were 71.5 dBA at 150 feet, 64.5 dBA at 400 feet, 54 dBA at ¼ mile (1,320 feet), and 48 dBA at ½ mile from the center of the plant. These can be considered representative for CD-4. The farther distances above assume flat terrain, so given that the proposed power plant site is tucked within some hills, the distance that noise from the plant travels would be less than above.

Groundborne vibrations generated by the power plant equipment would be low-level and would dampen naturally a short distance from the sources. The adverse impacts of any groundborne noise and vibrations generated by the Project are considered to be below the level of significance.

There are no sensitive receptors within a ½ mile from the plant, and are actually well more than a mile. With the distances and topographic barriers to sensitive receptors, the noise level from power plant operations would not be audible.

After construction, there would be no additional employees for long-term operations. Inspections of the two existing Basalt Canyon well sites and pipeline are performed approximately once each 12-hour work shift, and this will continue, so the same vehicle will be traveling in Basalt Canyon once each shift, but to additional well sites than currently done. There would therefore be no impact from traffic noise.

3.4 Projected Noise Levels from Wells

There are two types of wells, production and injection. Injection wells do not have any pumps and are therefore silent. Production wells have electric-powered pumps and generate a steady "hum" in the immediate area around the well. Ormat took noise measurements of the existing Basalt Canyon well, 57-25, to obtain noise levels that would be representative of proposed wells. The existing wells are surrounded by slatted chain link fences. Based on the noise measurements, the slats seem to reduce noise by 2.5 dB. The representative noise level is therefore outside of the fence and is 58.3 dB at 100 feet or 35.6 dB at ¼ mile from the well pump.

Typical pipeline operations would produce almost no noise, only a very slight rumble as the geothermal fluid moves down the pipeline and a rare "creak" as the pipe flexed. However, with the insulation around these pipes, there is no audible noise at all while standing next to the pipe.

Well pumps would require regular maintenance and/or replacement every two to five years. When necessary, well pumps would be removed and re-installed in the well bore in the same manner as the initial installation. The resulting noise levels would be the same as well site construction activities for the one to two days required to change out the pump. It may be necessary to re-drill, work-over or stimulate the two wells, and/or drill one or more replacement wells over the life of the Project. The noise impacts from any well re-drilling, work-overs or stimulation, and/or replacement well drilling would be consistent with that described above, with no resulting significant adverse impact.

APPENDIX

QUALIFICATIONS OF PREPARER

Noise Analysis Prepared by:
Ron Leiken, QEP, CEM

EDUCATION

1987 B.S., magna cum laude, Natural Resources Management, California Polytechnic State University, CA.

EXPERIENCE

Mr. Leiken has 25 years of environmental experience, summarized below.

NEPA and CEQA Experience: Mr. Leiken has extensive experience with and understanding of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). He has managed completed documents and prepared almost all technical sections. His expertise has been with preparing air quality, noise, and odor sections of these documents. He has analyzed noise and air quality impacts from industrial projects (power plants, vehicle manufacturing), transportation projects (new highways and roads, roadway widening projects, bus stations), new residential developments, new commercial and industrial development, recreation (ski resorts, boating, and campgrounds), ships, rail, and helicopters.

Noise Experience: Mr. Leiken's noise experience includes an extensive amount of noise monitoring and modeling, noise and air impact analysis, transportation noise modeling, background noise monitoring, noise predictions, impact assessment, compliance monitoring, and noise mitigation plans. He has experience with both stationary, industrial noise sources and with traffic noise. He is experienced with Caltrans' *Traffic Noise Analysis Protocol* and *Technical Noise Supplement*, experienced with FHWA's *STAMINA/OPTIMA* highway noise models and with the new *Transportation Noise Model (TNM)*, experienced with Caltrans' *Sound 32* and *Sound 2000*, the Caltrans versions of the FHWA highway noise prediction programs. He is also experienced with noise monitoring, using Type 1 sound level meters to measure noise and various statistical measures of noise (i.e., Lav, L90, L50). He also performs noise compliance monitoring, to determine if noise levels from certain activities exceed county or city noise limits, as well as OSHA occupational exposure compliance monitoring.

SAMPLE PROJECTS - NOISE IMPACT AND MITIGATION ASSESSMENT PROJECTS

Mr. Leiken has prepared many noise impact analyses and/or evaluation of mitigation measures. Many of these were for CEQA Environmental Impact Reports and NEPA Environmental Impact Statements, and many were stand-alone technical noise documents. A sampling of these projects includes the following:

- Noise Impact Assessment, East Brawley Geothermal Development Project, Brawley, California
- Noise impact analyses, Beacon Street (proposed 11-story office building with helipad), San Pedro, California
- Noise and Diesel Air Toxic Analysis, Proposed Marin Airporter Bus Terminal, Novato, California
- Noise and air impact analysis, Polo Ranch (large residential project), Santa Cruz County, California

- Noise and air impact analysis, Auburn Business Center (proposed industrial park), Placer County, California
- Noise and air impact analysis, Campground and Resort (included woodsmoke), Mendocino County, California
- Noise and air impact analysis, Los Banos Bypass, Merced County, California
- Noise and air impact analysis, Clements Quarry (sand and gravel), San Joaquin County, California
- Noise and air impact analysis, Buena Vista Landfill (landfill expansion), Santa Cruz County, California
- Noise assessment, Solid Waste Transfer Station, Salinas, California
- Noise monitoring and complaint evaluation, Vashon Island Landfill, King County, Washington
- Noise impact analyses, Proposed Dam, Sonoma County, California
- Noise monitoring, various roadways (for landfill siting study), Whatcom County, Washington
- Noise monitoring, Waste Fibre Recovery Plant, Hayward, California
- Noise analysis, Panamint Valley Supersonic Operations, Inyo County, California
- Noise monitoring, Kings Beach community, California
- Noise monitoring, Safeway, South Lake Tahoe, California
- Noise monitoring, industrial facility, Fallon, Nevada
- Traffic noise analysis and sound wall evaluation, proposed new toll road (highway), Houston, Texas
- Ox Mountain Landfill, San Mateo County, California
- Noise monitoring, Chemical Manufacturing Site, San Jose, California
- NEPA EA's, ANR Gas Facilities (including 10 gas compressor stations), Eastern United States
- NEPA noise impact analysis, Pelican Butte Ski Area, Bend, Oregon
- EIR, Mobil Tank Farm (Marine Terminal lease renewal), Los Angeles Harbor, California
- EIR, Shell Oil Marine Terminal (lease renewal), Los Angeles Harbor, California
- EIR/EIS, Port of Oakland dredging project, San Francisco Bay Area, California
- EIR, Cold Storage and Shipping Facility, Monterey County, California
- EIR, Granite Regional Park (conversion of mining site to multi-use site), Sacramento, California
- Environmental assessment (EA), Tire-Derived Fuel Project, RMC Lonestar cement plant, Davenport, California
- EIR, Children's Hospital Incinerator, Los Angeles County, California
- EIR, Soledad Energy Plant (biomass plant), Soledad, California
- EIR, University of California at Davis Landfill (landfill expansion), Davis, California
- NEPA Environmental Impact Statement (EIS), Tungsten Mine and Processing Plant, Inyo County, California
- EA/Initial Study, Highway 89, Placer County, California
- Air quality and noise impact analyses, San Mateo-Hayward Bridge, San Mateo and Alameda Counties, California
- EIR, Decontamination and Waste Treatment Facility, Livermore, California
- Air quality and noise impact analyses, South Shore Club at Lake Don Pedro, Tuolumne/Mariposa Counties, California
- EIR, Vie Del Cogeneration Plants (coal-fired), Fresno County, California
- EIR, University of California, San Francisco, California
- EIR, GWF Power Plant Site 1A, Pittsburg, California
- Noise training, Shipyard, South San Francisco, California
- EA, Base Master Plan, Beale AFB
- EA, Los Angeles Air Force Base (two new hazardous waste/materials storage buildings)
- EA, Mail sorting facility, Beale AFB
- EA, New fire station, Beale AFB
- EA, Radio control tower, Beale AFB

REGISTRATIONS & AFFILIATIONS

- Certified Environmental Manager (CEM) – Nevada, since 2001
- Registered Environmental Assessor (REA) - California (No. 03414, since 1990)
- Qualified Environmental Professional (QEP) - Institute of Professional Environmental Practice (No. 12960268, since 1996); Nevada Regional Coordinator
- Air and Waste Management Association
- Certified Air Permit Professional, San Joaquin Valley Unified Air Pollution Control District – since 1998

APPENDIX F

Impervious Surface and Ground Disturbance

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Impervious Surface Calculations for the Casa Diablo Geothermal Development Project

Alternative 1

	Temporary	Impervious
Powerplant	6.5	6.5
Substation	0.25	0.25
Trans Line	0.75	0.0003
Well Pad	40	6.4
New Road	1.4	1.4
Existing Road	1.8	1.8
pipeline	27.6	0.97
Total (acres)	78.3	17.3203

Alternative 2

Powerplant	7.3	7.3
Substation	0.25	0.25
Trans Line	5.6	0.0007
Well Pad	40	6.4
New Road	1.4	1.4
Existing Road	1.8	1.8
pipeline	26.8	0.94
Total (acres)	83.15	18.0907

Alternative 3

Powerplant	6.5	6.5
Substation	0.25	0.25
Trans Line	0.75	0.0003
Well Pad	40	6.4
New Road	1.58	1.58
Existing Road	1.8	1.8
pipeline	26.2	0.92
Total (acres)	77.08	17.4503