

I. NOISE

The Noise section includes a discussion of potential impacts to surrounding sensitive receptors as a result of the proposed project. In this EIR, all sensitive receptors (SR) happen to be residences, and are referred to as “SR-#” in this section. Each sensitive receptor potentially affected by the proposed project has been identified on Figure V.I.-1. The section is based on the *Environmental Noise Assessment* prepared by Brown-Buntin Associates, Inc. (refer to Appendix E). Appendix E also includes definitions of acoustical terminology and assumptions made in modeling traffic noise.

1. Existing Conditions

a. Noise Definitions and Terminology

Noise, as used herein, is defined as unwanted sound. Noise is a complex physical phenomenon that varies with time, geographic location, proximity to the source, and duration of the noise event. The effects of noise are generally considered in two ways: 1) how a proposed project may increase existing noise levels and potentially affect surrounding land uses; and, 2) how a proposed land use may be affected by noise from existing and surrounding land uses. Since instruments that detect small changes in atmospheric pressure that are perceived as sound cannot distinguish between that which is wanted (e.g., birds singing, waves on a beach, etc.) and that which is not (e.g., traffic or railroad noise), measurements of “noise” are more accurately described as measurements of sound pressure.

Noise sources and sound intensities can vary significantly from one area of a project site to another. Variables that affect how noise is perceived include vehicular and equipment volume and activities, proximity to the noise source, time of day, speed, roadway configuration, and the acoustical and topographical characteristics of a site. For example, Highway 101 traffic noise could be substantial at a given location if the noise measurement is taken during peak hour traffic at a short distance from the highway. Given the same conditions, the same noise measured at a distance of 1,000 feet away would be perceived as barely noticeable. Similarly, residences that are located in close proximity to frequently occurring or intense agricultural operations (e.g., harvest and crush season at the winery) would experience higher noise levels than residences that are located farther away or better shielded from the noise producing activity. Generally a 1 dBA increase in the noise level is the minimum perceptible change the human ear can detect. A 3 dBA change is readily noticeable by most people, and a 10 dBA change would be perceived as twice as loud or approximately a doubling of the noise level.

Topography also plays a significant role in the perception of noise. Road segments that are cut below grade so that there is not a direct line of sight between the noise source (i.e. engine, tires) and the receiver may produce a quieter noise environment. The same may be said of locations located substantially above the noise source. Likewise, sites that take advantage of natural topographical shielding conditions would experience lower noise levels than those that do not. Sites that have abundant vegetation and an undulating profile (soft sites) will absorb sound pressure waves much better than an area that is predominantly asphalt or concrete (hard site).

In its present state, the Landfill would be considered a soft site because of its undulating topography and the abundance of vineyards and natural vegetation. After development, the site

would still be considered a soft site because much of the existing landforms and vineyards would remain unchanged.

b. Existing Noise Environment

1) Transportation Noise Sources

An analysis of existing traffic noise levels on Highway 227 and the existing site entrance road was prepared using the Federal Highway Administration (FHWA) *Highway Traffic Noise Prediction Model*⁴, with traffic data obtained from Caltrans and the project description prepared by the applicant. Highway 227 is the only access to the Landfill. Residences are located north south, and west of the Landfill entrance.

The FHWA Model is an analytical method used by state and local agencies, including Caltrans, for highway traffic noise prediction. The model is based upon reference energy emission levels for automobiles, medium trucks (two axles), and heavy trucks (three or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly Leq values for free-flowing traffic conditions, and is generally considered to be accurate within +/-1.5 dB. The model assumes a clear view of traffic with no shielding at the receiver location. To predict Day-Night Average Level (L_{DN}) values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Traffic noise level measurements and concurrent traffic counts were performed at two sites along Highway 227 for the purpose of evaluating the accuracy of the FHWA Model in describing traffic noise exposure in the project area. The traffic noise monitoring sites are noted in Figure V.I.-1 as Sites T-1 and T-2. Site T-1 was located 50 feet from the center of the roadway at about the same elevation as the pavement. Site T-2 was located on a low hill overlooking Highway 227 at about 250 feet from the center of the roadway and 30 feet above the pavement.

Table V.I.-1 compares measured noise levels to those calculated by the FHWA Model using as model inputs the observed traffic conditions. Table V.I.-1 shows that the FHWA Model overpredicted traffic noise exposure at Site T-1 by 1.5 dB and calculated the same noise level as was measured at Site T-2. This is considered excellent agreement between measured and predicted results, and indicates that the FHWA Model may be used without adjustments to provide a realistic assessment of annual average traffic noise exposure in the project area.

Annual Average Daily Traffic (AADT) and truck mix data for Highway 227 were obtained from the Caltrans website. The day/night distribution of traffic on Highway 227 in Appendix E was estimated based upon studies conducted along similar roadways since, at the time of preparation of this section, project-specific data were not available. The estimates have since been compared to the distribution in the traffic impact report prepared for this EIR. The estimates in the Noise modeling, approximately 60 percent large vehicles trips, are comparable to those provided in the Transportation and Circulation section, Table V.J.-1. That table shows approximately 50 percent large vehicles and 16 percent medium vehicles during the a.m. peak hour.

TABLE V.I.-1
Comparison of Measured and Predicted (FHWA Model) Noise Levels
Highway 227 near Cold Canyon Landfill

| Noise Source | Site T-1 | Site T-2 |
|---|-------------|----------|
| Microphone Height, ft. (above ground) | 5 | 5 |
| Distance, ft. (from center of roadway) | 50 | 300 |
| Observed Autos/Hr. | 224 | 216 |
| Observed Medium Trucks/Hr. | 4 | 8 |
| Observed Heavy Trucks/Hr. | 12 | 16 |
| Estimated Speed (mph) | 55 | 55 |
| Leq, dBA (Measured) | 63.2 | 54.4 |
| Leq, dBA (Predicted) | 64.7 | 54.4 |
| Difference between Measured and Predicted Leq, dBA | +1.5 | 0 |
| <i>FHWA "soft site" assumed for calculations</i> | | |

The closest residential setbacks from Highway 227 near the project site are estimated to be in the range of 150 feet from the center of the roadway. The annual average traffic noise exposure calculated by the FHWA Model for a distance of 150 feet from the center of Highway 227 was 59.2 dB L_{DN} for existing traffic conditions (2006). The calculated distance to the 60 dB L_{DN} contour for existing traffic conditions is 133 feet from the roadway centerline.

2) Stationary Noise Sources

(a) Ambient Conditions

The Landfill currently includes an 88-acre disposal area, the Compost Operation (CO), the Resource Recovery Park (RRP), and the Materials Recovery Facility (MRF) (refer to Figure III-5). Noise producing activities associated with the Landfill include the movement of trucks between the Landfill entrance and the working face of the disposal area and heavy equipment used to spread, compact, and cover the waste material. Heavy equipment used in the Landfill operation includes a Caterpillar D7R bulldozer, Aljon 525 compactor, and Caterpillar 627F earthmover. Landfill activities shift within the permitted Landfill but are focused in a single area at any given time. Landfill operations currently occur between the hours of 7:00 a.m. and 4:30 p.m.

The CO is located near the center of the Landfill (refer to Figure III-8). Noise producing activities include the transport of raw materials to the site and processed materials from the site, truck loading activities, compost processing activities, and water truck movements for dust control. Heavy equipment used in the compost operation includes a tub grinder powered by a Caterpillar 3412 engine, 18-foot Scarab compost row turner, Trommel screen, front loaders

(Caterpillar IT28), and diesel-powered water truck. Noise-producing activities within the CO presently occur between the hours of 7:30 a.m. and 4:30 p.m.

The RRP is presently located near the existing entrance to the Landfill near Highway 227. Noise producing activities include the movement of vehicles within the RRP as materials are being delivered to the Landfill, and heavy equipment used to sort, transfer, and store materials within the site. Heavy equipment used within the RRP includes front loaders (Caterpillar IT18B and IT14G) and a Caterpillar 312C excavator. Recovered paper, cardboard, and plastic is transported to the MRF, located near the southeast corner of the expansion area for processing and baling. The RRP is currently open between 7:30 a.m. and 4:30 p.m.

The MRF is located within a large building near the southeast corner of the project site. The facility processes recyclable materials from curbside residential pickup and commercial or industrial sources. It also processes materials from the onsite RRP as noted above. Noise producing activities associated with the MRF include truck movements to and from the facility, glass cleaning equipment located outside the east side of the building, forklift movements and other activities, including the conveyor belts and sorting machinery within the building, and ventilation fans on the south end of the building. Current hours of operation for the MRF are 7:30 a.m. to 4:30 p.m.

Noise levels from the above-described activities and associated equipment were documented by conducting reference noise level measurements at various locations within or near the project site on March 27 and 28, 2008. Since the tub grinder used at the CO was not onsite at that time, noise measurements were conducted on April 16, 2008 at another compost operation in Visalia, California, where similar equipment is used. Noise monitoring equipment was the same as described above for conducting ambient noise level measurements at Site T-1. The reference noise measurement locations at the Landfill are noted in Figure V.I.-1.

Table V.I.-2 summarizes the results of reference noise level measurements. Measured noise levels are reported in terms of the L_{eq} and range (minimum-maximum) during the sample period.

Insert Figure V.I.-1 – Noise Monitoring Sites and Sensitive Receptors

Back of Figure V.I.-1

**TABLE V.I.-2
Summary of Reference Noise Level Measurements**

| Site | Source Description | Distance, Ft. | Noise Level, dBA L _{eq} (Range) |
|------|---|---------------|---|
| 1 | MRF (glass cleaner, fans) | 300 | 46.1 (44.0-48.6) |
| 2 | Compost Operation (trucks, loaders) | 1,100 | 44.5 (44.0-45.0) |
| 3 | Landfill (dozer, compactor, earthmover, trucks) | 200-300 | 70.1 (62.3-77.2) |
| | Landfill (compactor) | 200-300 | 67.5 (64.6-70.1) |
| | Landfill (earthmover) | 200 | 72.1 (67.7-80.1) |
| 4 | RRP (loaders, alarms, dumping materials) | 100-200 | 68.7 (59.6-75.1) |
| 5/6 | Compost Operation (18 ft. Scarab row turner) | 100 | 84.2 (83.4-85.1) |
| 7 | MRF (glass cleaner – unobstructed view) | 50 | 77.3 (75.1-79.9) |
| 8 | MRF (fans – top of berm) | 150 | 63.4 (62.5-63.9) |
| 9 | MRF (fans plus glass cleaner) | 100 | 66.3 (65.4-67.4) |
| 10 | Compost Operation (loaders, trucks, alarms) | 900 | 48.7 (39.2-59.5) |
| | Landfill (dozer, compactor, alarms) | 2,500 | ----- (42-48) |
| * | Diamond Z 1260 Grinder (CAT 3412) | 100 | 81.0 (80.2-82.4) |

**Measurements conducted 4/16/08 at Wood Industries Company in Visalia, California.*

Source: Brown-Buntin Associates, Inc.

2. Regulatory Setting

Noise is regulated at the federal, state, and local levels through regulations, policies, and/or local ordinances. Local policies are commonly adaptations of federal and state guidelines, based on prevailing local conditions or special requirements.

a. Federal Policies and Regulations

The Federal Noise Control Act of 1972 Section 2 [42 U.S.C. 4091] states the following:

- (a) The Congress finds (1) that inadequately controlled noise presents a growing danger to the health and welfare of the Nation's population, particularly in urban areas; (2) that the major sources of noise include transportation vehicles and equipment, machinery, appliances, and other products of commerce; and (3) that, while primary responsibility for control of noise rests with State and local governments, Federal action is essential to deal with major noise sources in commerce control of which require national uniformity and treatment.

(b) The Congress declares that it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare. To that end, it is the purpose of this Act to establish a means for effective coordination of Federal research and activities in noise control, to authorize the establishment of Federal noise emission standards for projects distributed in commerce, and to provide information to the public respecting the noise emission and noise reduction characteristics of such products.

b. State and Local Policies and Regulations

1) California Government Code

The contents of General Plan *Noise Elements* and the methods used in their preparation have been determined by the requirements of Section 65302 (f) of the California Government Code and by the *Guidelines for the Preparation and Content of the Noise Element of the General Plan* prepared by the California Department of Health Services and included in the 1900 State of California *General Plan Guidelines*. The General Plan *Guidelines* require that major noise sources and areas containing noise-sensitive land uses be identified and quantified by preparing generalized noise exposure contours for current and projected conditions. Contours may be prepared in terms of either the Community Noise Equivalent Level (CNEL) or L_{dn} , which are descriptors of total noise exposure at a given location for an annual average day. The CNEL and L_{dn} are generally considered to be equivalent descriptors of the community noise environment within plus or minus 1 dB.

2) County of San Luis Obispo Noise Element

The *County of San Luis Obispo Noise Element* provides a policy framework within which potential noise impacts may be addressed during project review and long range planning. The *Noise Element* is divided into two separate documents and contains policies, performance goals, and procedures for addressing identified noise impacts. The *County Noise Element Policy Document and Acoustic Design Manual* sets noise exposure standards for noise sensitive land uses, and performance standards for new commercial and industrial uses. A companion document, the *Technical Reference Document*, contains background information on the methods used to develop noise exposure information and guidelines for those involved in land use choices and in project design and review. Together these documents comprise the *Noise Element*, and provide methods for reducing noise exposure.

Noise standards are established in the *Noise Element* for sensitive noise receptors. Noise standard applicability is usually limited to evaluating planned residential developments located along highways, arterial routes, frontage roads, railroad tracks, and stationary noise sources where planned or existing residential developments or noise sensitive land uses would be adversely affected by existing or increased project-related noise levels in the area.

The *Noise Element* provides a policy framework within which potential future noise impacts can be minimized. The County has also adopted noise ordinances, which may be used to address noise levels generated by existing industrial, commercial, and residential uses that are not regulated by federal or state noise level standards. The regulation of noise sources such as traffic on public roadways, railroad line operations, and aircraft in-flight is preempted by existing

federal and/or state regulations, meaning that such sources generally may not be addressed by a noise ordinance. The County *Noise Element* addresses the prevention of noise conflicts from all of these sources. The applicable policies of the *Noise Element* include the following:

New Development and Stationary Noise Sources

New development of noise-sensitive land uses may be permitted only where location or design allow the development to meet the standards for existing stationary noise sources.

New or Modified Stationary Noise Sources

Noise created by new stationary sources, or by existing stationary sources which undergo modifications that may increase noise levels, shall be mitigated to not exceed the noise level standards for lands designated for noise-sensitive uses.

Land Use & Transportation Noise Sources

Table V.I.-3 shall be used to determine the appropriateness of designating land for noise sensitive uses, considering noise exposure from transportation sources. Table V.I.-3 shows the ranges of noise exposure that are considered to be acceptable, conditionally acceptable, or unacceptable for various land uses.

In **acceptable** noise environments, development may be permitted without requiring specific noise studies or specific noise reducing features.

In **conditionally acceptable** noise environments, development should be permitted only after noise mitigation has been designed as part of the project, to reduce noise exposure to the levels specified by the following policies. In these areas, further studies may be required to characterize the actual noise exposure and appropriate means to reduce it.

In **unacceptable** noise environments, development in compliance with the policies generally is not possible.

The County's *Land Use Ordinance* Section 22.10.120.A.4 Exceptions to Noise Standards states the following:

Noise sources associated with construction provided such activities do not take place before 7 a.m. or after 9 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday.

In addition to the above policies, the *Noise Element* identifies specific outdoor activity area and interior noise thresholds for transportation and stationary noise sources. These thresholds are discussed further below (refer to Thresholds of Significance).

**TABLE V.I.-3
Land Use Compatibility for New Development near Transportation Sources**

| Land Use ¹ | Exterior Noise Exposure, L _{dn} or CNEL (dB) | | | | | |
|--|--|----|----|----|----|----|
| | 55 | 60 | 65 | 70 | 75 | 80 |
| Residential | [Bar chart showing noise exposure levels for Residential] | | | | | |
| | [Bar chart showing noise exposure levels for Residential] | | | | | |
| | [Bar chart showing noise exposure levels for Residential] | | | | | |
| Bed and Breakfast, Hotel, Motel | [Bar chart showing noise exposure levels for Bed and Breakfast, Hotel, Motel] | | | | | |
| | [Bar chart showing noise exposure levels for Bed and Breakfast, Hotel, Motel] | | | | | |
| | [Bar chart showing noise exposure levels for Bed and Breakfast, Hotel, Motel] | | | | | |
| Schools, Libraries, Museums, Hospitals, Churches, Nursing Homes, Public Assembly | [Bar chart showing noise exposure levels for Schools, Libraries, Museums, Hospitals, Churches, Nursing Homes, Public Assembly] | | | | | |
| | [Bar chart showing noise exposure levels for Schools, Libraries, Museums, Hospitals, Churches, Nursing Homes, Public Assembly] | | | | | |
| | [Bar chart showing noise exposure levels for Schools, Libraries, Museums, Hospitals, Churches, Nursing Homes, Public Assembly] | | | | | |
| Outdoor Sports, Recreation | [Bar chart showing noise exposure levels for Outdoor Sports, Recreation] | | | | | |
| | [Bar chart showing noise exposure levels for Outdoor Sports, Recreation] | | | | | |
| | [Bar chart showing noise exposure levels for Outdoor Sports, Recreation] | | | | | |
| Offices | [Bar chart showing noise exposure levels for Offices] | | | | | |
| | [Bar chart showing noise exposure levels for Offices] | | | | | |
| | [Bar chart showing noise exposure levels for Offices] | | | | | |
| [Legend box] | Acceptable, no mitigation required | | | | | |
| [Legend box] | Conditionally Acceptable, Mitigation required | | | | | |
| [Legend box] | Unacceptable, mitigation may not be feasible | | | | | |

Source: County of San Luis Obispo General Plan Noise Element

3. Thresholds of Significance

The threshold of significance for noise related impacts is the exceedance of a standard as established in the County's *Noise Element* by any proposed development project. Where the established standard is already exceeded, a significant increase in a noise level is taken as one decibel (1 dB).

The *Noise Element* establishes separate standards for transportation noise, which is generated by automobiles, trucks, trains and airplanes, and stationary noise, which is generated by industrial and commercial facilities including loading and unloading of materials. The applicable County standards (thresholds) for evaluating noise impacts from transportation noise are 60 dBA (L_{dn}) for outdoor activity areas and 45 dBA (L_{dn}) in interior spaces (refer to Table V.I.-4). The *Noise Element* states that outdoor activity areas include patios and backyard recreation areas, but do not generally include the front yards of residences that extend to the edge of the roadway. Stationary noise thresholds are 50 dBA daytime and 45 dBA nighttime, as measured from the property boundary.

a. Transportation Noise Sources

The County *Noise Element* states that new development of noise sensitive land uses shall not be permitted in areas exposed to existing or projected future levels of noise from transportation noise sources which exceed 60 dB L_{dn} or CNEL unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces below the levels specified for the given noise sensitive land uses identified in Table V.I.-4.

**TABLE V.I.-4
Maximum Allowable Noise Exposure – Transportation Noise Sources**

| Land Use | Outdoor Activity Areas ¹ L_{dn} /CNEL, dB | Interior Spaces | |
|-----------------------------------|---|--------------------|----------------------------|
| | | L_{dn} /CNEL, dB | L_{EQ} , dB ² |
| Residential (Except Temporary) | 60 ³ | 45 | – |
| Bed and Breakfast, Hotels, Motels | 60 ³ | 45 | – |
| Churches, Meeting Halls | – | – | 45 |
| Schools, Libraries, Museums | – | – | 45 |
| Outdoor Sports and Recreation | 70 | – | – |

¹Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.
²As determined for a typical worst-case hour during periods of use.
³For other than residential uses, where an outdoor activity area is not proposed, the standard shall not apply. Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn} /CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn} /CNEL may be allowed.

Source: Noise Element, San Luis Obispo County General Plan 1992

b. Stationary Noise Sources

The County *Noise Element* states that new development of noise-sensitive land uses shall not be permitted where the noise level due to existing stationary noise sources will exceed noise level standards unless effective noise mitigation measures have been incorporated into the design of the development to reduce noise exposure to or below the allowable threshold (refer to Table V.I.-5). For purposes of this EIR these noise thresholds are applied at the property line.

**TABLE V.I.-5
County of San Luis Obispo Stationary Noise Standards**

| Level | Daytime (7 a.m.-10 p.m.) | Nighttime (10 p.m.-7 a.m.) |
|--------------------------------------|--------------------------|----------------------------|
| Hourly average level (L_{eq}) dB | 50 | 45 |
| Maximum level (Max) dB | 70 | 65 |
| Maximum level, dB-Impulsive Noise | 65 | 60 |

Source: Noise Element, San Luis Obispo County General Plan 1992

c. Existing and Cumulative Noise Impacts

Pursuant to the *Noise Element*, the County shall consider implementing mitigation measures where existing noise levels produce significant noise impacts to noise-sensitive land uses or where new development may result in cumulative increases of noise upon noise-sensitive land uses. Significant noise impacts result when there is an increase of one or more dBA to the existing environment.

d. CEQA Guidelines

Appendix G of the CEQA Guidelines and the County's environmental checklist indicate that significant noise impacts occur when the project:

- Exposes people to noise levels in excess of standards established in local noise ordinances or general plan noise elements;
- Causes a substantial permanent or temporary increase in existing noise levels; or,
- Results in the exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

Noise impacts of any project are considered significant if noise resulting from construction or operation occurs beyond the specified level and/or time frame set by the County of San Luis Obispo.

e. Construction Noise

Construction noise generated during development of the proposed project could result in significant noise impacts affecting adjacent noise-sensitive land uses, primarily residences. In general, the grading phase of project construction tends to create the highest noise levels because of the operation of heavy equipment. Construction noise would be a short-term impact, occurring during the development phases of the project. Generally, other than limiting exceptionally noisy activities to certain times and days of the week, the County currently has no noise threshold for temporary construction-related impacts. However, noise reduction plans can be implemented on a case-by-case basis as warranted. In the event that significant noise would result due to a long-term construction project, or unique situations where significant short-term noise impacts are identified, a noise reduction plan should be prepared.

4. Impact Assessment and Methodology

The FHWA Model was used to calculate project-related changes in traffic noise exposure at the closest residential setbacks along Highway 227 near the project site. Noise modeling assumptions are summarized in Appendix E. The analysis of impacts from stationary noise sources was completed assuming that noise levels generated by the proposed project would be similar to the existing conditions; however, the impact determination considers the affect of the proposed new locations of the operations in relation to existing sensitive receptors and/or the property line.

5. Project-specific Impacts and Mitigation Measures

a. Transportation Noise Assessment

The *Environmental Noise Assessment* in Appendix E was prepared based on potential future trips estimated by the applicant, and on general Caltrans estimates for Highway 227, because Section V.J., Transportation and Circulation, had not been completed at the time the noise analysis was conducted. These estimates are similar or higher than those predicted in Section V.J. For example, the applicant suggested that the proposed project would generate a total of 891 daily trips. The actual trip generation determined in Section V.J. would be 860. Therefore, the analysis that follows is considered accurate.

1) Vehicle Traffic

The proposed project would increase the number of daily trips to and from the Landfill. Currently, there is an average of 660 daily trips at the Landfill; this is expected to increase to an average of 860 daily trips. All vehicles would access the Landfill from Highway 227. The Average Daily Traffic (ADT) volume on Highway 227 in the vicinity of the project site would be expected to increase from 5,500 to 7,700 in 2028, not including the proposed project.

Accounting for project-related traffic, the future ADT on Highway 227 near the project site would be 7,900. Assuming that 80 percent of project-related traffic would be trucks, the overall truck percentage on Highway 227 would increase from approximately five percent to approximately eight percent with the proposed project.

The FHWA model predicted that at a setback of 150 feet from the center of the roadway, future annual average traffic noise exposure without the project would be 61.2 dB L_{DN}. This exceeds the County's 60 dB L_{DN} noise compatibility standard. Including project-related traffic, the future traffic noise exposure would increase by 0.8 dB to 62 dB L_{DN}. There is currently one sensitive receptor, SR-2, located approximately 150 feet from the centerline of the roadway. However, this residence is located approximately 15 feet below the grade of Highway 227. Based on Table 2-1 in the County's *Noise Element*, this elevation difference would reduce the dB level by approximately five, resulting in a noise exposure of approximately 57 dB. This resulting noise exposure is considered a *less than significant (Class III)*. No mitigation is required.

b. Project Component Noise Assessment

1) Landfill Disposal Activities

The proposed project would increase the disposal area of the Landfill by approximately 46 acres. This expansion would potentially move noise producing activities closer to SR-3 through 6, located to the south of the Landfill, but would not change the nature of noise-producing activities or equipment within the project site. The disposal area would be expanded in phases with activities moving around the expansion area over the life of the project.

Based upon noise measurement data summarized in Table V.I.-6, typical disposal activities produce an equivalent energy level (L_{eq}) of approximately 70 dBA and a maximum noise level (L_{max}) of approximately 70 dBA at 200-300 feet from simultaneous activities by disposal trucks, the dozer, the compactor, and the earthmover. This equipment is generally at ground level, and

can be slightly elevated above the working face. In some cases the working face would be within an excavated module and therefore topographic shielding may occur. In other cases, the working face would be substantially elevated above the elevation of the sensitive receptors. The proposed project would move these operations as close as approximately 700 feet from SR-4, to the south of the project site. Assuming noise attenuation due to geometric spreading over distance, no topographic shielding or substantial elevation differences between the working face and the sensitive receptors, noise levels from Landfill activities at SR-4, especially during disposal activities in Modules 14 through 16, would be expected to exceed the County's daytime hourly L_{eq} standard of 50 dBA by approximately 11 dB. Noise levels from Landfill activities would not be expected to exceed the County's daytime hourly L_{max} standard of 70 dBA at SR-4.

Landfill-related noise levels would not be expected to change significantly with the project at existing homes, SR-1 and 2, to the west of the expansion. This is because these homes are currently adjacent to the permitted active disposal area (Module 8), and the proposed expansion of the disposal area would not result in an active disposal area being located any closer to the home than they are currently.

The applicant has proposed that a stockpile (refer to Figure III-9) be created near the center of the southern boundary of the expansion area as shown in Figure III-8. The stockpile would acoustically shield the closest home to the south of the expansion area, SR-4, and achieve compliance with applicable County noise level requirements during work within Modules 13, 15, and 16 (refer to Figure III-3). The stockpile would not provide effective noise mitigation at SR-4 during work on Modules 12 and 14. In addition, any noise level reductions provided by the stockpile would be offset by the ongoing activities associated with use of the stockpile.

NS Impact 1 Noise levels from disposal activities would exceed the County's daytime hourly L_{eq} standard of 50 dBA at the southeastern property line.

NS/mm-1 **Prior to issuance of the Notice to Proceed**, the applicant shall submit for review and approval, a Noise Mitigation Plan addressing identified potential noise impacts to residential uses on the southeastern boundary of the facility through construction of an earthen berm. The plan shall be prepared by a qualified acoustical consultant. The berm shall be tall enough to interrupt line of site between the southeastern property line and heavy equipment noise sources within the disposal area at the full height of each module. The berm landscaping shall be coordinated with the proposed landscape plan and Aesthetic Resources mitigation measures.

NS/mm-2 **Prior to initiation of proposed activities, including the relocation of the entrance, module excavation, etc.**, the applicant shall have completely implemented the Noise Mitigation Plan.

NS/mm-3 Within 30 days after the new entrance is opened, the applicant shall submit an updated noise assessment prepared by a qualified noise consultant that assesses the effectiveness of NS/mm-1. If NS/mm-1 is

found to be ineffective, the consultant shall provide recommendations to improve the performance of the noise berm to meet County thresholds. These recommendations shall be implemented within 60 days of County approval of the assessment.

NS/mm-4 **Prior to issuance of the Notice to Proceed**, the applicant shall revise the proposed grading plans relocating a portion of the proposed stockpile to existing Stockpile 2, adjacent to proposed Module 10, and the remainder to existing Stockpile 3. Additional material associated with Module excavation may be temporarily stockpiled adjacent to existing Module 8 and proposed Module 11, as necessary.

Residual Impact With implementation of these measures, the impact would be mitigated to a *level of insignificance (Class II)*. No additional mitigation is required.

Secondary Impact Implementation of NS/mm-1 may result in removal of at least two additional oak trees and an additional population of Obispo Indian paintbrush, not identified in the original Biological Resources analysis.

Implement BR/mm-1, 11, and 12.

Secondary Impact Implementation of NS/mm-4 may result in additional visual impacts, although it appears that existing mitigation measures requiring visual screening would reduce impacts. Both alternate locations for the stockpiled material shall avoid biological and cultural resources.

Implement AES/mm 9.

2) Compost Operations (CO)

The CO would be expanded and relocated to the top deck (refer to Figure III-8). This would result in moving associated noise sources approximately 1,500 feet farther away from the closest homes south of the site, SR-3 through 6, but approximately 1,000 to 1,500 feet closer to existing homes to the north and east of the site, SR-9 through 12. The new location ranges from 100 feet closer to 700 feet farther from SR-1, 2, 7, 8, 13, and 14 (refer to Table V.I.-6).

**Table V.I.-6
Approximate Distances from Compost Operation Sites to
Sensitive Receptors (feet)**

| Sensitive Receptor | Existing Distance | Proposed Distance | Change |
|--------------------|-------------------|-------------------|--------|
| 1 | 2,300 | 2,200 | -100 |
| 2 | 1,800 | 2,500 | +700 |
| 3 | 1,900 | 3,500 | +1,600 |
| 4 | 1,300 | 3,000 | +1,700 |
| 5 | 1,900 | 3,500 | +1,600 |
| 6 | 1,600 | 3,000 | +1,400 |
| 7 | 2,000 | 2,600 | +600 |
| 8 | 2,200 | 1,700 | -500 |
| 9 | 3,000 | 1,900 | -1,100 |
| 10 | 3,200 | 1,700 | -1,500 |
| 11 | 3,200 | 1,700 | -1,500 |
| 12 | 4,000 | 2,600 | -1,400 |
| 13 | 3,900 | 3,000 | -900 |
| 14 | 3,300 | 3,800 | +500 |

Based upon noise measurement data summarized in Table V.I.-6, the existing compost operation produces a L_{eq} of approximately 81 dBA at 100 feet from the tub grinder and 84 dBA at 100 feet from the Scarab row turner. Such levels are comparable to those produced by the heavy equipment used at the Landfill, described above. Assuming noise attenuation due to geometric spreading over distance and no topographic shielding, it is estimated that operations by the grinder and/or row turner produce L_{eq} values of approximately 55 to 60 dBA at SR-2 through 6. Such levels exceed the County's 50 dBA daytime L_{eq} standard by 5 to 10 dB. During more typical compost activities, loader operations and truck movements produce L_{eq} values that are less than the County's 50 dBA standard at the closest existing homes.

When the CO is relocated, the closest sensitive receptors, SR-8 through 11, would be located at approximately the same setbacks from compost-related equipment as SR-2 through 6 are located currently. This means that the relocated CO could result in hourly L_{eq} values of approximately 55 to 60 dBA at SR-8 through 11 and potentially higher at the property line. Such levels exceed the County's 50 dBA L_{eq} standard. According to Table 2-1 of the County *Noise Element*, because the sensitive receptors are located more than 400 feet from the noise producing location, any changes in topography between the two would not significantly affect noise levels.

A mitigation measure recommended in section V.A., Aesthetic Resources, would affect noise levels. This mitigation requires an earthen berm be constructed around the “top deck” of the Landfill to mitigate visual impacts associated with the engineered look of the Landfill. The berm would range in height from ten to 25 feet in height, and effectively act as a noise attenuation berm for SR-8 through 11.

NS Impact 2 **Noise levels from the proposed Compost Operation would exceed the County’s Leq standard of 50 dBA at the nearest property line.**

Implement AES/mm-2.

NS/mm-5 **Within one year of issuance of the initial Notice to Proceed, the entire Compost Operation shall be moved to the proposed new location.**

Residual Impact With implementation of these measures, the impact would be mitigated to a level of insignificance (Class II). No additional mitigation is required.

3) Expansion and Relocation of the Resource Recovery Park (RRP)

The RRP would be expanded from two to four acres and relocated to the southeastern corner of the Landfill (refer to Figure III-8), north of the MRF, and approximately 50 feet of the northeastern property line. The RRP location would be recessed into a hillside at the location just northeast of the MRF. The top of the crest of the cutslope would be approximately 40 feet above the working area. The proposed expansion of the RRP would include a sort line that is elevated approximately 15 feet above the ground. There is an existing earthen berm approximately 25 feet high between the MRF and the southeastern property line, constructed as noise mitigation for the previous Landfill expansion (refer to Figure V.I.-1). The southeastern property line is approximately 300 feet away.

Based upon noise measurement data summarized in Table V.I.-6, the existing RRP operation produces an L_{eq} of about 69 dBA and an L_{max} of approximately 75 dBA at 100 to 200 feet from loaders engaged in the movement and sorting of materials. These are typical activities at the RRP. Maximum noise levels are generally caused by backup alarms and/or materials being dumped into sorting bins. Noise levels produced by the proposed elevated sort line would be comparable to glass cleaning equipment currently located on the east side of the MRF building, which is an L_{eq} of approximately 77 dBA at 50 feet.

Noise levels generated by the RRP at the southeastern property line, approximately 275 feet away from the nearest portion of the RRP would be reduced due to the location of the MRF and the existing noise berm. Without these, noise levels at the property line would most likely be reduced to approximately 60 dBA due to the geometric spreading over distance. If the berm and MRF together provide a 15 dBA reduction in noise levels, the proposed project would not exceed the 50 dBA noise threshold.

Given the proximity of the northeast property line to the RRP, with no topographic shielding the RRP would produce an Leq of approximately 77dBA at the northeastern property line. Assuming the substantial cutslope, which would reach a height of 40 feet above the work area

(25 feet above the top of the sort line), the dBA may be reduced by as much as 15, to approximately 62 dBA at the nearest property line.

NS Impact 3 Noise produced by the relocated RRP would exceed the County's 50 dBA noise threshold at the northeastern property line.

Implement NS/mm-3 as it relates to the RRP.

NS/mm-6 **Prior to relocation of the RRP** the applicant shall redesign the facility so that it is at least partially enclosed. The southwestern side may be left open to facilitate delivery and sorting of materials.

Residual Impact Enclosing the RRP facility would significantly reduce levels generated by the facility. The specific reduction in noise levels would not be known until after the structure is built and the RRP is operating. However, based on experiences with the MRF, enclosed buildings substantially reduce noise levels and it is expected that this measure, along with the existing topographic shielding would reduce dBA below the County 50 dBA threshold at SR-5 and 6, although it may be above the 50 dBA at the property line. Impacts would still be considered *significant and unavoidable (Class I)*.

4) Expansion of the Materials Recovery Facility (MRF)

The MRF capacity would be increased by adding upgraded equipment and increasing hours of operation. The upgraded equipment would be located inside an expanded building. The building would be expanded to the north and west. As previously noted, the extended hours of operation would not occur during the nighttime hours of 10:00 p.m. to 7:00 a.m., and so only daytime significance thresholds would apply.

Based on noise measurement data summarized in Table V.I.-2, MRF operations produce an L_{eq} of approximately 66 dB at approximately 100 feet from the southeastern side of the MRF building and 46 dB at a distance of 300 feet away near the southeastern property line. This includes noise from ventilation fans, sorting operations inside the building, and the glass cleaner located outside and on the east (opposite) side of the building.

The closest property line is located directly southeast of the MRF at a distance of approximately 250 feet. There is an existing noise berm located approximately 150 feet from the MRF and 100 feet from the nearest property line. The berm was constructed to reduce noise levels from the MRF on SR-6 during a previous expansion. Based on review by the acoustical consultant, the noise berm would reduce dBA by as much as 15 dBA at the property line given its height and location (the County *Noise Element* confirms that engineered noise berms may result in dBA reductions of as much as 15 dBA). This would result in the noise levels being reduced to approximately the 50 dBA threshold at the property line. Noise levels would be further reduced at SR-6 due to the additional distance. Due to the existing berm that would remain in place, impacts associated with the MRF expansion would be *less than significant (Class III)*. And no mitigation is required.

5) Relocation of Scalehouse and Entrance

The proposed entrance to the Landfill from Highway 227 would be located approximately 2,800 feet to the south of the existing entrance. This would result in moving onsite traffic closer to existing homes located to the south and southwest of the Landfill, SR-3 through 6. The closest existing home, SR-4, would be located approximately 350 feet from the main entrance road. The property line is located approximately 200 feet at its closest point to the entrance road.

The FHWA Model was used to calculate hourly L_{eq} values for onsite traffic along the main entrance road during a peak hour. The analysis showed that the peak hour L_{eq} at 350 feet would be 52.6 dBA for 2031 traffic conditions. This exceeds the County's 50 dBA daytime L_{eq} standard by 2.6 dBA.

NS Impact 4 Noise levels from the entrance relocation would exceed the County's L_{eq} standard of 50dBA at the nearest property line.

Implement NS/mm-1, 2, 3, and 4

Residual Impact The noise attenuation berm, required to be designed and implemented by mitigation measures NS/mm-1 and 2, would also effectively mitigate noise levels associated with the relocation of the scalehouse and entrance. According to the County *Noise Element*, an earthen sound berm can reduce noise levels from 5 to 15 dBA, although reductions at the higher levels may be difficult to achieve. Assuming the minimum reduction could be achieved, 5 dBA, noise levels would be reduced below the 50 dBA threshold, resulting in an impact that is *less than significant after mitigation (Class II)*.

c. Construction Noise

1) Stockpiles, Entrance, and Structures

Noise from construction activities would occur at various locations within and adjacent to the Landfill throughout its life. Noise producing construction activities would include construction of the entrance and scalehouse, the noise and aesthetic mitigation berms, the RRP and MRF, and demolition of the existing entrance area shop, etc. For purposes of the Noise section of this EIR, excavation and filling of the modules is considered in Landfill Disposal Activities.

The important sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. None of these sources are anticipated from the proposed project. The primary vibration source during the construction and operation of the project would be heavy equipment and loaded trucks. Typical bulldozer or loaded truck activities generate an approximate vibration level of 86 to 87 VdB (vibration velocity in decibels) at a distance of 25 feet. Noise reduction to distance would reduce these levels to 83 VdB at 50 feet, 79 VdB at 100 feet, and 75 VdB at 200 feet. The closest sensitive receptor is approximately 300 feet from where vibration-producing equipment might operate. Typically, vibration levels must exceed 65 VdB before they are perceptible, and 75 VdB is the point where they are often considered unacceptable (Federal Railroad Administration, 1998).

Construction activities would generate noise levels at 50 feet as indicated by Table V.I.-7. It is anticipated that no sensitive receptors would be continuously subject to construction noise throughout the phasing and build-out of the project. Construction noise is not usually considered to be a significant impact if construction occurring near noise-sensitive land uses is limited to the daytime hours, extraordinary noise-producing activities (e.g., pile driving) are not anticipated, and construction equipment is adequately maintained and muffled. The proposed project would not include extraordinary noise producing construction activities such as pile driving or blasting.

The construction noise occurring closest to sensitive receptors (i.e. the demolition of the existing entrance area, relocated entrance roads and the noise berm), would last well less than one year, and therefore would be considered short-term. Ongoing operational noise that would require the use of equipment identified in Table V.I.-7, such as a dozer or front end loader, have been considered in section b.1 above

Construction noise associated with the use of the proposed stockpile near the southern boundary of the Landfill (refer to Figure III-9) would be potentially be more frequent than that associated with construction of the entrance road, for example.

**TABLE V.I.-7
Typical Construction Equipment Noise Levels**

| Type of Equipment | Maximum Noise Level, dBA @ 50 Ft. |
|-------------------|-----------------------------------|
| Backhoe | 78 |
| Concrete Saw | 90 |
| Crane | 81 |
| Excavator | 81 |
| Front End Loader | 79 |
| Jackhammer | 89 |
| Paver | 77 |
| Pneumatic Tools | 85 |
| Dozer | 82 |

Source: FHWA

NS Impact 5 **Noise from the construction and maintenance of the stockpile near the southern boundary of the expansion area could expose adjacent residences to long-term construction noise.**

Implement NS/mm-4.

Residual Impact With implementation of this measure, the impact would be mitigated to a *level of insignificance (Class II)*. No additional mitigation is required.

6. Cumulative Impacts

The proposed project includes a number of significant noise producing activities, such as the disposal activities, CO, RRP, and the MRF. Cumulative noise impacts due to the combined effect of all of these activities are difficult to quantify due to the fact that they move throughout the life of the project, and therefore change in relation to each other, property lines and the sensitive receptors.

Assessing the relationship between multiple noise sources and levels requires the use of logarithms. As a result, when adding multiple noise sources, the resulting noise is not simply the sum of the noise levels. For example, two 65 dB noise sources do not result in a 130 dB noise level. Because of the nature of logarithms, in general, if two noise levels are more than 10 dB apart, 0.4 dB should be added to the higher dB value to accurately reflect the combined noise levels. If decibel levels are equal or nearly identical, then generally the combined decibel level is approximately 3 dB higher than the higher source (USFS, 2004). The effects of combining two noise sources are shown in Table V.I.-8.

Table V.I.-8
Effects of Combined Noise Sources

| dB Value Difference | Add to Higher Value |
|---------------------|---------------------|
| 0 to 1 | 3 |
| 2 to 3 | 2 |
| 4 to 9 | 1 |
| 10 or more | 0.4 |

In the case of the Landfill operations, there are multiple noise sources producing significantly noise levels. Measures have been recommended to reduce potentially significant noise impacts to a less than significant level, except for the RRP, where levels may be a few dB above 50. Mitigation measures include construction of earthen berms, relocating the CO and a stockpile, and partially enclosing the RRP.

The southeastern property line would be most affected by potential cumulative noise impacts. The RRP and MRF are located on the southern portion of the project site. The disposal area expansion would be moved to the south, and the relocated entrance facility would be located on the southern half of the expansion area. Assuming the MRF and RRP noise levels are each reduced to 50 dBA at the property line and using Table V.I.-8, it is possible that the cumulative noise levels at this location would be 53 dBA, above the significance threshold. The impacts of additional noise sources would not be significant as they are generally a considerable distance from the RRP and the MRF and the dBA at the property line in question would probably differ by as much as 10 dBA. For example, adding noise levels from the CO to the cumulative MRF and RRP noise level would probably not add more than an additional 0.4 dB to the cumulative noise levels.

It is important to note that cumulative noise levels at the sensitive receptors would be further reduced, perhaps by an additional 3 dB, although it is difficult to predict given the complicated nature of sound propagation in general, and in addition the onsite topography, and the number of noise sources.

NS Impact 6 Implementation of the proposed project would potentially result in cumulative noise levels at the property line in exceedance of the County 50 dBA threshold.

Implement NS/mm-1 through 6.

NS/mm-7 Within 30 days after completion of the project components (except module construction), the applicant shall submit an updated noise assessment prepared by a qualified noise consultant, that assesses the effectiveness of NS/mm-1 through 6. If the measures are found to be ineffective, the consultant shall provide recommendations to improve the performance of the measures to meet County thresholds. These recommendations shall commence within 60 days of County approval of the assessment.

Residual Impact The proposed mitigation measures would significantly reduce individual impacts to a less than significant level. However, given the number of project components which would generate noise, the noise levels expected, and the proximity of some of the components of the project to adjacent property lines, even after implementation of the proposed mitigation measures, the proposed project components may cumulatively generate noise levels that exceed the 50dBA threshold at the adjacent property lines. Mitigation measure NS/mm-7 would measure the effectiveness of the mitigation to reduce cumulative noise impacts. If they were not effective, additional measures, such as a higher berm or better noise dampening within structures, could then be implemented. As a result, this would be considered. With implementation of this measure, the impact would be mitigated to a *level of insignificance (Class II)*.

During development of the Cumulative Development Scenario in Section IV, Environmental Setting, the County Department of Planning and Building did not identify any existing or proposed specific projects in the vicinity of the Landfill which would generate significant noise. Existing stationary noise producing activities in the area are generally limited to residential and vineyard development, although there is an active surface mine located approximately 3,000 feet south of the Landfill, and the Price Canyon Oilfield is located approximately one mile west of the Landfill. Noise from these stationary sources would have been measured during development of Table V.I.-1. and therefore have been considered during development of this section.

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