DRAFT ENVIRONMENTAL IMPACT REPORT
NURSERY PRODUCTS HAWES COMPOSTING FACILITY

State Clearinghouse No. 2006051021

Prepared for

County of San Bernardino
385 North Arrowhead Avenue
San Bernardino, CA 92415-0182

September 2006

URS

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EXECUTIVE SUMMARY

ES-1 INTRODUCTION

This Environmental Impact Report (EIR), has been prepared for the Nursery Products Hawes Composting Facility Project (Project), State of California Clearinghouse No. SCH 2006051021. This EIR has been prepared by the County of San Bernardino to identify potential impacts on the environment that will result from development of the proposed Project, to discuss alternatives, and to identify mitigation measures that will reduce, offset, minimize, avoid or otherwise compensate for significant environmental impacts. This EIR has been prepared in accordance with the provisions of the California Environmental Quality Act (CEQA), CEQA Guidelines, Sections 15120 through 15132, and the County's rules to implement CEQA.

ES-2 PROJECT LOCATION

The Project site is located west of the City of Barstow, approximately 8 miles west of Hinkley, and approximately 12.3 miles east of Kramer Junction. The site is approximately one mile south of State Route (SR) 58 and one mile west of Helendale Road. The Project would be located on land owned by Nursery Products, LLC, near the abandoned Hawes Airport. The Assessor's Parcel Number for the site is 0492-021-24-0000, and the site is the southeast quarter of Section 36 in Township 10N, Range 5W, San Bernardino Base and Meridian (USGS Twelve Gauge Lake Quadrangle Map). The 160-acre property is roughly square in shape. Current elevations on the property range from about 2310 to 2330 feet above mean sea level (MSL).

ES-3 PROPOSED PROJECT

The Project, a biosolids and green material composting facility, would be located on an 160-acre parcel located within the unincorporated part of the County of San Bernardino, California. The facility would receive a daily average of 1,100 tons/day (400,000 tons per year) of biosolids and green material to produce agricultural compost.

The primary goal of the Project is to provide cost-efficient local biosolid and green material composting capacity for the County of San Bernardino and the Inland Empire that complies with applicable Federal, State and local requirements for safely handling these materials.

ES-4 IMPACTS, MITIGATION, AND LEVEL OF IMPACT SUMMARY TABLE

Table E-1, Environmental Summary of the Nursery Products Hawes Composting Facility, summarizes project impacts, mitigation measures, level of significance of impacts after mitigation, and unavoidable adverse impacts of the proposed Project. Even after implementation of feasible mitigation, volatile organic compounds (VOC) emissions from the Project would exceed the applicable regulatory threshold and impacts to air quality would be significant. Implementation of mitigation measures will reduce potential impacts to biological resources, cultural resources, hazards and hazardous materials, and hydrology and water quality to a less than significant level. The Project would have either no impact or

less than significant impacts without mitigation to aesthetics, agricultural resources, geology, soils, land use, mineral resources, noise, population, housing, public services, recreation and transportation/traffic.

ES-5 SUMMARY OF NOP COMMENTS AND AREAS OF CONCERN

CEQA Guidelines, Section 15123(b)(2), require that areas of controversy known to the Lead Agency be stated in the EIR summary. This discussion includes issues raised by other agencies and the public, and issues to be resolved including the choice among alternatives that would mitigate the significant effects identified in the EIR.

The Initial Study (IS) prepared for the proposed Project identified potential environmental impacts related to air quality, biological resources, cultural resources, hazard and hazardous materials, and hydrology and water quality. Based on the IS, it was determined that preparation of an EIR was required. A Notice of Preparation (NOP) of an EIR for the proposed Project was prepared and distributed with the IS on May 05, 2006. The IS/NOP, describing the Project and issues to be addressed in the EIR, was distributed to the State Clearinghouse, responsible agencies, and other interested parties for a public review period that extended from May 5, 2006 to July 05, 2006. The objective of distributing an NOP is to solicit comments in order to identify and determine the full range and scope of issues of concern so that these issues might be fully examined in the EIR. The County held a local scoping meeting in Hinkley on May 18, 2006. Over 325 written comments were received from the public during the public review period. The major areas of concern identified in the comments included, in order of the number of comments received: air quality, water quality, hazards and hazardous materials, traffic and biological resources.

ES-6 SUMMARY OF ALTERNATIVES

CEQA Guidelines 15126.6 requires that Lead Agencies identify, analyze and discuss a reasonable range of alternatives to the proposed project or to the location of the project. One of the alternatives that must be discussed is the "no project" alternative. The County identified potential alternatives as discussed in Section 3 of this EIR, and ultimately determined that three were potentially feasible. These three alternatives are the No Project Alternative, the Reduced Capacity Alternative and the Fort Cady Site Alternative.

No Project Alternative

The No Project alternative assumes that a new composting facility would not be developed and the Project area would remain in its current condition. The CEQA Guidelines recommend that the No Project Alternative discuss "predictable actions by others, such as the proposal of some other project" (Section 15126.6(e)(3)(B)). These "predictable actions" are to be assessed based on current plans and consistent with available infrastructure and community services. Absent the proposed composting facility, the Project site would remain zoned as Resource Conservation (RC), subject to a possible future development proposal.

The growing need to treat and manage biosolids produced by sewage treatment plants would remain with the No Project Alternative. It is likely that additional or alternative composting facilities would be proposed by a different applicant. Locations in the high desert region are attractive for composting due to

their relatively close driving distance to the Inland Empire generating areas (when compared to existing treatment or disposal sites in Kern County and in Arizona), the warm dry climate, and the agricultural uses in the region that can make use of the compost product.

Under the No Project Alternative, biosolids would continue to be trucked to Arizona and Kern County (or to more remote locations in California with the recent ordinance change in Kern County).

Reduced Capacity Alternative

The Reduced Capacity Alternative would use the same site as the proposed Project, but the capacity would be reduced from 400,000 tons per year to 320,000 tons per year (average of 880 tons per day). The size of the site would be reduced from 160 acres to 80 acres. This alternative was developed to evaluate the possibility of: (a) preserving a significant portion of the Project site for habitat purposes, (b) reducing projected traffic to the Project site and/or (c) reducing the daily operations so that the emissions of volatile organic compounds (ozone precursors) would be below the 25 pound per day threshold used by the AQMD to define a significant impact.

The Reduced Capacity Alternative, like the proposed Project, would have significant unmitigable air quality impacts. Implementation of mitigation measures would reduce potential impacts to biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality to a less than significant level. The Reduced Capacity Alternative would have either no impact or less than significant impacts without mitigation to aesthetics, agricultural resources, geology, soils, land use, mineral resources, noise, population, housing, public services, recreation and transportation/traffic.

Fort Cady Site Alternative

The Fort Cady Site Alternative would consist of a 400,000 tons per year biosolids and green materials composting facility on a 78 acre parcel located immediately north of Interstate 40 (I-40), 3.5 miles east of Fort Cady Road. This alternate site is adjacent to Troy Dry Lake. The site is generally flat with an elevation of approximately 1,780 feet above sea level. Like the proposed Project, the Fort Cady Site Alternative would have significant, unmitigable air quality impacts. Implementation of mitigation measures will reduce potential impacts to biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality to a less than significant level. The Fort Cady alternative would have either no impact or less than significant impacts without mitigation to aesthetics, agricultural resources, geology, soils, land use, mineral resources, noise, population, housing, public services, recreation and transportation/traffic.

Table E-1
Environmental Summary of the Nursery Products Hawes Composting Facility Project

Potentially Significant Impact	Mitigation Measures	Level of Significance After Mitigation
4.3 Air Quality		
The Mojave Desert Air Basin does not meet the State and Federal ambient air quality standard for ozone (O_3) and PM_{10}. The Project would exceed the Mojave Desert Air Quality Management District's MDAQMD's VOC emissions thresholds during Project operations. These emissions constitute cumulative and Project-level impacts, as they contribute towards the creation of basin-wide O_3 levels.		Significant and unmitigable.
The Project has the potential to generate offensive odors.	AQ-1: Prior to facility operation, the applicant shall prepare an Odor Impact Minimization Plan (OIMP) to reduce potential odor impacts during operation of the compost facility. The OIMP shall be prepared pursuant to the requirements established by the CIWMB (14 CCR 17863.4) and would act as the overall program document for odor control at the compost facility. The OIMP shall include written procedures for reducing odors due to feedstock receipt, processing and handling and for compost processing. The OIMP shall be submitted to the Local Enforcement Agency, prior to operation. OIMP will include: a)Odor-Screening and Load-Checking Procedures b) Feedstock Storage and Processing Measures c) Windrow Management Measures d) Good Housekeeping Procedures e) Odor Complaint Response System	Less than significant.
Although long-term operation of the Project would not, by itself, exceed the SCAQMD's PM_{10} threshold, these emissions are based on watering the road to minimize dust generation. Without watering (or paving) the access road to reduce dust, the Project would result in significant dust impacts. Consequently, dust control mitigation measures are included.	AQ-2: Unpaved roads shall be watered as necessary to minimize visible dust. Alternatively roads may be paved. AQ-3: Refraining from turning the windrows during episodes of high wind speeds (30 miles per hour or higher).	Less than significant.

Table E-1 (continued)
Environmental Summary of the Nursery Products Hawes Composting Facility Project

Potentially Significant Impact	Mitigation Measures	Level of Significance After Mitigation
4.4 Biology		
The Project would indirectly impact the desert tortoise (an endangered species) by loss of habitat (160 acres) and by potentially attracting ravens (tortoise predator). Construction activities and vehicle traffic from the Project could directly harm the desert tortoise and possible burrowing owl.	B-1: The Project shall be phased, with the initial phase not to exceed 80 acres in size. An operational plan shall be provided outlining the conditions that would demonstrate the need for each subsequent phase. B-2: Purchase of offsite conserved habitat shall be based upon the requirements of the CDFG and USFWS, and follow the WMP if in effect at the time. B-3: All employees, subcontractors, construction personnel, and other individuals who work on-site shall participate in a desert tortoise awareness program with educational materials provided by the West Mojave Implementation Team. The program shall be administered by the Authorized Biologist or Environmental Monitor. B-4: A permanent tortoise-proof fence shall be installed around the perimeter of the Project impact area prior to grading of the site. Once the fence is installed, clearance surveys for desert tortoise shall be conducted by qualified biologists to locate and remove any tortoises and close their burrows within the Project site. An authorized biological monitor shall be present during construction to ensure that tortoises do not re-enter the construction area and to remove or rescue any individuals that may be injured. Mortality of any tortoise shall be reported to wildlife agency staff. B-5: Between February 15 and November 15, the tortoise clearance survey shall occur within 48 hours prior to ground disturbance. Between November 16 and February 14, the survey may be performed several days or weeks prior to ground disturbance. B-6: Where practicable, vegetation clearing activities shall occur when tortoises are least likely to be active, generally between November 15 and February 15.	Less than significant.

Table E-1 (continued)
Environmental Summary of the Nursery Products Hawes Composting Facility Project

Potentially Significant Impact	Mitigation Measures	Level of Significance After Mitigation
	B-7: Cross-country vehicle use shall be prohibited and signs posted. B-8: Except on paved roads with posted speed limits, vehicle speeds shall not exceed 20 miles per hour through desert tortoise habitat. This speed limit shall be posted along all access routes associated with the Project. Any tortoises encountered on the roads shall be avoided by drivers where feasible (i.e. driver will stop and wait for tortoise to cross road). B-9: All trash and discarded food items generated by construction and operation activities shall be promptly contained and regularly removed from the Project site to reduce the attractiveness of the area to ravens and other potential desert tortoise predators. B-10: As defined by permit conditions and the Implementing Agreement associated with the permit, adequate funding must be set aside to manage the conserved habitat and to monitor the effects of the Project on the surrounding habitat. B-11: The Project proponent shall prepare a HCP and obtain an incidental take permit/authorization from the wildlife agencies prior to Project implementation. B-15: Preconstruction clearance surveys for desert tortoise and burrowing owl would be required 48 hours prior to commencement of proposed grading and periodically during construction. If tortoise is detected adjacent to the site, a tortoise proof construction fence shall be placed at the site boundary to prevent tortoise from entering the site.	
Construction activities may harm Mohave ground squirrel.	B-12: Mohave ground squirrel trapping surveys shall be conducted prior to construction of the Project to determine this species presence within the Project area.	Less than significant.

Table E-1 (continued)
Environmental Summary of the Nursery Products Hawes Composting Facility Project

Potentially Significant Impact	Mitigation Measures	Level of Significance After Mitigation
The Project may introduce invasive plants into adjacent natural habitat.	B-13: Baseline studies for invasive plants shall be done in the fire break on the property perimeter, as well as within a 500-foot buffer outside the fire break no later than 30 days after the facility opens. These surveys should be conducted in early spring 2007 if the facility would be expected to open later that year. All plant species that are present shall be identified and this area monitored annually (in the early spring) to detect any invasive species that may be present. An herbicide that is appropriate to the species shall be applied to prevent dispersal of exotic or invasive plant species onto BLM property and adjacent habitat. The monitoring frequency may be reduced to once every four years if no invasive are detected during the first five years of monitoring.	Less than significant.
The Project may cause a fire on adjacent property that would degrade existing desert tortoise habitat.	B-14: The Project site must maintain an adequate water supply and delivery capacity as well as clear aisles between windrows for easy access in case of fire.	Less than significant.
Fort Cady Site Alternative only - Loss of honey mesquite bosque habitat would be considered significant due to the threatened status of this habitat in California.	B-15, and: B-16: Honey mesquite shall be planted within preserved areas onsite at an appropriate mitigation ratio to the lost habitat. The mitigation ratio shall be established in consultation with the California Department of Fish and Game.	Less than significant.
4.5 Cultural Resources and Paleontology		
Previously unidentified cultural resources may be discovered during Project grading/excavation.	CR-1: Monitoring by a qualified archaeologist shall occur during grubbing, grading or any construction excavation that disturbs native soils. In the event that an unanticipated find is discovered during construction activities, the construction crew will stop work in the immediate vicinity of the discovery. Nursery Products will report the discovery to the San Bernardino Land Use Services Department (LUSD) and the San Bernardino County Museum. A qualified archaeologist will be required to assess the integrity and significance of any discovery prior to work proceeding in the area.	Less than significant.

Table E-1 (continued)
Environmental Summary of the Nursery Products Hawes Composting Facility Project

Potentially Significant Impact	Mitigation Measures	Level of Significance After Mitigation
Significant non-renewable paleontological resources may be discovered and damaged during Project grading/excavation.	CR-2 : Monitoring of excavation in areas identified as likely to contain paleontological resources by a qualified paleontological monitor is required for all excavation into undisturbed sediments of Pleistocene older alluvium (or the Lake Manix Formation for the Fort Cady Site Alternative) , both at the surface and in the subsurface. Paleontological monitors must be equipped to salvage fossils as they are unearthed, to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. CR-3: Any recovered specimens shall be prepared and stabilized to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates. CR-4: Any small specimens collected shall be identified and curated into an established, accredited museum repository with permanent retrievable paleontological storage (e.g., SBCM). These procedures are also essential steps in effective paleontological mitigation (Scott and others, 2004) and CEQA compliance (Scott and Springer, 2003). The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontological resources is not complete until such curation into an established museum repository has been fully completed and documented. CR-5: If any paleontological resources are found during excavation, a report of findings with an appended itemized inventory of specimens, shall be prepared and submitted to the County Museum and LUSD.	Less than significant.
Fort Cady Site Alternative only - Possibility of the site to eligible for the California Register of Historical Places (CRHR) criteria	CR-1, and: CR-6: If site CA-SBR-11998 cannot be avoided, an archaeological, excavation testing program shall be developed and implemented by a qualified archeologist. CR-7: A qualified vertebrate paleontologist shall conduct a field assessment of the study area and monitor excavation in any surface and subsurface sediments.	Less than significant.

Table E-1 (continued)
Environmental Summary of the Nursery Products Hawes Composting Facility Project

Potentially Significant Impact	Mitigation Measures	Level of Significance After Mitigation
4.6 Hazards and Hazardous Materials		
Hazardous materials or fuel could spill during transfer or fueling activities, as a result of an accident or as a result of a leaking container.	HM-1: The Project design includes guidelines for fuel transfer operations to minimize impacts associated with fueling areas and fuel transfer sites. An Emergency Contingency Plan shall be prepared and adopted for the composting facility. The Plan shall provide information such as emergency contact persons and numbers, the types of hazardous materials stored on-site, the correct emergency responders to contact for specific emergencies, and evacuation procedures and routes to use during an emergency event. HM-2: A Spill Prevention, Control, and Countermeasure Plan (SPCC) shall be prepared and certified prior to the commencement of on-site operations.	Less than significant.
Combustion of the windrows or other onsite combustible materials.	HM-3: The operator shall provide fire prevention, protection and control measures, including, but not limited to, temperature monitoring of windrows and piles, adequate water supply for fire suppression, and the isolation of potential ignition sources from combustible materials. A strip of sufficient width of cleared land must be maintained along the perimeter of site operations to act as a fire barrier or break. The applicant will consult with the local fire agency to determine the size of the fire break.	Less than significant.
Exposure to pathogens, common fungus known as Aspergillus fumigatus, entotoxins, or other allergens.	HM-4: Following each storm event or surface water discharge, no standing water shall be retained in the impoundment basin for more than 30 days. Water from the basin may be used for process water or for dust control on windrows. HM-5: Compost leachate shall be captured and may be reused to maintain compost moisture levels. HM-6: Perform misting or spraying of compost piles when mixing to control airborne spore movement. HM-7: Wash down vehicles and equipment at regular intervals to reduce dust and spore levels. HM-8: Employees engaged in moving or turning compost piles should be equipped with protective clothing, gloves, and face mask. Training programs shall be instituted to instruct employees on the necessary of wearing protective gear.	Less than significant.

Table E-1 (continued)
Environmental Summary of the Nursery Products Hawes Composting Facility Project

Potentially Significant Impact	Mitigation Measures	Level of Significance After Mitigation
Biosolids/windrows can potentially harbor vectors, such as flies, mosquitoes, and fleas.	HM-9: Muscadine, or other suitable bait materials shall be distributed along the external Project boundaries of the composting pad if the LEA determines that periodic fly problems become an area nuisance. HM-10: Biosolids shall be mixed with suitable bulking agents within 4 hours after arrival. HM-11: Employees shall be trained in procedures to prevent, detect, and remedy fly breeding areas.	Less than significant.
Hydrology and Water Quality (1)		
Runoff from biosolids windrows contains pathogens and sediment that could contaminate surface waters. The runoff also may contain constituents in concentrations that could exceed limits to be specified in Waste Discharge Requirements (WDRs) expected to be issued by the Regional Water Quality Control Board (RWQCB).	W-1: The retention basin(s), designed and sized to contain the entire runoff from the windrow and compost storage area during a 24-hour, 100-year storm event is(are) essential to protect surface water and the public from runoff that would likely be contaminated with pathogens. The retention basin(s) must be included in any modification or redesign of the facility. W-2: Prior to beginning operations at the site, in order to establish baseline soil conditions, at least ten samples shall be collected in the portion of the Phase 1 area that would be most frequently used for windrows. Two additional samples shall be collected from the lowest area of the retention basin after construction of the retention basin is complete. Samples shall be collected at each location using a drive sampler to a depth of approximately 1.5 feet. Samples collected at 0.5 and 1 foot shall be analyzed for nitrate, phosphate, chloride, arsenic, copper, lead, mercury, molybdenum, nickel, selenium and zinc. The same sampling program shall be conducted in Phase 2 prior to commencing operations in the Phase 2 area. W-3: Soil beneath the retention basin and the composting pad shall be sampled annually to confirm that the migration of constituents into subsurface soil is limited. Soil sampling shall be conducted at six different locations on the most frequently used portion of the composting pad. Two soil samples shall be collected at least 100 feet apart at the lowest area of each retention basin. Samples will be collected at each location using a drive sampler to a depth of approximately 1.5 feet. Samples collected at 0.5 and 1 foot will be analyzed.	Less than significant.

(1) Impacts and mitigation apply to the proposed Project and both of the action alternatives unless otherwise indicated.

Table E-1 (continued)
Environmental Summary of the Nursery Products Hawes Composting Facility Project

Potentially Significant Impact	Mitigation Measures	Level of Significance After Mitigation
	The results will be compared to the levels listed in 40 CFR 503.13, Table 1 that specifies the ceiling metals concentrations at which the application of biosolids to land is not allowed. These ceiling concentrations currently are 85 mg/kg arsenic, 4,300 mg/kg copper, 840 mg/kg lead, 57 mg/kg mercury, 75 mg/kg molybdenum, 420 mg/kg nickel, 100 mg/kg selenium and 7,500 mg/kg zinc. These ceiling concentrations will be used as an indicator that further action is necessary. There are no ceiling concentrations for nitrate and phosphorous, therefore the analytical results for the site will be compared to those from the background location. If the sample results indicate that the limits in 40 CFR 503.13 have been exceeded or if the levels show a significant increase compared to the background conditions, the operator shall meet with the RWQCB and LEA to discuss an appropriate action plan. The additional action could include but are not limited to: removal of soil and replacement of compacted clean soil on the pad and/or retention basin, or lining the pads and/or basin with an appropriate liner. If there are no significant exceedances of the constituent concentrations after five years of monitoring, the operator may request a reduction in the sampling frequency or eliminate the monitoring program altogether. Upon closure of the facility sampling will be conducted and affected soil will be handled in accordance with applicable cleanup criteria. W- 4: Prior to construction of treatment facilities and storage reservoirs and prior to clearing and grading of the Project site, the applicant shall prepare a SWPPP to obtain coverage under the State-wide general construction storm water National Pollutant Discharge Elimination System (NPDES) permit. The BMPs outlined in the SWPPP shall be implemented. W-5: Prior to operation of the facility, the operator shall apply for coverage under the State-wide general storm water NPDES permit for industrial facilities or apply for an individual facility storm water NPDES permit. W-6: If a groundwater well is installed to provided water for the site, a sample shall be collected quarterly for the first year and analyzed for the constituents listed in mitigation measure W-2 (at a minimum) to establish baseline groundwater conditions at the site.	

Table E-1 (continued)
Environmental Summary of the Nursery Products Hawes Composting Facility Project

Potentially Significant Impact	Mitigation Measures	Level of Significance After Mitigation
Grading of the storage and treatment areas would expose soils to erosion and may result in the transportation of sediment into local drainages.	W-4	Less than significant
Fuel spilled during re-fueling of heavy equipment during construction or operation of the facility could degrade water quality.	W-4 and W-5.	Less than significant
Cumulative Air Quality Impacts		
The proposed Nursery Products facility will introduce significant emissions of dust and ozone precursors (NO_x and VOCs), which will contribute to regional nonattainment conditions for ozone and PM_{10}.	All mitigation measures identified in the Air Quality Mitigation measures would also apply to the cumulative impacts.	Significant and unmitigable.
Cumulative Biology Impacts The site is located on private property, and there is a large patchwork of state-and federal-owned lands in the surrounding area. Adverse cumulative impacts include the potential opportunity to develop other private lands in the Project vicinity. A regional HCP, if approved, would address potentially significant cumulative impacts to biological resources in the Project vicinity.	All mitigation measures identified in the Biology Mitigation Measures would also apply to the cumulative impacts.	Less than significant
Cumulative Traffic Impacts There will be cumulatively considerable traffic impacts in the Project area, mainly due to increased truck traffic at various times along SR 58 and local routes parallel to the highway.		Less than significant

SECTION 1 GENERAL BACKGROUND INFORMATION

1.1 INTRODUCTION AND BACKGROUND

The purpose of this Environmental Impact Report (EIR) is to evaluate the potential environmental effects of the proposed "Nursery Products Hawes Composting Facility" herein described as the "Project". This EIR has been prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) found in Public Resources Code, Section 21000 et seq. and the *Guidelines for Implementation of the California Environmental Quality Act* published by the Resources Agency of the State of California (California Administrative Regulations Section 15000 et seq.). The EIR will be used by the County of San Bernardino (County) as the Lead Agency and by responsible agencies to assess the potential environmental impacts associated with the construction and operations of the Project. According to CEQA:

> "The purpose of an Environmental Impact Report is to: 1) identify the significant effects of a project on the environment, 2) to identify alternatives to the project, and 3) to indicate the manner in which such significant effects can be mitigated or avoided." (Public Resources Code 21002.1[a])

This EIR is an informational document to be used by decision-makers, public agencies, and the general public. It provides the information necessary to understand the environmental impacts that could result from approval of the Project. During the CEQA process, the County must consider feasible mitigation measures and alternatives that may substantially lessen anticipated environmental impacts of the project.

1.2 EIR REVIEW PROCESS

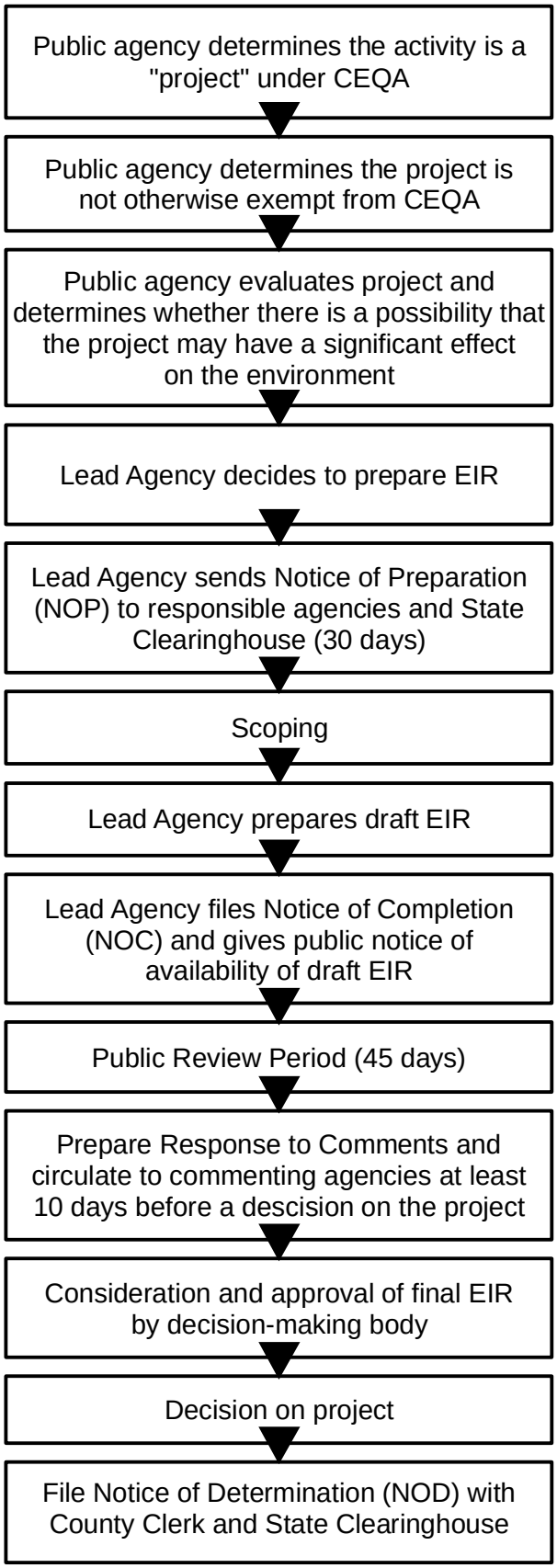
Approval of the proposed Project requires discretionary action by the County. According to CEQA Guidelines, a discretionary action or project must be reviewed by the Lead Agency, to determine its potential effects on the environment.

Pursuant to CEQA requirements, an Initial Study (IS) was prepared for this project in May 2006 as a scoping document to facilitate identification of potential environmental issues. A copy of the Initial Study is included in Appendix A. Based on the findings of the Initial Study, the lead agency determined that an EIR was required to more fully examine potential environmental impacts of the Project in the context of its environmental consequences on air quality, biological resources, cultural resources, hydrology, water quality and hazardous materials.

Following the IS, a Notice of Preparation (NOP) indicating that an EIR was being prepared was issued by the County of San Bernardino on May 5, 2006, in accordance with the CEQA Guidelines. The County circulated the NOP to responsible and trustee state agencies, local organizations, and interested individuals to identify issues to be addressed in the EIR. Comments that were received on the NOP have been addressed during the preparation of the EIR.

As part of the EIR process, a Draft EIR is circulated for review and comment. In addition to comments received from the general public, agencies also may make substantive comments on the areas that are within the agency's area of expertise. Following a 45-day period for circulation and public review, the County will incorporate comments and responses on the Draft EIR in a Final EIR prior to certification of the document. A flow chart of the CEQA process for this project is shown in Figure 1-1, CEQA Process.

As specified by the CEQA Guidelines, this EIR represents the independent judgment of the County of San Bernardino regarding the Project (CEQA Guidelines Section 15084[e]).



CEQA PROCESS
NURSERY PRODUCTS HAWES COMPOSTING PROJECT

URS	NO SCALE	CHECKED BY: MS	DATE: 09-20-06	FIG. NO: 1.1
		PM: DM	PROJ. NO: 27655137.00600	

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1.3 LEAD AGENCY AND CONTACTS

The County of San Bernardino is the lead agency directing the environmental review of the Project. URS Corporation, an engineering and environmental consulting firm, has assisted the County in compiling this EIR. Preparers and contributors are listed in Section 9.0, *Agencies and Persons Consulted*.

1.4 BASICS OF A COMPOSTING PROCESS AND THE PROJECT

With the Nursery Products Hawes Composting Facility, the applicant, Nursery Products LLC, has proposed to develop a biosolids and green material composting facility on a 160-acre parcel located within an unincorporated area of the County of San Bernardino, California. The facility would compost biosolids and green material to produce agricultural grade compost. Green materials are any plant material that is separated at the point of generation, contains no greater than 1.0 percent of physical contaminants by weight, and meets the requirements of the State of California (as defined by the California Integrated Waste Management Board [CIWMB] in Title 14, Division 7, Chapter 3.1, Article 1, Section 17852.5 of the California Code of Regulations). Green material includes, but is not limited to, yard trimmings, untreated wood wastes, natural fiber products, and construction and demolition wood waste. Green material does not include food material, biosolids, mixed solid waste, material processes from commingled collection, wood containing lead-based paint or wood preservative, mixed construction or mixed demolition debris.

Biosolids are solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Biosolids include, but is not limited to, treated domestic septage and scum or solids removed in primary, secondary, or advanced wastewater treatment processes. Biosolids does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during the preliminary treatment of domestic sewage in a treatment works (14 CCR 17852).

Composting is the controlled decomposition of organic materials, such as biosolids and green material by microorganisms. The result of this decomposition process is compost, a crumbly, earthy-smelling, soil-like material. Composting is one of several methods for treating biosolids to create a marketable product with commercial value and use. The end product is usually a humus-like material (referred to as Class A compost) that can be applied as a soil conditioner and fertilizer to gardens, crops, and rangelands. Compost provides organic matter and nutrients (such as nitrogen and potassium) to the soil, and improves soil texture--characteristics of a good soil amendment. The U.S. Environmental Protection Agency (EPA) and the California Integrated Waste Management Board (CIWMB) have determined that Class A compost is safe to use and generally has a high degree of acceptability by the public.

The area served by the proposed composting project includes the Inland Empire, and nearby areas in Southern California. According to EPA 2004 data, Southern California produces approximately 565,243 dry metric tons of biosolids per year. A metric ton is a unit of weight equivalent to 1,000 kilograms (or about 2,200 pounds). Compost and similar mixtures that are solid material containing water are measured both in wet and dry conditions. A wet ton is an ordinary ton of the material in its natural, wet state; a dry ton is a ton of the solid material that would remain if all the water were removed.

The Inland Empire (including San Bernardino and Riverside Counties), produces over 219,000 dry metric tons of biosolids. In comparison, Los Angeles County generates just under 215,000 metric tons, Orange County generates approximately 54,000 metric tons and San Diego County generates approximately 47,000 metric tons. It is estimated that currently, about 88% of the biosolids generated in Southern California is being trucked to Arizona and the Central Valley (primarily Kern and Kings County) for

disposal in landfills or land application. The Project would have the capacity to compost approximately 200,000 tons per year (182,000 metric tons) of biosolids, and thus could serve the needs of most of the Inland Empire region.

Green material recycling is a component of the source reduction and recycling efforts of most local jurisdictions in meeting the solid waste diversion goal of 50% set by the California Integrated Waste Management Act. San Bernardino County as a whole is currently diverting approximately 55% of its solid waste from landfill disposal. The unincorporated areas in the County, however, and several cities in the high desert area near the proposed Project site are still below the 50% diversion goal. For most areas that are predominantly residential, achieving the 50% diversion goal requires some form of green material recycling. The proposed Project will handle up to 200,000 tons of green materials per year. Thus, the Project will provide an environmentally sound way to recycle green materials.

The location and design of the Project have been chosen to serve the anticipated market areas—primarily the Inland Empire and nearby areas—while providing sufficient isolation to minimize the potential for aesthetic concerns, odors and similar effects in residential areas. Transportation distances, both to bring biosolids and green material feedstock to the Project site and to transport composted material to market areas, are balanced with remoteness to minimize adverse effects. While the site is a number of miles from major sources of biosolids and green material, the distance to the Project site from these areas is much less than the current travel distances to disposal areas used by cities and districts in the Inland Empire and Southern California regions. The desert climate, with low rainfall and low humidity, and the open windrow design of the Project also provide a cost-effective combination for the project operations.

1.5 GOALS AND OBJECTIVES

The main goal of the Project is to provide local, cost-efficient biosolids and green material composting capacity for the County of San Bernardino and the Inland Empire that complies with applicable Federal, State and local requirements for safely handling these materials to generate Class A compost.

The Project has the following objectives:

- To establish an efficient reuse of biosolids in the County and the Inland Empire;
- To increase solid waste diversion through the recycling of green material in compost;
- To conduct the composting operation in a cost-effective manner;
- To produce and provide local and regional agricultural and nursery customers with high-quality composted products, especially in the Inland Empire.

The market areas for compost material include agricultural areas in San Bernardino County and developing cities in the Inland Empire. The organic material and water retention properties of compost can improve the agricultural productivity of arid desert soils. The compost will also be used in nursery and landscaping operations, erosion control, and similar uses in developing areas.

1.6 INTENDED USES OF THE EIR AND APPROVAL ACTIONS FOR THE PROJECT

The Project may require review and/or discretionary approvals and permits from several agencies. A list of the potential agency reviews and approvals required to implement the Project are listed below:

San Bernardino County Land Use Services Department Conditional Use Permit (CUP): The County is the Lead Agency for preparation of this EIR. The County Land Use Services Department would issue a CUP upon approval of the project.

- **Solid Waste Facility Permit (SWFP) issued by the Environmental Health Division of the County Health Department and the CIWMB:** The Project will be required to obtain a Solid Waste Facility Permit issued by the Environmental Health Division of the County Health Department and the CIWMB. The Environmental Health Division acts as the Local Enforcement Agency (LEA) on behalf of the CIWMB. The LEA and the CIWMB are CEQA Responsible Agencies and will use this EIR in their review of the project.

- **Waste Discharge Requirements (WDRs) or a waiver issued by the Lahontan Regional Water Quality Control Board; (RWQCB):** The Lahontan Regional Water Quality Control Board (RWQCB) is identified as an agency with a future permit action related to the project. The RWQCB may need to issue either WDRs or a waiver prior to the issuance of the SWFP by the LEA and CIWMB.

California Department of Fish and Game 1600 Agreement and/or 2801 Permit (if required): The California Department of Fish and Game as a trustee agency may be involved in consultations by other agencies.

- **National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Discharge Permit and Industrial Stormwater Discharge Permit:** These are both statewide general permits administered by the State Water Resources Control Board (SWRCB) with monitoring and reporting to the Lahontan RWQCB.

- **U.S. Fish and Wildlife Service incidental take permit** (or similar review) for development in desert tortoise habitat.

- **Permits to Operate for stationary equipment issued by the Mojave Desert Air Quality Management District**: These may be applicable to electrical generators and other stationary equipment, under regulations of the Mojave Desert Air Quality Management District.

- **San Bernardino County Fire Department permit for above ground fuel tank.**

The types of actions that these agencies, as well as other agencies not included in this list, may take in regards to the EIR include, but may not be limited to:

- Make findings of consistency;
- Approve and issue permits;
- Approve agreements;
- Provide authorization and approval of funding; and
- Provide service.

1.7 EIR ORGANIZATION

The EIR is organized as follows:

- Chapter 2 of this document provides a description of the Project. Project description is presented generally following the CIWMB guidance for preparing CEQA documents.

- Chapter 3 describes project alternatives, including the No Project, Reduced Capacity, and Fort Cady Site Alternatives.
- Chapter 4 provides environmental impact analysis for the Project, including the analysis of the environmental impacts, significance criteria, and the discussion of mitigation measures to reduce significant environmental impacts associated with environmental resource areas evaluated.
- Chapter 5 discusses effects found not to be significant during the preparation of the IS.
- Chapter 6 addresses long-term effects of the Project, including cumulative impacts, growth-inducing impacts, significant effects that can not be avoided as well as unavoidable significant adverse impacts.

Mitigation monitoring and reporting program table, agencies and persons consulted, list of preparers, list of acronyms and abbreviations, and references are presented in Chapters 7, 8, 9, and 10, and 11, respectively. The Appendices provide information on the scoping process and detailed technical information for air quality, biological resources, noise, and traffic.

1.8 PROJECT SCHEDULE

The Project review started with the submittal of an application for the Hawes site by the Project proponent in December 2005. The IS was prepared and the NOP was issued on May 5, 2006, and the Draft EIR was circulated for public review for a 45-day review period, beginning in September 2006. The Project proponent expects that site improvements (roads, grading, fencing, etc.) will begin shortly after project approval and that the Project will begin operations three (3) to seven (7) months after project approval.

SECTION 2 PROJECT DESCRIPTION

The Project is a biosolids and green material composting facility proposed for a 160-acre parcel located within an unincorporated area of the County of San Bernardino, California. The facility would compost biosolids and green material to produce Class A compost.

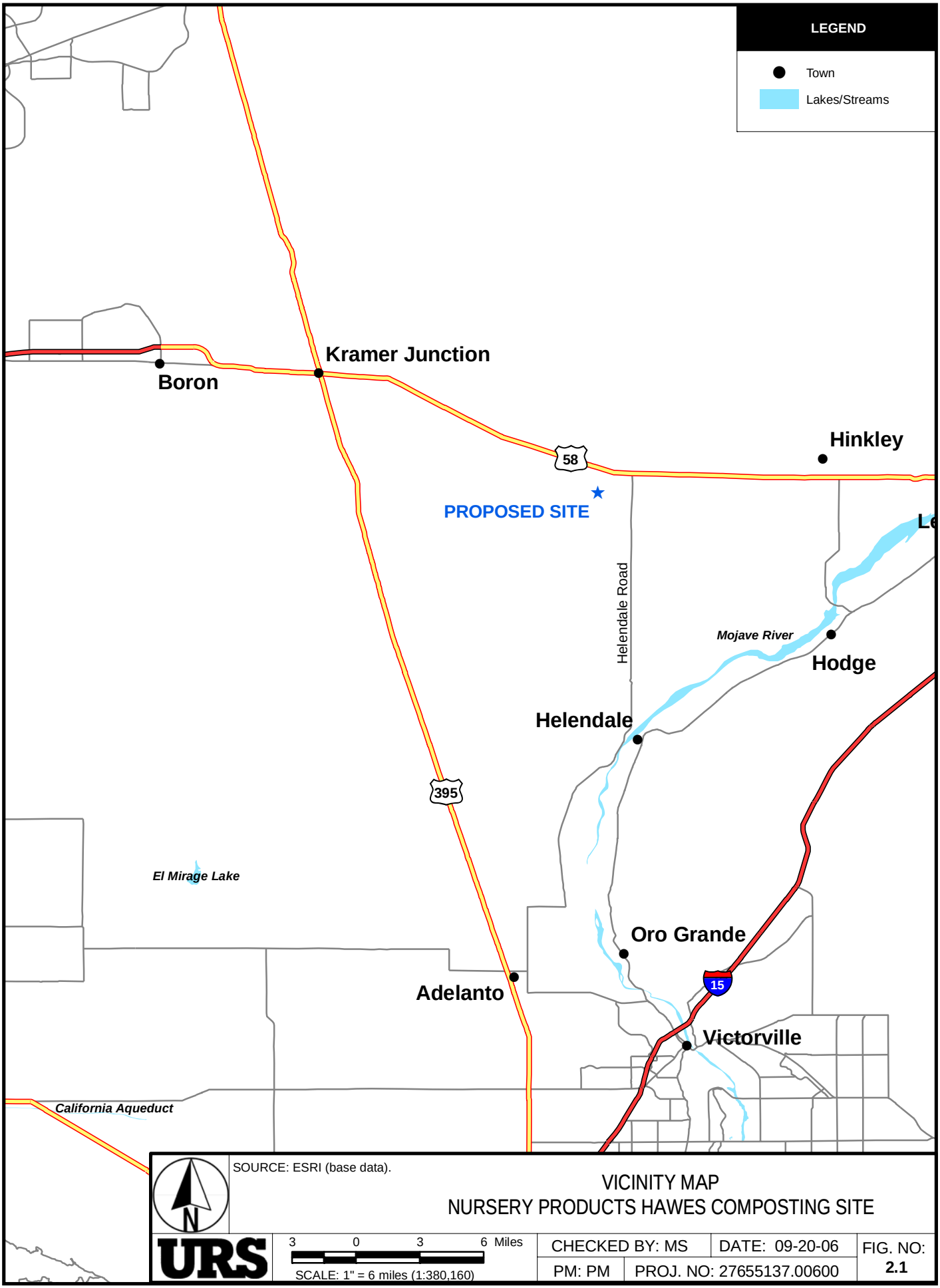
2.1 LOCATION AND BOUNDARIES

The project area is located west of the City of Barstow, approximately 8 miles west of Hinkley, 12.3 miles east of Kramer Junction, one mile south of State Route (SR) 58, and one mile west of Helendale Road. Figure 2.1 shows the project vicinity map. The Project would be located on land owned by Nursery Products LLC, 0.5 miles southeast of an abandoned World War II training air field known as Hawes Field. The Assessor's Parcel Number for the site is 0492-021-24-0000, and the site is the southeast quarter of Section 36 in Township 10N, Range 5W, San Bernardino Base and Meridian (USGS Twelve Gauge Lake Quadrangle Map). The property is roughly square in shape. Elevations on the property range from about 2,310 to 2,330 feet above mean sea level (MSL). Figure 2.2 shows the site location.

2.1.1 General Environmental Setting

The County Development Code establishes specific development standards for each district in the county and sets forth procedures the County must follow in order to approve a particular use. According to the County Development Code, the proposed Project is located in the Resource Conservation (RC) District. The "Additional Uses" section of the Development Code allows for composting in any land use district subject to review and approval of a Conditional Use Permit (CUP).

The Project site is currently vacant desert open-space disturbed by some development including roadways, transmission lines and other abandoned development. There are no trees, rock outcroppings or historic buildings in the vicinity of the proposed Project site. The climate in the area is generally dry, experiencing an average rainfall of less than six inches per year.


LEGEND
Town
Lakes/Streams
Kramer Junction
Boron
Hinkley
58
PROPOSED SITE
Helendale Road
Mojave River
Hodge
Helendale
395
El Mirage Lake
Oro Grande
15
Adelanto
Victorville
California Aqueduct
N
SOURCE: ESRI (base data).
VICINITY MAP
NURSERY PRODUCTS HAWES COMPOSTING SITE
URS
3 0 3 6 Miles
SCALE: 1" = 6 miles (1:380,160)
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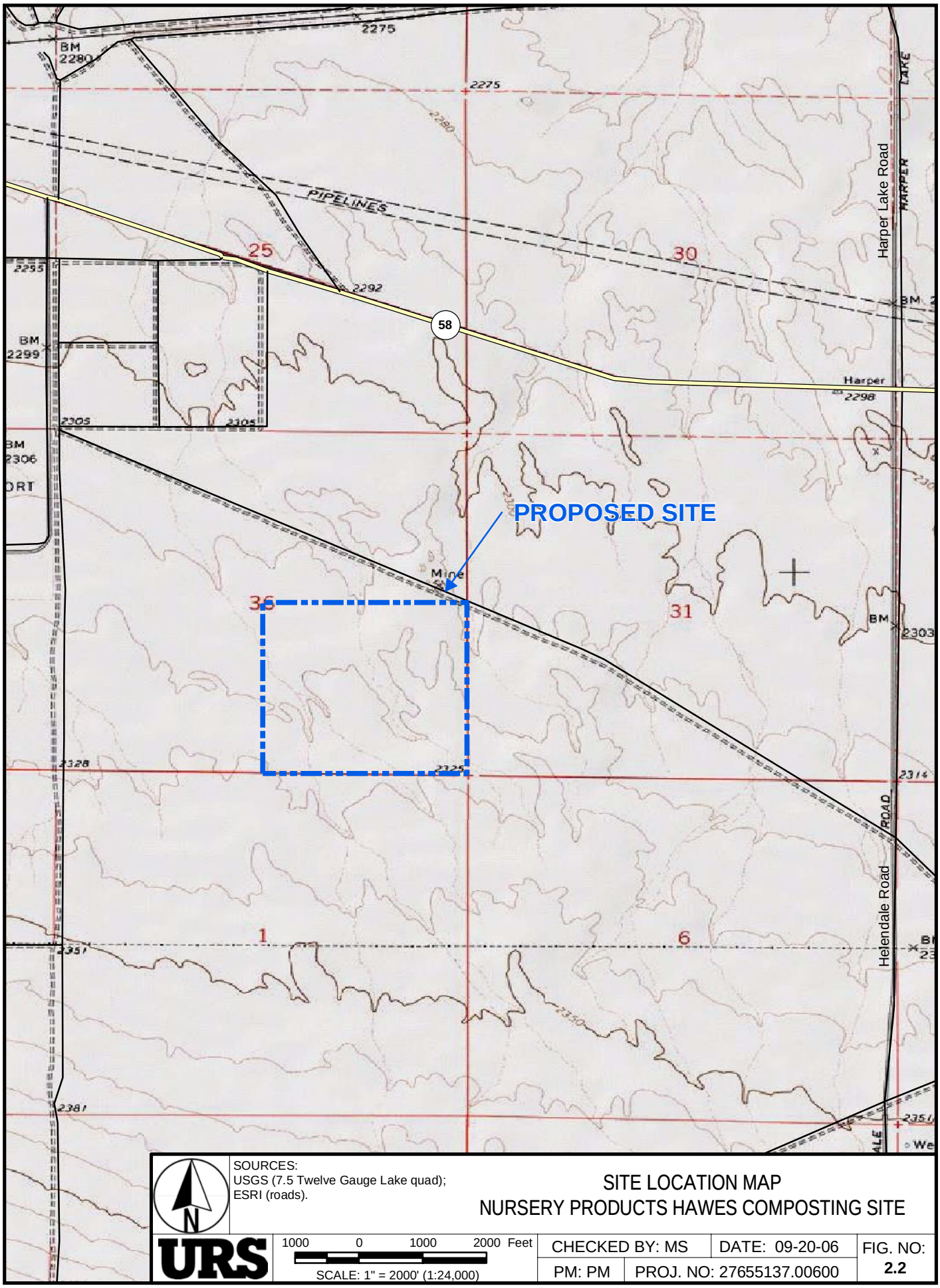

SOURCES:
USGS (7.5 Twelve Gauge Lake quad);
ESRI (roads).

SITE LOCATION MAP
NURSERY PRODUCTS HAWES COMPOSTING SITE

URS

1000 0 1000 2000 Feet

SCALE: 1" = 2000' (1:24,000)

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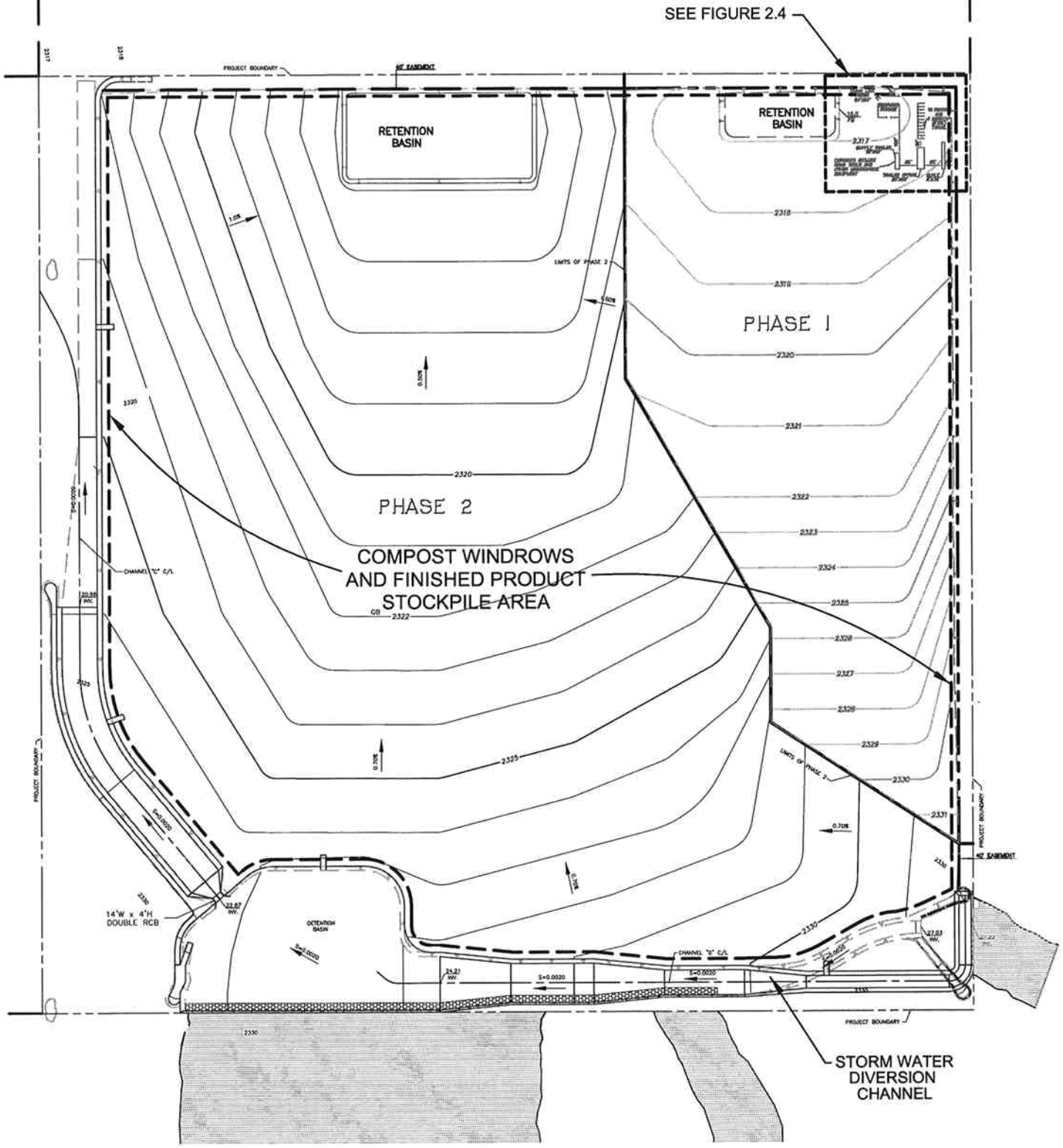
The nearest residence to the proposed Project site is 1.5 miles to the east, with a second residence located 2.5 miles to the east. Beyond these, the next nearest residence is located in Hinkley, 8 miles east of the proposed Project site. There are no residences to the north, west and south in the area of the proposed Project site.

The applicant has proposed this location for the Project because of the following characteristics:

- Near-by access to a major highway (SR 58, approximately one mile);
- Relative isolation (8 miles from nearest town);
- Distance from the nearest residence (over one mile);
- Size and generally flat topography that facilitate design and construction of storm water control features;
- Proximity to main agricultural compost users in the Inland Empire;
- Proximity to biosolids sources.

2.2 SITE DESCRIPTION

The proposed Project site can be accessed from SR 58 by using Hawes Ancillary Airport Road to the west and Helendale Road to the east. Surrounding land adjacent and near the site is vacant desert. Figure 2.3 shows the overall project layout including proposed facilities, compost and feedstock storage areas, retention basins (also referred to as impoundments), other drainage features and property boundaries. Figure 2.4 illustrates a preliminary layout of equipment and facilities on the site. These facilities consist of (1) an office space approximately up to 720 square feet in size, (2) parking, (3) scale, (4) composting windrows, (5) screening area, (6) equipment, (7) finished product storage area, and (8) a 2,000-gallon double-walled, above-ground diesel fuel tank. Limited signage is proposed, including a sign at the entrance to the facility that will include the name of the facility, the name of the operator, facility hours of operation, a phone number in case of an emergency, and a list of accepted materials.



SOURCE: AEI CASC Consulting

NURSERY PRODUCTS
HAWES COMPOSTING FACILITY

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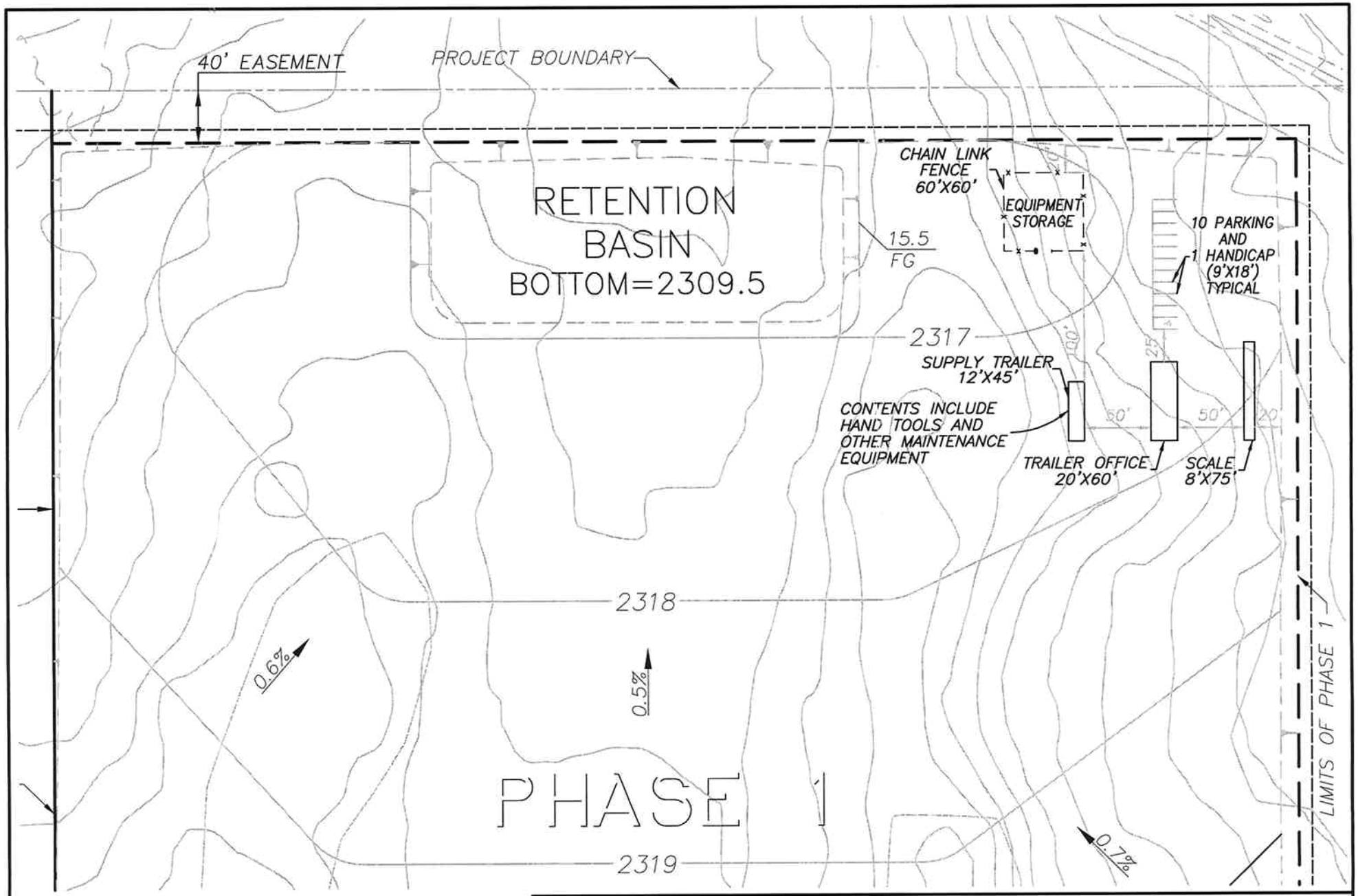

SOURCE: AEI CASC Consulting

FACILITIES LAYOUT - PRELIMINARY DESIGN
NURSERY PRODUCTS HAWES COMPOSTING FACILITY

URS	50 0 50 100 Feet SCALE: 1"= 100'	CHECKED BY: GR	DATE: 06-30-06	FIG. NO: 2.4
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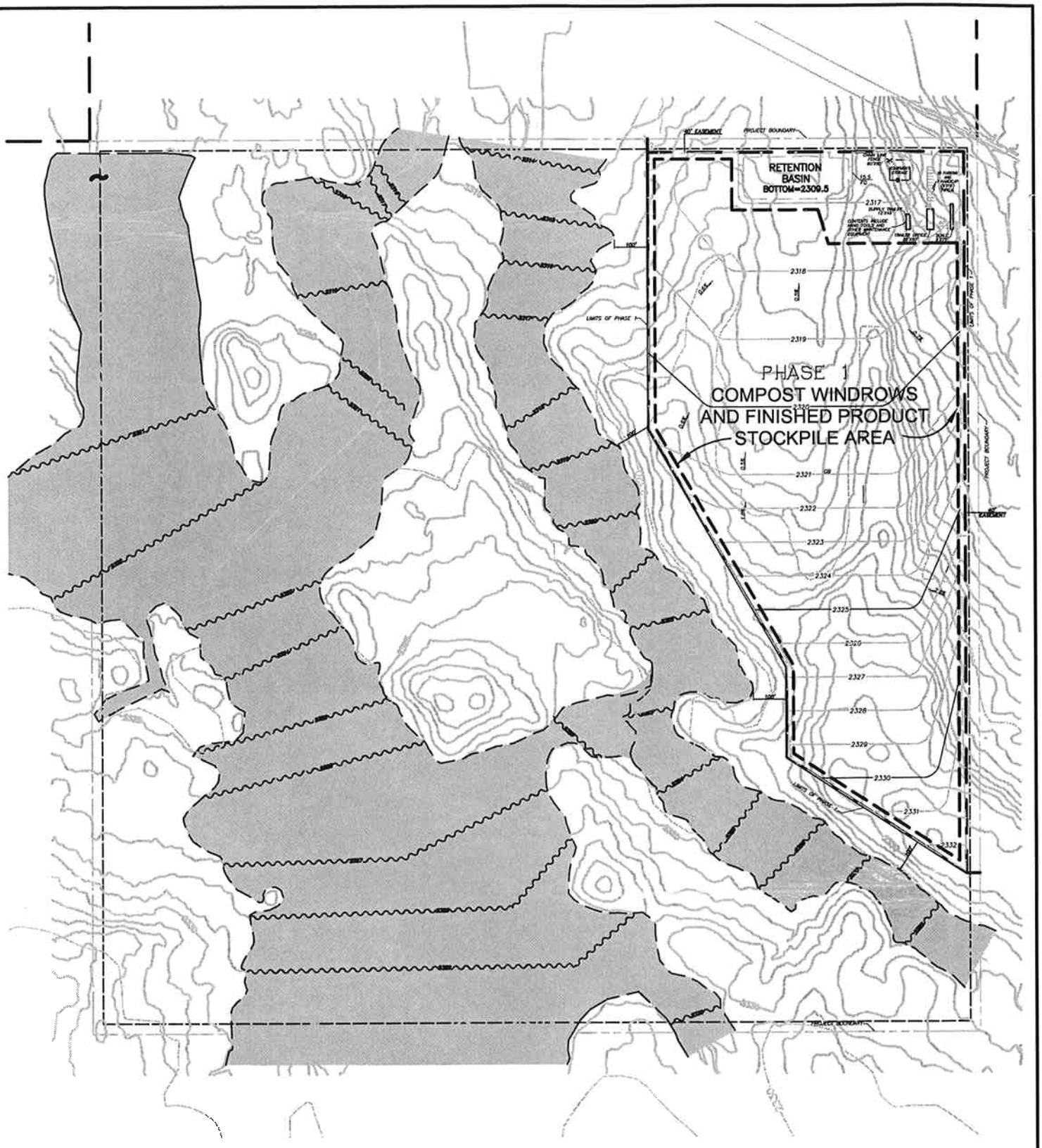
Equipment that will be used at the facility includes:

Description	# of Units	Capacity
Front End Loader	Four	3-8 Cubic Yards
Tub Grinder	One	75 Tons Per Hour
Windrow Turner	One	10,000 Feet Per Day
Screen	One	70 Tons Per Hour
Water Truck	One	2,000 Gallons

2.3 DESIGN AND OPERATIONS

The Project would be constructed in phases. Phase 1 (Figure 2.5) has been designed to accommodate initial composting activities while avoiding drainage areas on the site and minimizing the need to manage storm water runoff. When the throughput of the facility increases to the point where additional land area is needed, the remainder of the site will be developed.

The Project is expected to receive an average daily total of 1,100 wet tons of biosolids and green material (approximately 400,000 wet tons per year). The maximum quantity that the Project would receive on any given day would be 2,000 wet tons. Clean soil or other inert materials (i.e. sand, gypsum, sawdust) will be used as a bulking agent or amendment as needed and will not exceed 200 tons per day. The Project would produce a maximum annual volume of 400,000 cubic yards of compost annually. Once the composting process is complete, the end product is the finished compost, dark in color with an earthy smell. Non-recoverable or non-marketable residues are placed in a trash receptacle for transport and disposal at a permitted solid waste landfill. The finished product will be temporarily stored on-site prior to being transported off-site via trucks or used on-site for erosion control, or further processing.



SOURCE: AEI CASC Consulting

EXISTING FLOODPLAIN

PRELIMINARY DESIGN - PHASE 1
NURSERY PRODUCTS HAWES COMPOSTING FACILITY

URS

200 0 200 400 Feet

SCALE: 1"= 400'

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2.3.1 Receiving Operation

Nursery Products will require that all customers provide complete documentation of the source, description and characteristics for all biosolids and green materials in advance of delivering loads to the facility. All loads are then given a delivery time schedule specifying when the trucks can be received. No biosolids will be accepted at the facility prior to receiving this documentation and, if required, supporting laboratory analysis. Each load of biosolids will have a complete manifest. Material will be received and weighed at the scale near the main office. Random load checks will be conducted daily, and a log maintained for each inspection. Under no circumstances will the proposed facility accept hazardous waste. Green material and amendments will be load-checked prior to utilization in the composting process. The facility may reject loads due to poor green material quality (i.e. excess grass, etc.), or any other reason.

2.3.2 Processing Operation

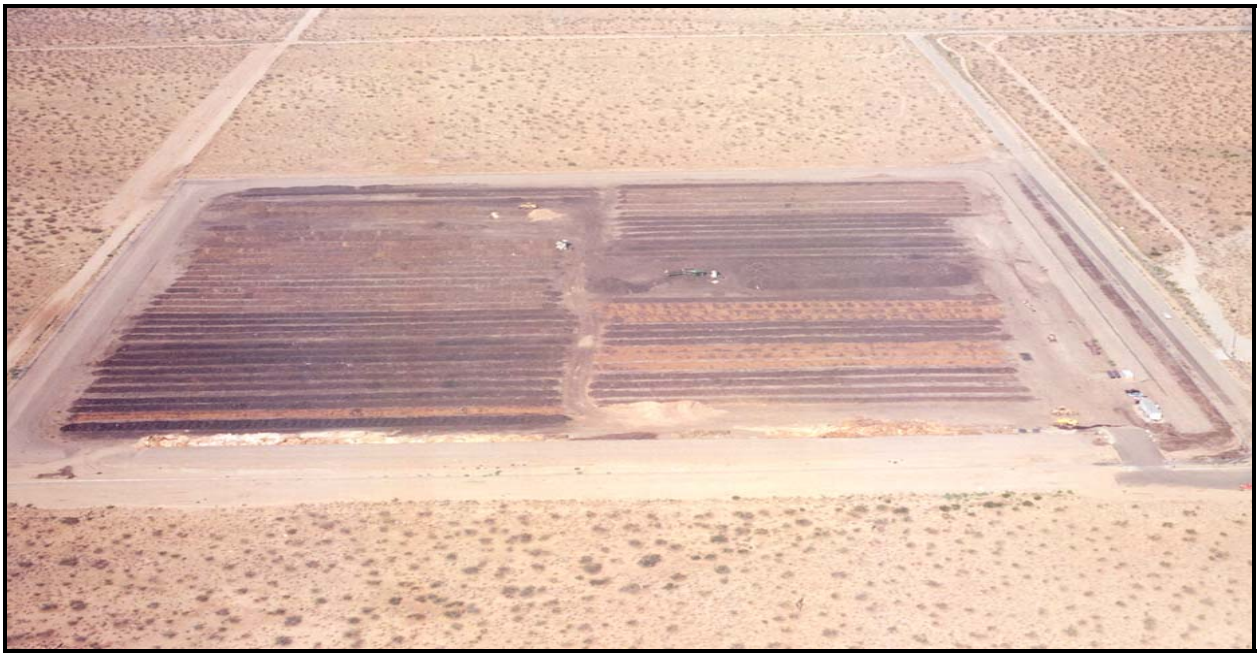
Green material typically consists of ground and unprocessed materials. The proposed facility would have a grinder on site to grind bulk green material when a sufficient quantity accumulates. Grinding may occur every two to three days when delivery of green materials are at a peak, but may not occur for a period of one month or longer in the winter when the volume of green material delivered to the site declines. Bulk green material will be stored in piles onsite during these periods between grinding. The processed green material will be placed in a partial windrow-shaped pile for initiation of composting, and will be occasionally stored up to seven days. Biosolids received at the site will be incorporated into partial windrow-shaped piles within two hours after receipt.

The windrow-shaped piles of biosolids and green material will be mechanically formed throughout each day (Figure 2.6). Windrows will be turned five (5) times in 15 days. The size of each windrow-shaped pile may vary, with the height not to exceed 12 feet, the width not to exceed 30 feet, and the length not to exceed 1,000 feet. Figure 2.7 shows an aerial view of a typical desert composting operation.

The Project will use a combination of windrow and modified static pile composting methodologies. With the windrow method, the active composting stage generally can last up to nine weeks for biosolids composting, though it is expected to be completed much quicker in a hot, dry, arid environment. The windrow composting process includes aeration through mechanical processes on a periodic basis. This is referred to as turning the windrow, and is done by using heavy equipment to lift and turn the windrow inside out. The objective is to maintain the active compost under aerobic conditions at a temperature of 55 degrees Celsius (131 degrees Fahrenheit) or higher for a pathogen reduction period of 15 days or longer. During the period when the compost is maintained at 55 degrees Celsius or higher, the windrows will be turned a minimum of five times.

Figure 2.6 - Typical Composite Windrows

Figure 2.7 - Aerial View of Desert Composting Operation



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The modified static pile composting process will be a 60-day process. The windrow would be monitored for temperature and may remain undisturbed for up to thirty days. On approximately the thirtieth (30^{th}) day and then again on approximately the forty-fifth (45^{th}) day, the windrow would be turned such that the very bottom will be exposed. The pile will remain undisturbed for fifteen more days (until day 60), at which time the composting process is complete. The actual number of days and turns may be altered to maintain proper pile temperature and compost quality. Documentation of the time/temperature relationship will be maintained in daily records and by submitting samples for analytical testing. Windrows will also be monitored for pH (a measure of acidity or alkalinity). Based on the applicant's experience, an ideal initial porosity and moisture content can minimize the turnings of the pile.

When the compost process is complete the windrow-shaped piles will be processed through screening equipment to remove wood pieces that are too large to be included in high-quality compost product. The screened wood chunks will be ground and re-introduced into future compost piles. The finished compost will be placed in the storage area for sale. On occasion the finished compost will remain in the windrow-shaped piles for additional curing prior to screening. In all cases, finished compost will not remain on site for more than 720 days.

2.3.3 Monitoring and Testing

The frequency of windrow sampling will be based on the amount of biosolids compost feedstock as specified in CCR 17862.2, and will be conducted at a laboratory certified by the California Department of Health Services, pursuant to the Health and Safety Code. A composite sample will be representative and random from twelve locations. Temperature, moisture and pH monitoring of windrows will occur regularly.

Samples of the finished compost will be delivered monthly to a U.S. Composting Council-approved laboratory for analysis and quality control. The laboratory analytical results on parameters such as size, stability, maturity, nutrients, salts, pH, carbonates, and bulk density shall be available to the LEA. Analytical testing will verify that the compost meets the maximum acceptable metal concentration limits specified in 14 CCR 17852, and pathogen reduction requirements specified in 14 CCR 17868.3.

2.3.4 High Quality Finished Compost

Compost and soil amendments provide a source of organic matter (humus), nitrogen, phosphate and potassium, as well as calcium, magnesium, sulfur and other important trace elements. Finished compost is manufactured specifically for each customer and the technical requirements for their individual application. Golf courses, agriculture, nurseries, and homeowners all require a different blend of the finished compost. Soil treated with compost better retains and conserves nutrients and water, is more capable of resisting pests and diseases, and produces healthier crops and better yields. Adding humus-rich compost improves soil structure and texture, enhances moisture retention and drainage, and reduces compaction.

The finished compost will be screened onsite. The size of the finished compost that will be produced varies based on the customer. The screening equipment can produce a finished compost that is sized ¼", ½", ¾", 1", or 2".

2.4 HOURS OF OPERATIONS AND STAFF

The facility will operate on a 24-hour basis, 365 days per year. A 24-hour/day contact number will be provided and posted at the facility prior to operation of the facility.

Normal delivery and sales operations will occur between 7:00 a.m. and 7:00 p.m., but extended hours will be available to accommodate delayed trucks or special circumstances.

2.5 TRAFFIC NUMBER AND TYPES OF VEHICLES

The project access road is a north-west trending roadway traversing the northeast corner of the project site (Figure 2.2). Currently, the project access road is unpaved with no observed traffic activity. On an average operating day (1,100 tons received) approximately 48 truck loads of biosolids and green material will be delivered to the site (resulting in 96 daily truck trips). This will increase to approximately 87 truck loads on a peak day (2,000 tons received, or 174 daily truck trips). Less than ten daily passenger vehicle and small pickup truck trips by employees and vendors are projected.

2.6 SITE IMPROVEMENTS

The facilities that would be constructed as part of the Project are shown on Figure 2.4. The site will not be open to the general public. Chemical toilets will be provided by a licensed supplier for employee use; water for operations will be provided by an on-site well or be purchased and stored, or a combination of both. Telephone service will be cellular. Electricity will be supplied by a portable diesel-fueled generator and by solar equipment. Parking is designated in front of the main office trailer.

2.7 MONITORING AND CONTROLS

The Project will operate in a manner that maintains a proper green material to biosolids ratio in order to achieve an ideal porosity and moisture content. This will limit compost production at the facility and will also limit the amount of green material accepted so as to conform to the projected incoming biosolids quantities. Additionally, biosolids acceptance will be halted if adequate bulking materials are not available.

2.7.1 Environmental Monitoring and Controls

A description of the proposed methods used to monitor and control leachate, litter, odors, dust, rodents, and insects are described as follows:

Odor: Green material will be delivered on an "as-needed" basis to reduce green material odors. The facility will prepare and maintain an Odor Impact Minimization Plan, pursuant to 14 CCR 17863.4. In general, the Plan will require the following steps in the event of odors noticed at the site:

- Stop all operations that will cause off-site odor.

- Determine if on-site management practices (e.g. mixing odiferous materials with sawdust or other bulking agent, turning the windrow less frequently, remove odiferous material from the site, etc.) could remedy any odor problems and immediately take steps to remedy the situation.
- Determine whether or not the odor is traveling beyond the site by patrolling the site perimeter.
- Determine whether or not the odor has moved off-site and if so, if it is significant enough to warrant contacting the adjacent neighbors and/or the LEA.
- Do not start operations again until the wind and meteorological conditions are favorable and will not promote off-site odors.

Dust: The moisture level in the compost keeps the compost from creating dust. Efforts will be made to control particulates during high wind episodes. There will be no turning of the piles during high wind episodes that exceed 30 miles per hour. Compost operations will be conducted behind a small berm and fence situated on the property perimeter, reducing wind. As needed, a water truck will be used to apply water to suppress dust. The entryway and often-traveled paths will be overlain with crushed rock.

Contact Water: The site will be designed and graded to collect all storm water that comes into contact with compost or windrows in onsite storm water retention basins (Figure 2.3).

Leachate: Under normal circumstances, moisture content will not exceed the field capacity of the compost material and no leachate will be produced. In heavy rains, most excess moisture would occur as runoff and would be handled by the storm water retention ponds.

Insects: A contract pest control company will be hired for insect control.

Rodents: Biosolids and green material are not "food" sources for rodents. However traps will be purchased if needed.

Litter: Biosolids and green material to be received at the site will come from sources that generate this material and litter is not typically expected to be found in these feedstocks. The facility will reject and return to the generator any load that contains excessive litter. Covered trash containers will be provided in areas where employees and visitors might generate litter. Onsite litter will be collected routinely and disposed of properly.

2.7.2 Other Monitoring and Controls

Emergency equipment failures will be handled by rental of similar equipment from a number of local sources such as Caterpillar, John Deere, United Rental, and Hertz.

Power failure will not an issue to the actual composting operation. Power will be provided by solar panels for the office. Generators will power the grinders and screens and will serve as a backup power source.

Site restoration would be performed in accordance with 14 CCR Section 17870. Written notice will be provided to the Local Enforcement Agency (LEA) of intent to perform site restoration, at least 30 days prior to beginning site restoration. Site restoration will be completed that is necessary to protect public

health, safety, and the environment. The operation and facility grounds, ponds, and drainage areas will be cleaned of all residues including, but not limited to, compost materials, construction scraps, and other materials related to the operations. These residues will be recycled, reused, or disposed of at an authorized facility. All machinery will be cleaned and removed or stored securely. All remaining structures will be cleaned of compost materials, dust, particulates, or other residues related to the composting and site restoration operations.

SECTION 3 ALTERNATIVES

3.1 BACKGROUND

CEQA requires that the County consider alternatives that can attain most of the basic objectives of the project and would avoid or substantially reduce significant environmental effects of the project. Alternatives to be considered in this manner should be reasonable and feasible, and the County is not required to evaluate every imaginable alternative to the project. The following discussion first reviews the system-wide alternatives that the County has considered. These include approaches to managing greenwaste and biosolids that consist of either modifying and expanding current management practices or using new "conversion" or other composting technologies. This is followed by a series of alternatives that are more applicable in the context of the proposed Project. Each of these is described, and then discussed in terms of its capability of meeting the project objectives. Through this review, some alternatives were rejected and not considered for analysis in this EIR. The remaining alternatives are discussed as appropriate throughout the environmental topics presented in Chapter 4. This latter set includes the No Project/No Development Alternative, which must be considered in compliance with Section 15126.6(e) of the State CEQA Guidelines.

The following alternatives are discussed:

- System Alternatives
  - Modifying or Expanding Current Management Practices
  - Conversion Technologies
  - Alternative Composting Technology
- Project Specific Alternatives
  - No Project Alternative
  - Reduced Capacity
  - Alternative Site

3.2 SYSTEM ALTERNATIVES

3.2.1 Modifying or Expanding Current Management Practices

The Solid Waste Division of the County Department of Public Works oversees the collection and management of solid waste throughout the County. The Division has responsibility for six regional landfills, eight transfer stations, and five community collection centers. A private contractor operates and maintains the County's landfills. Although the County does not operate any composting facilities, green material and wood waste are accepted at the landfills, and at some locations this material is chipped or ground for use as alternate daily cover (ADC). In addition, there are several private composting facilities

operating in the County. Table 3-1 below presents a summary description of the facilities that handle green material and biosolids in the County.

Table 3-1
Summary of Existing Permitted Composting Operations in San Bernardino County

Name and Location	Material and Process	Compositing Permitted Capacity	Notes
Victorville Sanitary Landfill18600 Stoddard Wells Rd., (6 mi. NE of Victorville, W of I-15)	Chipping/grinding green material	N/A	No active composting.
Mid-Valley Sanitary Landfill, 2390 N. Alder Ave., Rialto	Chipping/grinding green material	N/A	ADC use, No active composting.
One Stop Landscape Supply Center, 13024 San Timoteo Cn. Rd., Redlands	Ag. Waste, wood waste, biosolids	500 tons/day, 160 acres	---
Inland Empire Utility Agency (IEUA) Composting Facility, 8100 Chino-Corona Rd., Chino	Biosolids, woodwaste	1,700 tons/day	To be replaced by new enclosed regional facility near Rancho Cucamonga
Advance Disposal, 17105 Mesa St., Hesperia	Chipping/Grinding at transfer station	N/A	- No active composting.-
Victor Valley Regional Composting Facility, 20055 Shay Rd., Victorville	Ag. Waste, food waste, Green materials, liquid waste, manure, mixed municipal waste	700 tons/day, 50 acres	---
Ft. Irwin Composting Facility	Food wastes, green materials, manure, biosolids, wood waste	20 tons/day, 6 acres	---

Source: CIWMB 2006. SWIS.

Within the existing system facilities listed above, there are three potential alternatives to provide composting of green materials and biosolids at the scale proposed by this Project. These are (1) develop composting operations at one of the major County landfills, (2) promote the expansion of one or more of the existing private composting operations, or (3) rely on the developing Inland Empire Utility Agency (IEUA) facility starting up in Rancho Cucamonga.

The first of these options—developing a major composting operation at one of the existing County landfills—may be possible, but would likely involve additional permitting, engineering, and construction work. Composting requires relatively flat land to establish and maintain windrows, and at landfills the flat land is typically not available for such use. It is possible to develop composting operations on completed landfill surfaces, but this type of operation requires additional engineering and construction to account for landfill settlement and the control of runoff and/or leachate from the composting operation.

In the second option listed above, composting operations south of Redlands or near Victorville could be expanded, but the availability of land and the compatibility with the existing facilities objectives are unknown. In addition, both of these locations are closer to population centers than the proposed Project site. To the extent that there is any land use incompatibility between composting significant volumes of biosolids and residential uses, the potential for such problems would be greater under this alternative than with the Project as proposed.

Finally, the existing IEUA manure and biosolids composting facility near Chino will be replaced by a new regional composting facility being developed jointly by the IEUA and the Los Angeles County Sanitation Districts. The new facility is nearing completion (2006) and will be an enclosed operation using aerated static piles, with biofilters to control odor in the exhaust air. While the facility will have a large capacity (300,000 tons per year), it is intended to serve the needs of the member agencies in the IEUA and would not provide biosolids management capacity for the other Inland Empire cities or the County of San Bernardino at large.

None of these three broad alternatives within the existing solid waste management system would be capable of providing the capacity to compost up to 400,000 tons per year, half of which would be biosolids, within a reasonable time frame and in a location that would be at least as removed from population centers as the proposed Product facility. Thus, the alternative of modifying the facilities in the existing solid waste system is not analyzed in detail or considered further in this EIR.

3.2.2 Conversion Technologies

Statewide, about 30% of the 20 million tons of organic materials in the annual waste stream is composted or mulched. Of this material, about 4.5 million tons are used in agricultural, nursery, or landscaping applications and about 1.5 million tons are used in conventional incinerators along with other fuels to produce energy. The CIWMB is supporting the development of alternate technologies to convert waste, including green material, into energy and other useful products through modern conversion technologies. These include:

- hydrolysis (chemical breakdown in water solutions, typically followed by fermentation to produce alcohol-based fuel);
- gasification (use of non-combustion thermal technology to produce gaseous fuel); and,
- anaerobic digestion (bacterial decomposition of waste to produce methane or other fuel gasses).

Expansion of the use of these different conversion technologies may divert a significant portion of the green materials and other organic material currently going to landfills for disposal. Like composting, each of these alternative approaches has its unique requirements and challenges. Some of these challenges are technical in nature, while others are more political since they involve public perceptions and their influence on the process of obtaining permit approvals and financing. When compared with conventional incineration methods, conversion technologies with modern environmental controls result in fewer air emissions and a lower potential to create other pollutants; but like any industrial process they do require appropriate design and control features to minimize pollution.

The development and implementation of conversion technologies has a high capital cost and requires both engineering and public acceptance changes that may extend over a long-term period. Additionally, the end product of conversion technology is fuel, not high grade compost that is needed for agricultural and nursery uses in the Inland Empire. In contrast, the Project accommodates an immediate need for biosolids management capabilities at a location that can efficiently serve the Inland Empire by producing compost.

3.2.3 Alternative Composting Technologies

The Project proposes to use conventional open windrows for its composting process. This approach uses mechanical turning of the composting piles to provide control of oxygen, moisture, and other parameters to maintain and control the composting process. Alternative processes for composting projects include (a) aerated static piles, and (b) a variety of enclosed or "in-vessel" processes. There are advantages and disadvantages to each of the processes. In general terms, the in-vessel approaches can provide more complete control of air flow and can treat air to reduce odors and other emissions prior to release to the atmosphere. The equipment and operations to implement in-vessel facilities are more extensive. Depending on the types of equipment used, in-vessel operations may be less capable of handling heterogeneous material, and in any case the more extensive reliance on mechanical equipment leads to more expensive maintenance and operating costs. Static piles involve more infrastructure and equipment than windrows but less than in-vessel operations. They require a forced air and/or vacuum system to pull air through piles of compost material. They have the advantage of requiring less labor intensive management during composting, but may be more susceptible to upset conditions. If aeration is inadequate, then septic conditions can develop within piles with the attendant unpleasant odors and emissions.

Variations or combinations of these processes are also possible. Windrows or static piles can be enclosed within a building. This is the approach proposed by the IEUA project discussed above (Section 3.2.1), and is becoming more common for composting operations in urban or suburban areas. The IEUA project also will use a mechanical system of conveyors to move material within the large warehouse building where composting will occur, and an extensive air ducting system to control airflow and pass all exhaust air through large biofilters before release to the atmosphere. While providing state of the art material and odor control, this system is very expensive. Additionally, the electricity needed to power the conveyors and airflow systems can be substantial. The current estimate for the completed facility cost is over $60 million (IEUA 2006), which is about twice the original estimate for the building and equipment. The IEUA project is located in an industrial park in Rancho Cucamonga, near extensive populated areas, so the expense may be justifiable in this setting.

In terms of overall environmental effects, there is not much difference between the alternative approaches if they are considered for the proposed Project. Assuming the proposed capacity is the same, then the overall traffic effects and vehicle emissions would be similar. The grading, drainage, and other improvements necessary would convert about the same area of natural habitat to a new use. Appropriate controls to handle surface water and to prevent water pollution would be necessary under any technological approach. The general aesthetic effects would be similar. There may be differences in emissions and potential odors, but none of the processes is completely odorless and none of the control mechanisms is completely foolproof. The particular approach proposed by Nursery Products—open windrows—has the advantage of being relatively less expensive, and is also more flexible in the sense of

being able to accommodate wider variation in feedstock and being adaptable to different operating conditions.

In summary, development and expansion of current composting operations and the expansion of conversion technology may both serve important future roles in solid waste management in San Bernardino County and throughout California. At the same time, composting of larger volumes of green material and biosolids will continue to be an important part of the overall waste management strategy, both for reducing the volume of material going to landfills and for managing biosolids. The immediate need to provide biosolids treatment and to produce compost for current Nursery Products customers, and the size and capacity objectives of the proposed Project cannot be met within the existing waste management system facilities or by reliance on conversion technologies. For these reasons, these broad alternatives are not analyzed in this EIR.

3.2.4 Alternative Sites

There is significant, vacant, and remote land in the project area that could be used for the proposed composting facility. The Fort Cady site, described in Section 3.3.3, was selected due to its general proximity to the highway and an existing access road, and this alternative site is representative of typical land that would meet the project needs.

3.3 PROJECT SPECIFIC ALTERNATIVES

The project specific alternatives evaluated in this EIR are:

- No Project Alternative
- Reduced Capacity Alternative
- Fort Cady Site Alternative

3.3.1 No Project Alternative

The No Project alternative assumes that a new composting facility would not be developed and the project area would remain in its current condition. The CEQA Guidelines stress that the No Project Alternative should discuss "predictable actions by others, such as the proposal of some other project" (Section 15126.6(e)(3)(B)). These "predictable actions" are to be assessed based on current plans and consistent with available infrastructure and community services. Absent the proposed composting facility, the project site would remain in RC zone subject to possible future development proposal. It is difficult to predict what sort of future development, if any, may be proposed on the site and when that may occur. The site is recognized as high quality desert tortoise habitat, and is adjacent to BLM land, so it might be incorporated into a habitat preserve area if funding and administrative support for this purpose were available.

The growing need to treat and manage biosolids produced by sewage treatment plants would remain, however. It is likely that additional composting facilities would be proposed, or an alternate large

composting facility would be proposed by a different applicant. Locations in the high desert region are attractive for this use due to their relatively close driving distance to the Inland Empire generating areas (when compared to existing treatment or disposal sites in Kern County and in Arizona), the warm dry climate, and the agricultural uses in the region that can make use of the compost product.

In the short-term under the No Project Alternative, biosolids would continue to be trucked to Arizona and Kern County (or to more remote locations in California with the recent ordinance change in Kern County).

3.3.2 Reduced Capacity Alternative

Possible reductions in the project size could be considered to: (a) preserve a significant portion of the project capacity for habitat purposes, (b) reduce projected traffic to the project site and/or (c) reduce the daily operations so that the emissions of volatile organic compounds (ozone precursors) would be below the 25 tons per year threshold used by the AQMD to define a significant impact. Under the Reduced Capacity Alternative, the quantities of green material and biosolids processed at the facility would be reduced to 320,000 tons per year. The size of the site would be reduced to 80 acres. The applicant has indicated that this is the minimum project size that would be economically viable.

3.3.3 Fort Cady Site Alternative

The Fort Cady Site Alternative would consist of a 400,000 tons per year biosolids and green materials composting facility on a 78 acre parcel located immediately north of Interstate 40 (I-40), 3.5 miles east of Fort Cady Road (see Figure 3-1). This alternate site is adjacent to Troy Dry Lake. The site is generally flat with an elevation of approximately 1,780 feet above sea level. A small drainage course is located in the northeastern corner of the site and along the eastern project property line, and a portion of the northwest corner of the site may overlie the historic boundaries of Troy Dry Lake. Like the proposed Project site, the land use designation and zoning at this alternative location is Resource Conservation (RC). The County's Development Code and General Plan allows for the proposed composting use in this land use district subject to review and approval of a Conditional Use Permit application. According to building permit and assessor's records, there are approximately eight residences in the surrounding 2-mile radius outside the site.

During the public scoping meeting for this Project, another alternative site in the general region to the north of Fremont Peak was suggested as a possible location. Fremont Peak is located about 20 miles to the northwest of Hinkley (or about the same distance north-northwest from the proposed project site). Highway 395 is about 10 miles to the west of Fremont Peak, and the general region includes Cuddleback Lake (dry) and is about midway between Barstow and Ridgecrest. In general terms, the region north of Fremont Peak is slightly more hilly than the larger basin along the Mojave River where the proposed project site is located. It is possible that a suitable parcel of private land could be found in this region to support a composting facility, but it would likely be a similar distance from isolated residences and would certainly be a greater driving distance from the anticipated market areas providing biosolids and green material. It is unlikely that such a location would have considerably different impacts than the sites analyzed in this EIR.


LEGEND
Town
Lakes/Streams
PROPOSED SITE
ALTERNATIVE SITE
Kramer Junction
Hinkley
58
Barstow
Lenwood
Yermo
Daggett
Mojave River
40
Newberry Springs
Hodge
Helendale
395
Oro Grande
Adelanto
Victorville
Hesperia
Lucerne Valley
Summit
Mojave River Forks Reservoir
15
Cajon Junction
Silverwood Lake
Scotland
15
Cajo
Ly
SOURCE: ESRI (base data).
N
URS
5 0 5 10 Miles
SCALE: 1" = 10 miles (1:633,600)
VICINITY MAP
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SECTION 4 ENVIRONMENTAL IMPACT ANALYSIS

4.1 INTRODUCTION

Issues to be addressed in this EIR were identified on the basis of the Initial Study and the public and agency scoping process.

4.2 PURPOSE AND CONTENT OF THIS CHAPTER

The purpose of this chapter is to evaluate the potential environmental effects of the proposed Nursery Products Hawes Composting Facility identified as potentially significant in the Initial Study. The Initial Study (Appendix A), concluded that the Project could result in potentially significant impacts in the following areas:

- Air quality
- Biology
- Hazards and hazardous materials
- Hydrology and water quality

In addition, the Initial Study recognized that mitigation for potential impacts during construction would be needed in the area of:

- Cultural resources

Chapter 4 of this EIR summarizes the environmental setting and impact analysis related to these areas. The resource areas that were determined to result in less than significant impacts in the Initial Study are discussed briefly in Chapter 5 of this EIR.

The discussion of each environmental topic includes the following:

Environmental Setting: A description of the existing physical environmental conditions in the vicinity of the Project.

Thresholds of Significance: Thresholds of significance are the standards against which Project impacts can be compared to determine whether an impact may be considered significant. For each category of physical environmental conditions evaluated in this EIR, significance criteria were developed using the CEQA Guidelines, city and county standards and policies, or the "significance thresholds" of federal, state, regional, or local agencies. Impacts classified as significant meet the criteria developed for each category of physical conditions. Impacts that are not significant (because they do not meet the significance criteria) are identified as less than significant. The impacts were determined by comparing the environmental effects of constructing and operating Nursery Products Hawes Composting Facility with existing environmental conditions. Each impact is numbered and mitigation measures proposed to avoid, reduce or offset that impact are assigned the same number.

Significant Impact: A significant impact is considered a substantial adverse effect, one that exceeds some critical and accepted threshold for negative environmental effects. CEQA defines a significant effect on the environment as "...a substantial, or potentially substantial, adverse (i.e., negative) change in any of the physical conditions within the area directly or indirectly caused by the Project, including effects on land, air, water, flora, fauna, ambient noise, and objects of historic or aesthetic "significance" (CEQA Guidelines, §15382). As recommended in the CEQA Guidelines, impacts are also identified as "potentially significant" prior to mitigation.

Mitigation Measures: These are measures to mitigate, avoid, or substantially lessen impacts identified as significant or potentially significant. CEQA Guidelines Section 15126.4(a)(1) states that an EIR "shall describe feasible measures which could minimize significant adverse impacts…." Section 15126.4(a)(3) also states that "mitigation measures are not required for effects which are not found to be significant." As required by CEQA, this section will address all reasonably feasible mitigation measures that can reduce adverse impacts to below a level of significance. According to CEQA, the term "mitigation measures" refers to those items that are in addition to standard conditions, uniform codes, or project features that may also reduce potential impacts. This section will also indicate if any of the proposed mitigation measures also have significant impacts.

This Section addresses the Project as well as the No Project, Reduced Capacity, and Fort Cady Site Alternatives.

4.3 AIR QUALITY

The proposed Project and the Project alternatives are located in the same air quality monitoring area within the Mojave Desert Air Basin (MDAB). Consequently, the following environmental setting discussion is applicable to each alternative.

The following subsections describe the local environmental setting, the climate and topography of the area, air quality regulatory criteria, and existing air quality in the Project vicinity.

4.3.1 Environmental Setting

Ambient air quality is generally affected by climatological conditions, the topography of the air basin and the types and amounts of pollutants emitted. The following subsection describes relevant characteristics of the air basin that affect pollutant dispersion in the area.

Topography and Climate

The MDAB contains mountain ranges interspersed with long broad valleys that often contain dry lakes. The prevailing wind direction in the MDAB is out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada mountains to the north; air masses pushed onshore in Southern California by differential heating are channeled through the MDAB. The MDAB is separated from the Southern California coastal and central California Valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Mojave Desert is bordered in the southwest by the San Bernardino Mountains, separated from the San Gabriel Mountains by the Cajon Pass (4,200 ft). A lesser channel, the Morongo Valley, lies between the San Bernardino Mountains and the Little San Bernardino Mountains.

During the summer, the MDAB is generally influenced by the semi-permanent Pacific Subtropical High cell off the coast, which inhibits cloud formation and encourages daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are generally weak and diffuse by the time they reach the desert. Most of the desert's annual moisture arrives as a result of infrequent warm, moist and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year (mostly occurring during the average 16 to 30 days with at least 0.01 inches of precipitation). The MDAB is classified as a dry-hot desert climate, with portions classified as dry-very hot desert, to indicate at least three months with maximum average temperatures over 100.4° F.1

Air Quality Standards and Existing Concentrations

The federal and California state government have established separate sets of ambient air quality standards. The U.S. Environmental Protection Agency (EPA) has promulgated primary and secondary

[1] *MDAQMD and AVAQMD CEQA and Federal Conformity Guidelines*, March 2002, pp. 5-6.

National Ambient Air Quality Standards (NAAQS) that specify allowable ambient concentrations for selected pollutants (known as criteria pollutants) under the provisions of the Clean Air Act. Primary NAAQS are established at levels necessary, with an adequate margin of safety, to protect the public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Similarly, secondary NAAQS specify the levels of air quality determined to be appropriate for protection of the public welfare from any known or anticipated adverse effects associated with air contaminants. Allowable ambient concentrations are set for ozone (O3), respirable particular matter (PM10), fine particulate matter (PM2.5), carbon monoxide (CO), nitrogen dioxide (NO2), lead (Pb), and sulfur dioxide (SO2). Table 4.3.1 summarizes the NAAQS for these pollutants. The 8-hour O3 and PM2.5 standards listed in the table were promulgated in 1997 but were challenged in the courts. In 2002, the courts upheld these two standards. EPA made final designations for the 8-hour O3 standards on April 15, 2004 and final designations for the new federal PM2.5 standards on December 2004. Now EPA and the states are working together to develop air quality plans to achieve compliance with the new standards, where needed.

In California, the California Air Resources Board (CARB), which is part of the California Environmental Protection Agency, has promulgated ambient air quality standards for O3, PM10, PM2.5, CO, NO2, SO2, and Pb that are more stringent than the NAAQS (shown in Table 4.3.1). In 2002, CARB revised the state annual PM10 standard and established a state annual PM2.5 standard. These standards went into effect July 7, 2004. In April of 2005, CARB approved a new 8-hour average state standard for ozone expected to go into effect in 2006. CARB has also developed standards for sulfates, hydrogen sulfide, visibility reducing particulates, and vinyl chloride.

Counties and metropolitan areas are classified as either in attainment or nonattainment with respect to these federal and state ambient pollutant standards. An area's classification is determined by the EPA for federal attainment, and by the California Air Resources Board (CARB) for state attainment. Each agency compares actual monitored air pollutant concentrations with state and federal standards. More than 200 air monitoring stations are located in California and are part of the State and Local Air Monitoring Network. These stations are operated by CARB, Air Quality Management Districts (AQMDs), private contractors, and the National Park Service (NPS). Areas having insufficient data for an attainment determination are assigned an 'unclassified' designation and are effectively treated as attainment areas.

Table 4.3.1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)*		0.08 ppm 157 µg/m^3)[8]		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation*	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Geometric Mean	20 µg/m^3		50 µg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		65 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		--	--	--
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	--	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m^3)		--		
Lead[9]	30 days average	1.5 µg/m^3	Atomic Absorption	--	--	--
	Calendar Quarter	--		1.5 µg/m^3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	--	Ultraviolet Fluorescence	0.30 ppm (80 µg/m^3)	--	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	--	
	3 Hour	--		--	0.5 ppm (1300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		--	--	

Table 4.3.1 (continued)
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of 10 miles of more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		NO FEDERAL STANDARDS		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Vinyl Chloride[9]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			

*This concentration was approved by the Air Resources Board on April 28, 2005 and is expected to become effective in early 2006.

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide.

Suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent procedure which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.

8. New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18,1997. Contact U.S. EPA for further clarification and current federal policies.

9. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: California Air Resources Board (11/29/05)

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Note: ppm=parts per million; µg/m^3=microgram per cubic meter; mg/m^3=milligram per cubic meter

The ambient pollutant monitoring station closest to the Project, the Reduced Capacity site and the Fort Cady Alternative site is located in Barstow. The next closest monitoring station is in Victorville, approximately 40 miles to the south. Data from the Barstow station is utilized in this analysis. Table 4.3.2 summarizes the measured criteria pollutant concentrations over the past three years at the Barstow station. The following subsection discusses the measured local concentrations of each criteria pollutant, and the applicable state and federal attainment status. The health effects and other characteristics associated with O3, PM10, PM2.5, CO, NO2, and SO2 are also discussed in the following subsection. Pb, sulfates, and hydrogen sulfide are of least concern in this Project area, because recorded levels are well below standards and no major sources of these pollutants exist in the Project area.

Ozone

Ozone (O3) is a colorless gas that has a pungent odor and causes eye and lung irritation, visibility reduction, and crop damage. A primary constituent of smog, O3 is formed in the atmosphere in the presence of sunlight by a series of chemical reactions involving oxides of nitrogen (NOX) and reactive organic gases (ROG). Because these reactions occur on a regional scale, ozone is considered a regional air pollutant. Industrial fuel combustion, fugitive emissions from manufacturing processes and motor vehicles are primary sources of NOX and ROG.

As shown in Table 4.3.2, O3 concentrations at the Barstow monitoring station have exceeded the state and federal ambient air quality standards for a number of years. These violations have resulted in the Barstow monitoring area being designated as a moderate nonattainment area with respect to both the state and federal ozone standards.

Particulate Matter

Particulate matter is generally composed of particles in the air such as dust, soot, aerosols, fumes, and mists. Of particular concern are inhalable particulates that have aerodynamic diameters of 10 micrometers or less (PM10). A subgroup of these particulates is fine particulates (particles with aerodynamic diameters less than 2.5 micrometers, PM2.5), which have very different characteristics, sources, and potential health effects than coarse particulates (particles with aerodynamic diameter between 2.5 to 10 micrometers). Coarse particulates are generated by sources such as windblown dust, agricultural fields, and dust from vehicular traffic on unpaved roads. PM2.5 is generally emitted from activities such as industrial combustion, vehicle exhaust, and residential wood-burning stoves and fireplaces. PM2.5 is also formed in the atmosphere when gases such as sulfur and nitrogen oxides and volatile organic compounds emitted by combustion activities are transformed by chemical reactions in the air. PM10 affects breathing and the respiratory system, and, in particular, can damage lung tissue and contribute to cancer and premature death. Separate standards for PM2.5 were established in 1997 because these smaller particles can penetrate deep into the respiratory tract and cause their own unique adverse health effects.

Measured concentrations at the Barstow monitoring station have exceeded the state PM10 standards two of the past three years when compared against the 24-hour average standard, and each of the past three years when compared to the annual average standard. These measured concentrations, along with similar persistent exceedances at various monitoring stations throughout the air basin, have contributed to the

region being classified as nonattainment for the state PM10 standard and moderate nonattainment for the federal PM10 standard. The Project area is designated as unclassifiable / attainment for federal PM2.5.

Table 4.3.2
Maximum Measured Pollutant Concentrations in Barstow, California

Pollutant	Averaging Time	Units	Standards		Maximum Measured Concentration		
			Federal	State	2003	2004	2005
O_3	1-hr	ppm	None	0.09	0.105(2)	0.100(2)	0.099(2)
	8-hr	ppm	0.08	0.070	0.095(1,2)	0.083(1,2)	0.092(1,2)
PM_{10}	24-hr	$\mu g/m^3$	150	50	143/129(2,3)	40/38(3)	78/70(2,3)
	Annual Average	$\mu g/m^3$	50	20	21.3/NA(3)	25.4/NA(3)	48/NA(3)
$PM_{2.5}$(5)	24-hr	$\mu g/m^3$	65	None	28	34	27
	Annual Average	$\mu g/m^3$	15	12	11.4	10.8	9.5
NO_2(6)	1-hr	ppm	None	0.25	NA	NA	NA
	Annual Average	ppm	0.053	None	0.034	0.031	0.031
CO(6)	1-hr	ppm	35	20	5.0	3.8	3.3
	8-hr	ppm	9	9.0	3.9	2.9	2.1
SO_2(6)	1-hr	ppm	None	0.25	NA	NA	NA
	3-hr	ppm	0.5	None	NA	NA	NA
	24-hr	ppm	0.14	0.04	0.005	0.004	0.004
	Annual Average	ppm	0.030	None	0.002	0.002	0.002

[1] Exceeds the federal standard

[2] Exceeds the state standard

[3] Federal/State values. The federal and state values differ due to differences in sampling methods and criteria

NA= not available

[5] $PM_{2.5}$ data obtained from monitoring station located at 14306 Park Avenue in Victorville, CA since no data was available at the Barstow monitoring station

[6] San Bernardino County data from EPA AirData database

Source:
Monitoring station located at 1301 W. Mountain View St., Barstow CA 92311

CARB ADAM (Aerometric Data Analysis & Management) website (2006) and EPA AIRData website (2006)

Carbon Monoxide

CO is an odorless, colorless gas that can impair the transport of oxygen in the bloodstream, aggravate cardiovascular disease and cause fatigue, headache, confusion, and dizziness. CO forms through incomplete combustion of fuels in vehicles, wood stoves, industrial operations, and fireplaces. In San Bernardino County, vehicular exhaust is a major source of CO. CO tends to dissipate rapidly into the atmosphere and consequently is generally a concern at the local level, particularly at major road intersections.

CO concentrations at the Barstow monitoring station have been well below federal and state 1-hour and 8-hour average standards. In fact, all of the Project area is in attainment with all applicable CO standards.

Nitrogen Dioxide

NO2 is a brownish, highly reactive gas that can irritate the lungs, cause pneumonia, and lower the resistance to respiratory infections. Oxides of nitrogen (NOX), which include NO2, are a key precursor to the atmospheric formation of O3 and acid rain. NOX forms when fuel is burned at high temperatures, and principally comes from transportation sources and stationary fuel combustion sources such as electric utility and industrial boilers.

Table 4.3.2 shows that measured concentrations of NO2 have consistently remained well below the federal and state ambient standards for this pollutant. With similar trends throughout the region (and state), the area is well within federal and state NO2 standards.

Sulfur Dioxide

SO2 is a colorless acidic gas with a strong odor. High concentrations of SO2 affect breathing and may aggravate existing respiratory and cardiovascular disease. SO2 is also a primary contributor to acid deposition, which causes acidification of lakes and streams and can damage trees, crops, building materials, and statues. In addition, sulfur compounds in the air can contribute to visibility impairment. The major source category for SO2 is fuel-burning equipment combusting fossil fuels.

The Project area is in attainment with the 24-hr and annual average standards. A summary of the attainment status for the Project area is provided in Table 4.3.3.

Table 4.3.3
Project Area Attainment Status

Criteria Pollutant	2004 State Designation	Federal Designation
CO	Attainment	Unclassified / Attainment
NO_x	Attainment	Unclassified / Attainment
SO_x	Attainment / Unclassified	Unclassified / Attainment
PM_{10}	Nonattainment	Moderate Nonattainment
$PM_{2.5}$	Nonattainment	Unclassified / Attainment
Ozone (1-hour)	Nonattainment	Severe – 17 Nonattainment
Ozone (8-hour)	Moderate Nonattainment	Moderate Nonattainment
Lead	Attainment	-
Sulfates	Attainment	-
H_2S	Unclassified	-
Visibility Reducing PM	Unclassified	-

Source: www. arb.ca.gov (February 2006)

Existing Emission Sources

The concentrations presented in Table 4.3.4 are a result of emissions from man-made and natural sources. Man-made sources of emissions are generally divided into three types: stationary, area-wide, and mobile sources. The contributions of these source categories vary from region to region. CARB maintains an emissions inventory to determine the sources and quantities of air pollution generated within the state's counties and air basins. Table 4.3.4 presents a summary of the 2004 average daily emissions data for the San Bernardino County area within the Mojave Desert Air Basin by general source categories. Emissions from mobile sources constitute the majority of the ROG and CO emissions in the area. Area-wide emissions contribute more than 75 percent of the PM10 emissions in the County.

Table 4.3.4
Summary of 2004 Estimated Annual Average Emissions
Mojave Desert Air Basin in San Bernardino County (tons/day)

	TOG	ROG	CO	NO_X	SO_X	PM	PM_{10}	$PM_{2.5}$
Stationary Sources								
Fuel Combustion	17.5	2.2	10.8	58.2	1.2	7.8	7.8	4.4
Waste Disposal	18.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0
Cleaning and Surface Coatings	3.1	2.2	0.0	0.0	-	0.0	0.0	0.0
Petroleum Production and Marketing	1.8	1.3	0.0	0.0	-	0.0	0.0	0.0
Industrial Processes	2.1	1.6	12.2	33.7	2.5	26.9	9.4	4.1
TOTAL STATIONARY SOURCES	43.4	7.5	23.0	91.9	3.7	34.8	17.2	8.5
Area Wide Sources								
Solvent Evaporation	6.1	5.5	-	-	-	-	-	-
Miscellaneous Processes	12.8	2.5	14.7	1.1	0.0	132.1	74.7	18.0
TOTAL AREA WIDE SOURCES	18.9	7.9	14.7	1.1	0.0	132.1	74.7	18
Mobile Sources								
On-Road Motor Vehicles	13.2	11.9	147.5	23.5	0.1	0.7	0.7	0.5
Other Mobile Sources	10.9	10.0	50.0	42.0	3.6	2.0	1.9	1.7
TOTAL MOBILE SOURCES	24.1	21.9	197.5	65.4	3.7	2.7	2.6	2.2
TOTAL	86.4	37.3	235.3	158.5	7.5	169.6	94.5	28.7

Source: CARB website (2006).

Regional Air Quality Planning Framework

The federal Clean Air Act Amendments of 1977 required states to adopt a State Implementation Plan (SIP) outlining pollution control measures to attain the federal standards in non-attainment areas of the state. The California Air Resources Board (CARB) coordinates and oversees both state and federal air pollution control programs in California. The CARB oversees activities of local air quality management agencies, and is responsible for incorporating Air Quality Management Plans (AQMPs) from local air basins into a SIP for federal EPA approval. The CARB also maintains air quality monitoring stations throughout the state in conjunction with local air districts. Data collected at these stations are used by the CARB to classify air basins as "attainment" or "non-attainment" with respect to each pollutant and to monitor progress in attaining air quality standards.

The 1976 Lewis Air Quality Management Act established the Mojave Desert Air Quality Management District (MDAQMD) and other air districts throughout the state of California. Significant authority for air quality control has been given to AQMDs which regulate stationary source emissions and develop local attainment plans. MDAQMD has the authority to manage transportation activities at indirect sources and regulate stationary source emissions. Indirect sources of pollution are generated when minor sources

collectively emit a substantial amount of pollution (e.g., the motor vehicles at an intersection, a mall, and on highways). The CARB regulates motor vehicles and fuels.

Federal

As discussed previously, the federal government, through the EPA, has established primary and secondary NAAQS for criteria pollutants under the provisions of the Clean Air Act. EPA has also promulgated new 8-hour O3 and PM2.5 ambient air quality standards, which have been upheld in the courts. EPA made final designations for the 8-hour O3 standards on April 15, 2004 and final designations for the new federal PM2.5 standards on December 2004. With the new 8-hour O3 standard in place, the 1-hour O3 standard has been revoked for the region.

MDAB has received a nonattainment designation for the 8-hour average O3 NAAQS and the PM10 NAAQS. The entire MDAQMD is located within the MDAB. Consequently, these constituents are addressed in the SIP. The SIP is not a single document but a compilation of new and previously submitted plans, programs, district rules, state regulations, and federal controls. In the state of California, CARB is the lead agency for developing this SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards the SIP revisions to EPA for approval and publication in the Federal Register. Specific detail of MDAQMD's attainment plan for the SIP is discussed later in this section.

State

CARB enforces air quality standards by regulating mobile emission sources and overseeing activities of the County Air Pollution Control Districts (APCDs) and regional AQMDs. As stated previously, the proposed Project is located in a nonattainment area for state O3 and PM10 standards.

The California Clean Air Act requires that each area exceeding the state ambient air quality standards for O3, CO, SO2, and NO2 must develop a plan aimed at achieving those standards (California Health and Safety Code 40911). The California Health and Safety Code Section 40914 requires air districts to design a plan that achieves an annual reduction in district-wide emission of 5 percent or more, averaged every consecutive three-year period. To satisfy this requirement, the MDAQMD has developed an Ozone Attainment Plan and a Mojave Desert Planning Area Federal Particulate Matter (PM10) Attainment Plan. Each plan outlines strategies for achieving attainment status.

The MDAQMD's existing attainment plan for ozone submitted for the SIP includes Reasonably Available Control Technology (RACT) requirements for all applicable sources, a New Source Review program with a 25 ton per year major source level and a 1.3:1 offset ration requirement. There are no additional control measures proposed for the MDAQMD to achieve state and federal standards. Applicable PM10 requirements outlined in the attainment plan include prohibiting visible emissions to migrate beyond property lines, and requirements to minimize trackout onto paved roads, cover haul trucks, minimize grading and soil movement when winds exceed 30 miles per hour, and development of a Dust Control Plan (DCP) from construction to address the following additional measures:

- Provide paved or stabilized access to construction site as soon as is feasible;
- Maintain natural topography to the extent possible;
- Construct parking lots and paved roads first, where feasible;
- Construct upwind portions of project first, where feasible.

4.3.2 Thresholds of Significance

The CEQA Guidelines define a significant effect on the environment as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." In order to determine whether the proposed Project would cause a significant effect on the environment, the impact of the Project must be determined by examining the types and levels of emissions generated and their impacts on factors that affect air quality. The MDAQMD has established air pollution thresholds against which a proposed project can be evaluated to assist lead agencies in determining whether or not the project would have potentially significant air quality impacts. While the final determination of whether or not a project is significant is within the purview of the lead agency pursuant to Section 15064(b) of the CEQA Guidelines, the MDAQMD recommends that the air pollution thresholds shown on Table 4.3.5 be used by lead agencies in determining whether a proposed project could result in a significant impact. If the lead agency finds that a proposed project has the potential to exceed these air pollution thresholds, air quality impacts should be considered significant. These thresholds have been defined by MDAQMD for the MDAB based on scientific data the MDAQMD has obtained and factual data within the federal and state Clean Air Acts. Since the project and alternatives are located within the MDAB and current air quality in the area is typical of the air basin as a whole, these thresholds are considered valid and reasonable. In addition to criteria pollutants, impacts from toxic air contaminants (TACs) were considered. Of the TACs considered, only ammonia can be reasonably estimated and is presented in the subsequent analysis. Health protective ammonia thresholds were developed by the California Office of Environmental Health Hazard Assessment (OEHHA) for acute (1-hour) exposure and chronic (annual) exposure and are presented in Table 4.3.5.

Further, the Project would have significant impacts if it creates objectionable odor affecting a substantial number of people. A separate odor threshold has been established by the MDAQMD for Acceptable Odor Threshold and Preferred Odor Threshold. Explanation of the significance of these odor thresholds is given in Section 4.3.3.4.

These significance thresholds are presented in Table 4.3.5.

Table 4.3.5
Significant Emissions Thresholds

Criteria Pollutant[1]	Annual Threshold (tons)	Daily Threshold (pounds)
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO_x)	25	137
Volatile Organic Compounds (VOC)	25	137
Oxides of Sulfur (SO_x)	25	137
Particulate Matter (PM_{10})	15	82
Toxic Air Contaminant[2]	Acute Exposure Threshold ($\mu g/m^3$)	Chronic Exposure Threshold ($\mu g/m^3$)
Ammonia	3200	200
Odor [1]	Acceptable Threshold (D/T)	Preferred Threshold (D/T)
	10	5

1. Emission Thresholds as given by MDAQMD

2. Emission thresholds as given by OEHHA

4.3.3 Proposed Project

The air quality analysis addresses the criteria and air toxics emissions that would be generated by the construction and operation of the proposed Project. Construction emissions, including equipment and worker commute vehicle exhaust and fugitive dust caused by site preparation activities, were estimated and compared with the significance thresholds presented in the previous section. During composting operations, emissions will be generated by on-site diesel equipment, volatilization of gases from the compost windrows, employee commute trips to and from the site, truck trips to deliver composting materials, and truck trips to haul away finished product.

4.3.3.1 Construction Emissions Impacts

The pollutant-generating activities associated with construction of the proposed Project would be limited to grading of approximately 160 acres, and installation of office trailers. Initial site preparation will entail cut and fill activities over about 25% of the site area which will be completed in one to two months, based on a five-day workweek, 8 hours per day. Specific sources of emissions associated with construction would include exhaust from diesel construction equipment at the site and dust generated by the mechanical disturbance of the soil due to equipment and truck travel within the site. In addition, there will be commuter trips to and from the site for construction employees.

Initially, composting would only occur on the eastern side of the site and will cover less than half the site area (Phase 1). At various times during the early operational lifetime of the facility, grading of new areas within the site will be necessary to accommodate higher compost production rates. These additional grading activities will occur incrementally, as needed, until the entire site is developed and suitable for composting activity. Thus, there will be periods of one to two months duration over the first several years of facility operations when composting and site grading activities are occurring together. These periods have been accounted for in the quantification of maximum daily and annual emissions by assuming grading will occur during five days of each month. This activity is addressed with the other emission sources that will occur for the operational composting facility in the next subsection, Operational Emissions.

Worst-case daily equipment exhaust emissions of criteria pollutants during the initial phase of construction were calculated using CARB emission factors for off-road equipment. A construction schedule of 8 hours per day, five days per week is assumed for a two-month construction period. Information provided by the applicant indicates that the fleet of equipment during the initial construction will include the following:

- One rubber tired loader (165 horsepower, diesel)
- One off-highway truck (430 horsepower, diesel)
- Two graders (250 horsepower, diesel)

Daily fugitive dust emissions associated with site grading activities were estimated assuming a maximum daily grading area of 5 acres, and using emission factors from the EPA AP-42 compendium- Table 11.9-1. EPA's AP-42, Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Area Sources, provides a basis of calculating emissions from various sources, and for determining the emission impacts of this project. These values are generally assumed to be representative of long-term averages for each particular source type.

Daily emissions of criteria pollutants for on-road vehicle trips during the initial phase of construction were also calculated using emission factors computed for San Bernardino County using the CARB EMFAC2002 emissions model2. A workforce of 6 with 1.25 workers per commuting vehicle was assumed. All workers were assumed to travel from the Barstow area (100 mile roundtrip) in light duty vehicles or light duty trucks.

The estimated worst-case daily emissions of criteria pollutants due to the initial construction activities are summarized in Table 4.3.6. More detailed calculation development is given in Appendix B. The results indicate that emissions of all pollutants will be below MDAQMD thresholds. Therefore, air quality impacts from construction emissions are expected to be below a level of significance and no mitigation is required.

[2] EMFAC2002, San Bernardino County annual average in 2007. - Equations are converted from g/mile, and EMFAC parameters at 65°F and "all" Relative humidity

Table 4.3.6
Estimated Maximum Daily Emissions For Initial Construction Phase

Construction Activity (Phase 1)	Daily Emissions (lbs/day)				
	CO	ROC	NO_X	SO_X	PM_{10}
Equipment exhaust	10.49	2.73	33.94	5.98	1.55
Fugitive Dust	-	-	-	-	33.18
On-road Vehicle Combustion	3.32	0.14	0.37	0.00	0.03
Total Construction Emissions	13.81	2.87	34.31	5.98	34.76
MDAQMD Threshold	548	137	137	137	82

4.3.3.2 Operational Emissions Impacts

Emissions from the various activities associated with the operational composting facility were also estimated and evaluated relative to the MDAQMD significance thresholds (Appendix B). The principal categories of facility operations that will produce pollutant emissions include:

- Unloading of trucks delivering biosolids and green material to the site and initial mixing of these materials to form composting windrows
- Decomposition of blended biosolids and green material in composting windrows and fugitive dust caused by periodic mechanical turning of the windrows
- Fuel combustion by mobile on-site diesel equipment and fugitive dust caused by the movements of this equipment over unpaved areas
- Truck transport to deliver biosolids and green material to the site for composting and to deliver finished compost products to customers
- Employee commute trips to and from the site
- Periodic grading of new areas to accommodate increased facility composting capacity

Emissions from each of these activities are addressed in the following subsections:

Unloading/initial handling of composting materials: The proposed facility will receive a maximum of 400,000 tons of material per year, corresponding to an average of 1,100 tons of materials per day. The maximum tonnage received on any single day will not exceed 2,000 tons of combined biosolids and green material. Fugitive dust emissions due to unloading of these materials at the site based on these feedstock delivery rates were calculated using AP-42 factors for bulk material handlings. The moisture content of incoming feedstock was conservatively assumed to be 55%, which has the effect of minimizing dust generation during the initial handling of these materials. At this point in the composting process, the feedstock is comprised of relatively fresh material, and VOC emissions resulting from the decomposition of the compost is not applicable. Emission rates attributed to each step in the composting process are given in Table 4.3.7.

Table 4.3.7
Estimated Total Maximum Daily and Annual Operational Emissions

Averaging Period	Daily (lbs)					Annual (tons)				
	CO	VOC	NOx	SOx	PM_{10}	CO	VOC	NOx	SOx	PM_{10}
Unloading of Composting Materials	-	-	-	-	0.06	-	-	-	-	0.01
Windrow Composting	-	1,958	-	-	neg	-	357	-	-	neg
On-site Equipment Operations	15.99	3.49	56.69	6.13	2.32	2.92	0.64	10.35	1.12	0.42
Fugitive Dust Generated by Haul Trucks & On-site Equipment	-	-	-	-	49.60	-	-	-	-	9.05
Employee Commute trips	3.32	0.14	0.37	0.003	0.25	0.61	0.03	0.07	0.001	0.05
Additional Site Grading	7.88	2.09	26.69	4.68	2.76	0.24	0.06	0.80	0.14	0.08
Total	**27.2**	**1,963.7**	**83.7**	**10.8**	**55.0**	**3.8**	**357.7**	**11.2**	**1.3**	**9.6**
MDAQMD Significance Thresholds	548	137	137	137	82	100	25	25	25	15

Note: neg = negligible

PM_{10} represents fugitive dust

Decomposition and fugitive dust by mechanical turning of windrows: The composting process involves the bulk mixture of the primary feedstock materials, i.e., biosolids and green materials, with bulking agents and amendments (sawdust, sand, gypsum and other similar materials). The mixture is placed in long windrows, which are typically several hundred feet long, with an initial width of up to 30 feet and initial height of up to 12 feet. The maximum annual compost production of the proposed facility is expected to be approximately 400,000 cubic yards. Composting of the feedstock materials received on any given day will occur over a period of about 60 days, during which time the volume of the material in the windrows will decrease substantially as decomposition of the source materials proceeds and moisture and other off-gases are released to the atmosphere.

Emissions factors for off-gases from windrow composting at several commercial composting facilities are available as a result of source testing studies conducted between 1996 and 2001 by the SCAQMD undertaken to establish the foundation for the District's Rule 1133, and a similar testing program conducted by the California Integrated Waste Management Board (CIWMB). The tests conducted for the SCAQMD and CIWMB studies addressed a variety of composting mixtures and windrow turning procedures and demonstrated that off-gas emissions for a given composting process are highly variable with dependencies on ambient temperature and humidity, carbon to nitrogen ratio of feedstock materials and the frequency of windrow turning. Both studies show that facilities where the windrow piles are turned within the first two weeks in the composting process experience sharp peak short-term emissions, which would not occur at the proposed Project facility where turning is planned only on the 30^{th} and 45^{th} days of composting. However, over the course of the entire composting process, the total volume

reduction and total emissions of off-gases is expected to be essentially the same for a particular type of composting feedstock regardless of the turning sequence and site conditions.

The SCAQMD emission factors are based on measurements conducted throughout the entire composting process at several facilities, including composting facilities that use green material and biosolids feedstock, and are interpreted to represent emissions from all composting operations, including tipping piles, active composting piles and finished product piles. The CIWMB factors represent only testing on active windrows, but are considerably lower than the SCAQMD factors, despite the fact that they are based on tests completed only during the first two weeks of composting, when off-gas emissions would be expected to be at the highest levels. This analysis uses the average emission factors derived from the SCAQMD Rule 1133 Staff Report in order to provide conservative upper limit emission estimates for the proposed Project over the full composting process. However, interpretation of the resulting emissions estimates should include consideration that other tests have resulted in much lower emission estimates.

The resulting estimated daily average and annual total emission quantities for VOC and ammonia from composting are shown in Table 4.3.8. Based on these results, emissions of VOCs will be well above the applicable MDAQMD significance threshold of 25 tons per year.

As indicated previously, the high moisture content of the received feedstock materials is expected to prevent all but minimal dust generation during initial mixing of compost and creation of the windrows. Some dust will be generated when the much dryer windrows are turned 30 and 45 days later and when the final product is moved to storage and loaded onto trucks for off-site delivery. However, calculation of these emissions based on the expected daily and annual throughputs of the proposed facility and bulk material handling emission factors from the EPA AP-42 compendium indicates that these emissions will be very low (less than 1 pound per day), since the turning operations on any given day would affect only the materials currently reaching the 30^{th} and 45^{th} day of composting. Additionally, the applicant has indicated that the proposed facility will refrain from turning the windrows during episodes of high wind speeds (30 miles per hour or higher) as a dust control measure.

Table 4.3.8
Estimated Daily and Annual Offgas Emissions from Composting Windrows

Pollutant	SCAQMD Factor lb/wet ton of feedstock mix (entire co-composing process)	Estimated Emissions for Nursery Products Facility Composting	
		Daily average (lb/day)	Annual Total (tons/year)
VOC	1.78	1,958	357
NH_3	2.93	3,223	588

Facility equipment fuel combustion and fugitive dust emissions: Worst-case daily emissions of criteria pollutants due to equipment fuel combustion from on-site equipment operations were calculated using CARB emission factors for off-road equipment. The facility will operate on a 24-hour basis 365 days per year; however, the equipment at the site will operate primarily during the day. The fleet of equipment and vehicles present during facility operations will include the following:

- Four (4), Rubber Tired Loaders (165hp, diesel)
- One (1), Miscellaneous Screen (190hp, diesel)
- One (1), Large Grinder (1000hp, diesel)
- Two (2), Off-Highway Trucks (425hp, diesel)
- One (1), Windrow Turner (550hp, diesel)

Worst-case daily and annual fugitive dust emissions caused by the movement of the mobile equipment (loaders, trucks, windrow turner) over unpaved areas, both on-site as well as over the access road, were also estimated using emission factors from the EPA AP-42 compendium-Table 11.9-1. Emissions from onsite equipment operations are summarized on Table 4.3.7.

Truck transportation: The emissions from truck transport to deliver biosolids and green material to the site for composting and to deliver finished compost products to customers were calculated using emission factors calculated by the EMFAC2002 model for heavy duty trucks in San Bernardino County. The average capacity and round-trip travel distance for trucks delivering feedstock materials to the site and those hauling finished compost away from the site were estimated to be 23 tons and 200 miles, respectively, and the total daily vehicle miles traveled (VMT) were apportioned as follows:

- Empty outbound trucks: 1,354 VMT
- Full inbound delivery trucks: 8,800 VMT
- Full outbound trucks: 7,446 VMT

Table 4.3.9 shows the estimated emissions associated with the trucks hauling feedstock to the proposed Project and those removing finished compost. Fugitive dust emissions associated with travel of these trucks within the Project site calculated using AP-42 emission factors, are also included in this table. It should be noted that the fugitive dust emissions were based on the standard practice of watering unpaved roads to minimize dust. Consequently, the mitigation measures include a requirement to water unpaved roads.

While the on-road emissions of NO_x, CO and VOC are clearly substantial, they are not "new" emissions in the same sense as those from other source categories discussed in this section. Whether or not the proposed facility goes forward, biosolids and green material will continue to be generated regionally and will continue to require transport and disposal to other destinations. Currently, it is estimated that the majority of biosolids currently generated in Southern California are delivered to facilities in either Arizona or Kern County, California, with roughly 44% sent to each destination. A rough calculation indicates that diverting these deliveries instead to the proposed Project would eliminate roughly 2 million miles of heavy truck travel annually. Similarly, the best available information indicates that the green material component of the facility's feedstock is currently delivered to destinations as far or farther from the points of origin than would be necessary if this facility were available. Therefore, the on-road trucking emissions in Table 4.3.9 would not be created by the proposed Project, and it is likely that on-road trucking emissions would be reduced due to shortened truck trips. Thus, only the fugitive dust emissions caused by the travel of these trucks at the proposed Project site are carried forward in the calculation of total Project emissions.

Table 4.3.9
Estimated Daily and Annual Emissions From Truck Transportation
During The Operational Period

	Daily (lbs)					Annual (tons)				
	CO	VOC	NO_x	SO_x	PM_{10}	CO	VOC	NO_x	SO_x	PM_{10}
On-road: Truck transport	20	138	459	8	1	3.7	25.1	83.8	1.5	0.1
On-site Fugitive Dust	-	-	-	-	7.53	-	-	-	-	1.37
Total	20	138	459	8	8.53	3.7	25.1	83.8	1.5	1.38

Employee commute trips: The emissions of criteria pollutants caused by employee commute trips to and from the site and fugitive dust due to travel on unpaved areas of the site were estimated based on emission factors for light duty automobiles and trucks for San Bernardino County generated by the EMFAC2002 emission factors and EPA AP-42 emission factors respectively. All workers were assumed to commute the from Barstow area (100 mile round trip). The estimated worst-case daily and annual emissions of criteria pollutants and fugitive dust due to the employee commute trips during the operational period are summarized in Table 4.3.7.

Periodic grading of new areas: As noted previously, grading of additional areas of the site will be necessary at various times after facility operations commence to prepare for increased composting throughput. During such periods, which may average up to five days each month, there will be additional exhaust and fugitive dust emissions related to such grading. Equipment assumed to be devoted to this activity includes the following:

- One Rubber Tired Loader (165 horsepower, diesel)
- One Off-Highway Truck (430 hp, diesel)
- One Grader (250 horsepower, diesel)

Worst-case daily equipment exhaust emissions of criteria pollutants associated with this grading activity were calculated using the same emission factors as for the initial phase of construction. Annual emissions were estimated assuming 60 days of additional grading during the year. The resulting estimates are presented in Table 4.3.7.

Total Project Emissions: Table 4.3.7 shows the estimated total maximum daily and annual criteria pollutant emissions due to all activities associated with the operational composting facility. This table indicates that annual emissions of VOCs would be above the corresponding MDAQMD significance thresholds and are therefore considered to be a significant impact to air quality. VOCs from composting account for about 98% of the projected annual generation of that pollutant.

The opportunities for mitigation of the VOC emissions from windrow composting are extremely limited. The composting process by nature results in volatilization of organic materials from the feedstock and the emission of these gases, in order to obtain the desired end product. Elimination of these emissions would require capture and the thermal destruction or absorption of the off gases by a control device. However, the temporary nature of windrows structures, the need to turn the windrows periodically, the large airflows that would need to be captured and the large area needed to accommodate a composting operation on the scale proposed by the applicant are factors that would make implementation of such controls economically infeasible. Additionally, based on data in SCAQMD Proposed Rule 1133.2, an enclosed composting facility in which all the compost and resulting emissions are contained within a building and forceably aerated during curing are estimated to reduce VOC and ammonia emissions by 80%. Even with an 80% emissions reduction, VOCs emissions are estimated to be 71 tons/year and would still exceed the significance threshold of 25 tons/year. Therefore, it is not technologically feasible to mitigate VOC emissions below the level of significance. Thus these composting off-gas emissions are considered to be significant and unmitigable.

4.3.3.3 Potential Odor Impacts

Sources of Odor at Composting Facilities

The primary sources of composting-related odors are: (1) feedstock management (e.g., delivery, storage and handling); (2) active composting (e.g., surface emissions, turning windrows, tearing down piles); and (3) curing (e.g., surface emissions, turning windrows, and tearing down piles). Other minor sources of composting-related odor include mixing of feedstocks into windrows; finished product loading; and poor site management conditions (e.g., runoff, leachate, surface ponding, and road spillage).

The compounds that produce odors differ depending on the type of feedstock, condition of the feedstock, and the stage of composting (i.e., pre-processing stage, active composting stage, curing stage). Feedstocks that decompose rapidly are likely to produce odors at higher concentrations than those feedstocks that decompose at a slower rate. In general, grass, green material, food waste and biosolids produce more odors than woody waste. The delivery, storage and handling of feedstocks can also greatly affect odors. If incoming feedstocks are not expeditiously processed, they may decay and begin to produce odors.

Windrow turning can result in the release of odors because some of the organic material within the pile may be in an anaerobic state. Compounds formed under anaerobic conditions and their characteristic odors may include hydrogen sulfide (rotten egg), carbon disulfide (disagreeable sweet), dimethyl sulfide (rotten cabbage) and ammonia (pungent, sharp). Newly formed windrows containing fresh organic material can potentially generate intense odors when turned. Odors produced at this stage are principally the result of the decomposition or breakdown of proteins and fats that contain sulfur and nitrogen compounds. These compounds generally break down during the first 14 days of composting, and odor generation is significantly reduced after this initial stage of decomposition.

Odors are also released from windrow surfaces during non-turning periods. Although surface emissions are the greatest overall source of odors from windrows, turning results in higher short-term spikes in concentration and intensity of odors. The fresher the material in the windrow, the greater the odor

potential. Material that has been in the windrow for long periods of time is more stable and tends to be less odorous.

When the windrows are torn down, the potential for odors is considerably lower than for the initial composting process, because the compost has become more stable with time. The rate of decomposition is less and many of the odor-producing compounds have already broken down. There is less potential for odor generation during the final (curing) stage of composting, since organic compounds have already been degraded and curing piles require relatively infrequent turning. In addition, odors from finished compost are usually not considered to be offensive, unlike fresh composting feedstocks.

Odor can be emitted during the mixing process, depending on the feedstock and the time over which feedstock materials have been stored prior to mixing. For example, grass cuttings decay rapidly, and if stored prior to mixing, may emit ammonia and other types of sharply odorous compounds. Consequently, it is important for odor control that such feedstock be mixed as soon as possible upon arrival at the site.

Processing, grinding, and conveying the materials to the windrows also have the potential to generate odors, especially for putrescible materials such as grass clippings and food waste. Odors can be carried in the dust generated during the conveyance and grinding processes. Odor levels are generally minimal during final loading of the finished compost product for shipment offsite, and the characteristics of the odor from this process is that of a soil-like material. Odors can also be generated if runoff and leachate remain on the composting facility surface in sufficient amounts to form ponds.

Table 4.3.10 taken from Epstein, 2004 identifies sources of odors during the composting process and the relative contribution of individual sources in comparison to total odor generation by composting facility operations. The relative odor contributions are expressed as a percentage of the total odor emissions typically generated.

As shown in Table 4.3.10, the greatest odor source by far is the composting windrows, especially during the first few days of feedstock decomposition.

Table 4.3.10
Odor Relative Contributions by Process and Potential Characteristics

Odor Sources and Area Sources	Relative Odor Contribution	Potential Odor Characteristics
Feedstock Storage	4%	Woody
Composting Windrows, 0 -6 days old	30%	Stinky, sulfurous, fishy, ammonia
Composting Windrows, 7 -11 days Old	10%	Stinky, sulfurous
Composting W indrows,12-27 days old	40%	Earthy, mulch
Curing Windrows 28-61 days old	11%	Earthy, soil-like
Curing Windrows 61-90 days old	3%	Earthy, soil-like

Table 4.3.10
Odor Relative Contributions by Process and Potential Characteristics

Odor Sources and Area Sources	Relative Odor Contribution	Potential Odor Characteristics
Volume Sources	(<2% all sources combined)	
Grinding Operations	<1%	Woody
Feedstock Tipping	<1%	Stinky
Feedstock Mixing	<1%	Stinky
Compost Windrow Building	<1%	Stinky
Compost Windrow Turning	<1%	Ammonia, sulfurous
Compost Windrow Teardown	<1%	Mulch
Curing Windrow Turning	<1%	Mulch, woody
Curing Windrow Teardown	<1%	Earthy, soil-like
Screening	<1%	Woody, mulch
Product Loadout	<1 %	Earthy, soil-like

Source: Tetra Tech, Inc. (Formally E&A Environmental Consultants, Inc.)

Estimating Odor Impacts

A dispersion modeling analysis was conducted to obtain a quantitative estimate of potential odor impacts from the windrow operations of the proposed Project. As stated earlier, active windrow composting emissions are considered to be the most important source of odors from this type of facility.

The model simulation was conducted for the full Project buildout scenario, i.e., 20 windrows distributed over most of the approximately 0.5 mile x 0.5 mile site area. The Industrial Source Complex Short Term 3 (ISCST3), a standard EPA dispersion model was used to simulate the dilution of odorous substances during transport of these emissions from the facility to nearest distance to residences. Model files are provided in Appendix B included with the CD. The two closest residents to the proposed site are located approximately at 1.5 miles and 2.5 miles to the east. The next closest residents are located approximately 8 miles to the northeast, in the town of Hinkley. Accordingly, rings of receptors at these three distances and along the site boundary were used in this analysis. Odor generation declines rapidly with composting time. In order to reflect composting emissions for typical operations and varying stages of composting, one fifth of all windrows were assumed to be fresh compost, characterized by maximum odor intensity, and these were placed near the facility boundary for maximum off-site impact. The remaining windrows were assumed to have an average odor intensity of 37.5% of fresh compost.

Model results presented in Table 4.3.11 show that the maximum odor levels were predicted at the site boundary. These values have been adjusted using a peak to mean ratio of 2 to 1, to convert the maximum predicted hourly odor concentrations at each receptor to a 2-minute average in order to account for the fact that the human detection of odors occurs on a short time scale. Results show that the maximum

predicted odor value at a residence (1.8 D/T3) would occur at the residence 1.5 miles from the facility. This odor level is well below the MDAQMD acceptable threshold of 10 D/T as well as the preferred threshold of 5 D/T, and will not likely impact the nearest existing residential areas frequently at levels that cause public complaints. However, there is considerable uncertainty in the characterization of initial odor strengths based on measurements at other facilities and in the reliability of modeled odor impacts. For this reason, and based on the numerous complaints received regarding odors from existing composting facilities, it is possible that the proposed facility could expose at least some members of the public to objectionable odors. This is considered a potentially significant impact that can be mitigated to a level below significance through implementation of the measures described in the mitigation measures subsection below.

Table 4.3.11
Maximum Predicted Offsite Odor Concentrations Due To Composting Windrows At Nursery Products Hawes Composting Facility

MDAQMD D/T Thresholds		Modeled D/T Value at Indicated Distance			
Acceptable	Preferred	Site Boundary	1.5 miles	2.5 miles	8 miles (Hinkley)
10	5	21.5	1.8	1.7	0.9

4.3.3.4 Analysis of Toxic Air Pollutant and Potential Health Effect

Among the compounds regulated as toxic air contaminants by the State of California, two substances, hydrogen sulfide (H2S) and ammonia, are known to be emitted by composting facilities, specifically, from active windrow composting. An emission factor is available for ammonia from the SCAQMD Rule 1133 Staff Report referenced earlier and initial screening modeling was conducted to evaluate maximum off-site concentrations of ammonia by means of the ISCST3 dispersion model and the same volume source representation of the site windrows that was described previously for the odor impact assessment. No such emission factor is available for composting H2S emission and therefore any analysis of H2S would be speculative. To date, there is no accepted methodology or standard for measuring H2S resulting from composting facilities. Other methodologies in determining H2S emission factors are not valid for the proposed Project as these methods assume that the source characteristics remain consistent. The concentration of H2S from composting facilities will greatly vary depending on the content of feedstock. A particular delivery of feedstock may have a greater production of sulfur and/or the generation of side reactions, which cannot be accurately predicted.

As shown in Table 4.3.12, maximum predicted acute (1-hour) and chronic (annual average) concentrations of ammonia exceed the applicable health criteria established by the California Office of Emergency Health Hazard Assessment (OEHHA) at the Project boundary, but are well below these Reference Exposure Limits (RELs) at the distances of the nearest residences. Since the ammonia

[3] The concentration of an odor and odor thresholds are typically expressed in terms of a dilution to threshold D/T ratio). This ratio is the number of volumes of odor-free air volumes necessary to just prevent an individual from detecting odor.

emissions from the windrows were conservatively estimated for a full buildout scenario, it is concluded that the Project ammonia emissions will not have a significant health impact.

Table 4.3.12
Maximum Predicted Offsite Ammonia Concentrations
Due To Composting Windrows At the Nursery Products Hawes Composting Facility

	Reference Exposure Level s (µg/m³)	Site Boundary	1.5 miles	2.5 miles	8 miles (Hinkley)
Modeled Acute Ammonia Concentration (µg/m³)	3200	6906	932	824	400
Modeled Chronic Ammonia Concentration (µg/m³)	200	260	14.4	7.1	1.4

4.3.3.5 Mitigation Measures

AQ-1 – Development of an Odor Impact Minimization Plan (OIMP) that will outline self-imposed operating requirements that will result in odor control and reduction. The OIMP shall be submitted to the Local Enforcement Agency (LEA) for review and approval prior to operation. Specific mitigative actions included in this plan are detailed in the following subsection.

AQ-2 – All unpaved on-site and access road shall be sprayed with water frequently enough to minimize the generation of visible dust. Alternatively, these roads may be paved to eliminate the watering requirement.

AQ-3 – Refraining from turning the windrows during episodes of high wind speeds (30 miles per hour or higher).

4.3.3.5.1 Odor Impact Minimization Plan (OIMP)

Prior to facility development, the applicant shall prepare an OIMP to reduce potential odor impacts during operation of the compost facility. The OIMP shall be prepared pursuant to the requirements established by the CIWMB (14 CCR 17863.4) and would act as the overall program document for odor control at the compost facility. The OIMP shall include written procedures for reducing odors due to feedstock receipt, processing and handling, and for compost processing. While mitigation of odors could be achieved without implementation of all suggested measures, this document shall provide mitigation response to various operating scenarios. The OIMP shall be submitted to the LEA for review and approval, prior to operation.

The OIMP shall include, but not be limited to, the following measures:

Odor-Screening and Load-Checking Procedures

As feedstocks arrive at the proposed facility, the compost facility operator shall screen materials to assess the potential for the production of objectionable odors. If necessary, the compost facility operator would implement one or more of the following measures:

- Rejection or priority processing of loads that produce objectionable odors;
- Blending or covering of feedstock producing objectionable odors;
- Treatment of feedstocks producing objectionable odors with a neutralizing agent such lime or other suitable chemical.

Feedstock Storage Measures

- Incoming biosolids feedstocks shall be mixed and placed into windrows within two hours of arrival.

Feedstock Processing Measures

- Highly odorous materials received at the facility shall be sprayed, as necessary, with an odor neutralizer to control odorous compounds through adsorption and enzymatic action.

Windrow Management Measures

Measures that shall be implemented to control odor emissions from windrow and curing operations will include:

- Wind direction, weather conditions and time of day shall be taken into account when turning compost windrows and curing piles;
- When inversion conditions are forecasted, windrow turning should be avoided, if feasible. Meteorological equipment shall be installed on-site and the operator shall record wind direction, wind speed, and temperature at the site on a daily basis and will use that information to guide facility windrow management practices;
- Windrows and/or curing piles generating objectionable odors shall be sprayed with an odor neutralizer, when necessary; and
- When feasible, the ratio of carbon to nitrogen should be optimized by adding carbon-rich materials (e.g., woody waste) to high-nitrogen content feedstocks (e.g., grass clippings).

Good Housekeeping Procedures

The compost facility operator shall implement the following housekeeping and operational procedures:

- The compost facility site shall be kept clean and free of minor odor sources, which individually would not result in an objectionable odor, but cumulatively could result in an objectionable odor;
- Prior to the rainy season (i.e., by October 1st of each year), the compost facility operator shall undergo pre-season site preparation to ensure that conditions that could result in ponding of stormwater runoff or leachates are minimized or eliminated; and

- If ponding occurs after a rain, the ponding shall be treated with lime or other suitable material and the feature causing the ponding shall be eliminated.

Odor Complaint Response System

The compost facility operator shall develop an odor complaint response procedure prior to operation of the facility. The odor response procedure shall include the following components:

- Designation of an "odor impact coordinator" who would be responsible for responding to any complaints about odors;
- Establishment of a telephone hotline for nearby receptors to contact the compost facility. Complaints shall be recorded in writing and made available to the LEA and the CIWMB for review;
- If requested by the LEA, the odor impact coordinator shall immediately notify the LEA of any odor-related complaints; and
- The odor impact coordinator shall coordinate with the LEA to make any operational and/or technical modifications necessary to minimize the likelihood of future odors, redesigning portions of the facility to employ different technologies, or other such measures as necessary to minimize objectionable odors.

4.3.4 No Project Alternative

4.3.4.1 Impacts and Mitigation Measures

The No Project Alternative would result in no increase in emissions of air pollutants or odorous substances at the site of the proposed Project and no impacts to the air quality near the intended site. However, biosolids and green materials will continue to be generated throughout Southern California and these wastes will need to be transported to alternate use or disposal sites. Depending on the manner of their distribution among other locations and the nature, sizes and proximity to sensitive areas of these alternate receiving sites air quality and odor impacts at individual sites could be less than, comparable to or greater than those predicted for the proposed Project. Total regional emissions associated with the processing of these materials will likely be comparable to those described for the proposed Project.

4.3.5 Reduced Capacity Alternative

4.3.5.1 Impacts and Mitigation Measures

If the compost production level of the proposed facility is reduced to 320,000 per year, there will be corresponding decreases in the number of truck trips to and from the site, the size of the on-site equipment fleet and the volumes of composting windrows and stored product present on site at any time. In general, the annual emissions from all these sources would decrease in rough proportion to the decrease in throughput.

Table 4.3.13 shows that expected emissions resulting from reduced annual compost production would not reduce to levels below the significance threshold. Since this alternative is limited to the same mitigation

measures identified for the proposed Project, these emissions are considered to be significant and unmitigable. Ammonia emissions are expected to decrease proportionately to the decrease in throughput. Since ammonia emissions were below the threshold for the larger proposed Project, emissions from this alternative are also expected to be below the significance thresholds.

It should be noted that in order for the alternative facility to establish VOC emissions below the significance thresholds, compost production would have to be reduced to no more than about 28,000 tons per year over approximately 11 acres (~ 76 tons per day), less than 7% of the proposed Project capacity. This reduction would not produce enough compost product to offset the cost of operation, making a facility of this size economically infeasible.

Odor for this alternative would be similar to the proposed Project. The magnitude of odor impacts for specific events would depend more on the characteristics of individual loads of feedstock materials and the management practices employed to address high odor materials than on the change in facility capacity. Thus, while the decrease in the quantity of materials handled would lower the probability of occurrence for releases of strongly odorous materials to the atmosphere, the potential for significant odor impacts still exist. These impacts would be reduced to less than significant with the implementation of mitigation measure AQ-1.

Mitigation measures AQ-2 and AQ-3 are also required to minimize dust emissions from this alternative.

Table 4.3.13
Estimated Total Maximum Daily and Annual Operational Emissions of Criteria Pollutants
Reduced Capacity Alternative

Averaging Period	Daily (lbs)					Annual (tons)				
	CO	VOC	NOx	SOx	PM10 1	CO	VOC	NOx	SOx	PM10
Unloading of Composting Materials	-	-	-	-	0.05	-	-	-	-	0.01
Windrow Composting	-	1,566	-	-	neg	-	285.6	-	-	neg
On-site Equipment Operations	12.79	2.79	45.35	4.91	1.85	2.33	0.51	8.28	0.90	0.34
Fugitive Dust Generated by Haul Trucks	-	-	-	-	39.68	-	-	-	-	7.24
Employee Commute trips	2.65	0.12	0.29	0.003	0.20	0.48	0.02	0.05	0.0005	0.04
Additional Site Grading	6.30	1.67	21.35	3.74	2.21	0.19	0.05	0.64	0.11	0.07
Total	21.7	1,571.6	67.0	8.7	44	3.0	286.2	9.0	1.0	7.0
MDAQMD Significance Thresholds	548	137	137	137	82	100	25	25	25	15

Note: neg = negligible
PM10 represents fugitive dust

4.3.6 Fort Cady Alternative Site

4.3.6.1 Impacts and Mitigation Measures

From an air quality impacts standpoint, the Fort Cady Site Alternative would produce emissions that would be virtually identical to those of the proposed Project during both the construction and operational phases.

Consequently, the air quality impacts related to VOC emissions would be significant and unmitigable. The principal difference from an air quality perspective would be the location of the site relative to nearby sensitive receptors. Based on building permits and assessors' records, there are about 8 residences within a 2-mile radius of the Fort Cady site, with the closest residence about one-half mile from the site boundary. Thus, there would be a marginally larger potential for increased exposure to higher concentrations of air pollutants and dust emitted at the facility than for the proposed Project and a significantly increased likelihood that the nearest few neighbors to the facility will experience noticeable odors. Odor levels and acute and chronic exposure levels were modeled for the Fort Cady Alternative, and the results are shown in Tables 4.3.14. Results show that while ammonia and odor concentrations would be below the REL limits and the recommended odor concentrations, these impacts would be of somewhat higher than for the proposed Project. The same mitigation measures identified for the Project would also apply to this alternative.

Table 4.3.14
Maximum Predicted Offsite Ammonia and Odor Concentrations
Due To Composting Windrows at the Closest Receptors - Fort Cady Alternative

	Reference Exposure Levels Limits (µg/m³)	Recommended Odor Concentration Limit (D/T)	Concentrations at 0.5 miles	Concentrations from Proposed Project
Modeled Acute Ammonia Concentration (µg/m³)	3200	-	1441	932
Modeled Chronic Ammonia Concentration (µg/m³)	200	-	55.3	14.4
Modeled Odor Concentration at Closest Receptor	-	5	3.72	1.84

4.4 BIOLOGICAL RESOURCES

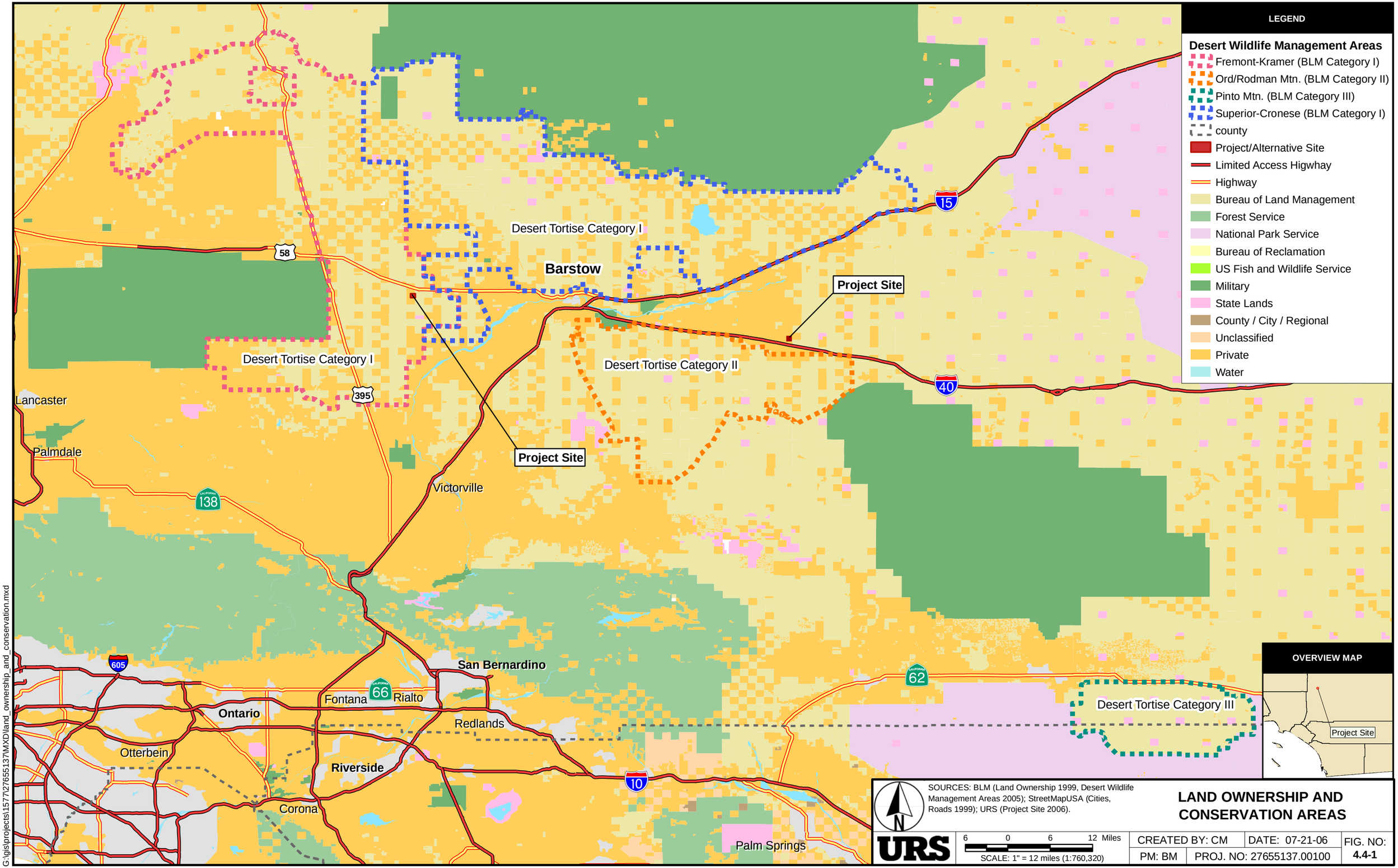
4.4.1 Environmental Setting

The Project area is located in the Mojave Desert in gently rolling open terrain dominated by desert scrub vegetation. The Mojave Desert is the driest desert in the continental United States with precipitation ranging from 2.23 to 2.5 inches a year, with much of the rain falling between October and March, and temperatures ranging from 40 to 110 °F. Perennial and intermittent rivers and streams are rare, and most water flow occurs in washes and flood-flow paths during major winter rain events that occur rarely. Habitats in this region of the Mojave Desert vary with the landscape and precipitation levels and include pinyon-pine forests and frost-tolerant species above 5,500 feet (1675 m); Joshua-tree woodlands in the 4,000 to 6,000 feet (1220 to 1828 m) range; mixed desert shrub communities in the middle elevation regions and along the fronts of mountain ranges, and creosote bush and other drought-tolerant species in the lower-elevation regions where rainfall average is less than 2 inches (5 cm) per year (USGS 2004). The habitat in and surrounding the Project site is comprised of desert saltbush scrub, with elevations between 2310 to 2340 feet above mean sea level. With the exception of the existing dirt road that leads to the Project site from Helendale Road, old mining pits north of the site and an abandoned building or bunker located approximately ½ mile west of the site, the Project site and vicinity is undisturbed.

The Project site is a privately-owned site located within the boundaries of an area designated by BLM as Category I desert tortoise critical habitat, which is considered to be most suitable for tortoise occupation (BLM 2001). It is also within the boundaries of the Fremont-Kramer Desert Wildlife Management Area (DWMA) and Area of Critical Environmental Concern (ACEC) that was designated by the proposed West Mojave Coordinated Management Plan (WMP; BLM 2005, see Figures 4.4-1. The proposed WMP designates a total of four DWMAs in the Mojave Desert that focus on the protection and conservation of desert tortoise (Gopherus agassizi), Mohave ground squirrel (Spermophilus mohavensis) and other state or federal sensitive species that share habitats in the Mojave Desert.

The WMP is a joint effort between the BLM and local agencies. The WMP status at this writing is that the BLM has adopted the plan but it has not yet been adopted by the local agencies, including the County. When adopted, it will apply to both public and privately-owned lands. It is not currently applicable to private lands such as the Project site or Fort Cady Alternative Site.

A total of three special-status species were identified during the Project specific biological surveys: one federal- and state-listed species, desert tortoise (Federal and State threatened), and three California Species Special of Concern (CSSC), northern harrier (Circus cyaneus, CSSC) sage sparrow (Amphispiza belli, CSSC), and California horned lark (Eremophila alpestris actia, CSSC). Mohave ground squirrel were not detected during the 2006 spring surveys (a total of 4 spring-season survey days), although white-tailed antelope squirrel, an ecologically similar species, were commonly detected.



SOURCES: BLM (Land Ownership 1999, Desert Wildlife Management Areas 2005); StreetMapUSA (Cities, Roads 1999); URS (Project Site 2006).

LAND OWNERSHIP AND CONSERVATION AREAS

URS

6 0 6 12 Miles

SCALE: 1" = 12 miles (1:760,320)

CREATED BY: CM	DATE: 07-21-06	FIG. NO: 4.4-1
PM: BM	PROJ. NO: 27655137.00100	

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Since the Mohave ground squirrel is a diurnal species and because an ecologically similar species was observed utilizing the site, and no Mohave ground squirrel were observed, it is concluded that the Mohave ground squirrel is not present onsite. The closest documented location of Mohave ground squirrel is greater than 5 miles from the Project site, which precludes the requirement for protocol surveys for this species. Sign of desert tortoise was detected throughout the Project site, including inactive burrows, carapace remains, and dried and fresh tortoise scat. Two live desert tortoises and their burrows were detected within 600 feet of the southeastern property boundary during the focused survey conducted in April 2006 (Figure 4.4-2). Rare plants were not detected during three site visits conducted by URS botanists in spring 2006. No evidence of burrowing owl was detected during any of the biological surveys conducted on the site.

Thresholds of Significance

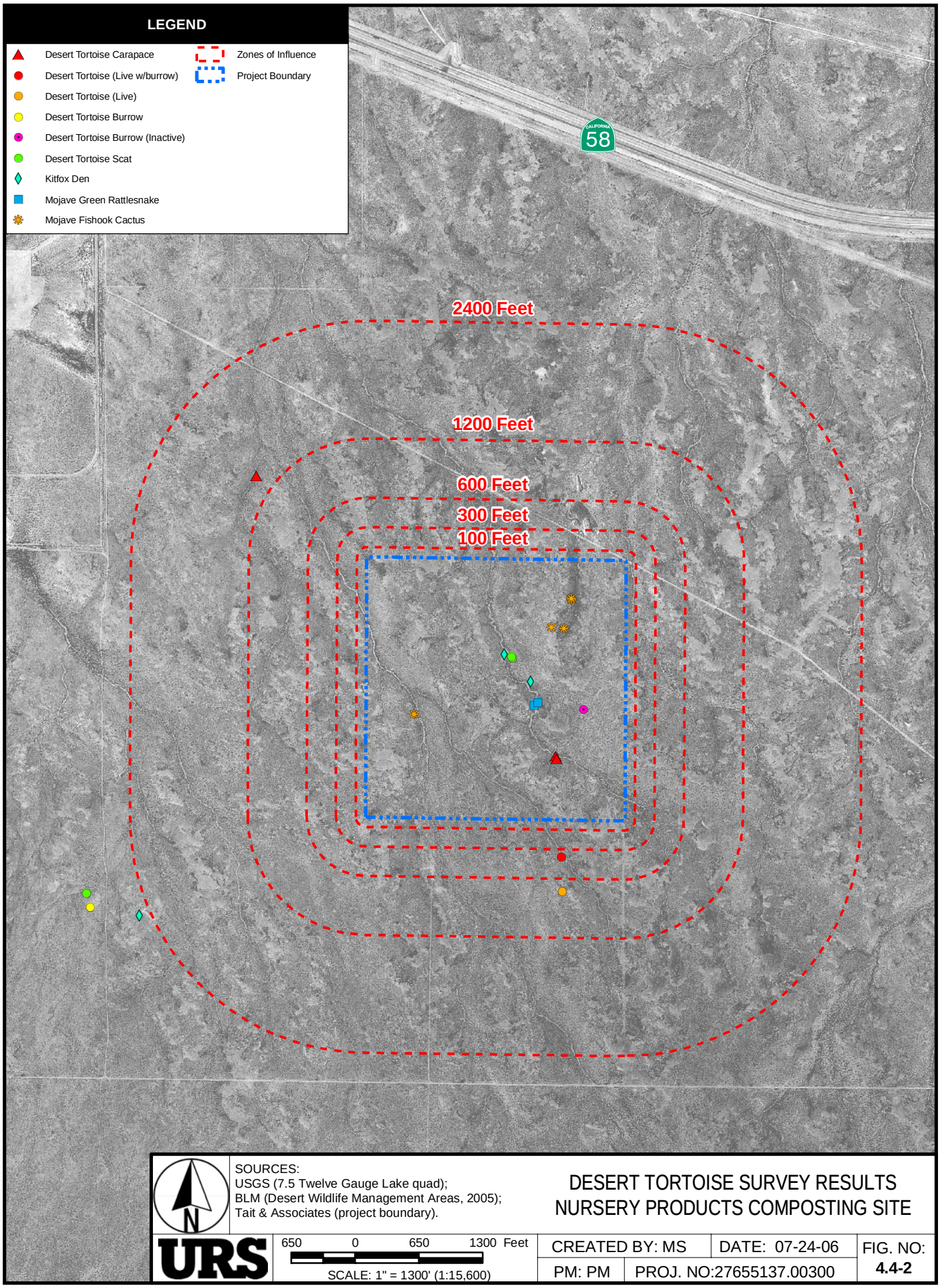
The California Environmental Quality Act (CEQA) Guidelines define "significant effect on the environment" as a "substantial or potentially substantial adverse change in the environment." The CEQA Guidelines further indicate that there may be a significant effect on biological resources if the project will:

- Cause a fish or wildlife population to drop below self-sustaining levels
- Threaten to eliminate a plant or animal community
- Substantially affect, reduce the number, or restrict the range of unique, rare, or endangered species of animal or plant, or the habitat of the species
- Substantially diminish or reduce habitat for fish, wildlife, or plants
- Interfere substantially with the movement of resident or migratory fish or wildlife species
- Change the diversity of species, or number of any species of plants (including trees, shrubs, grass crops, and aquatic plants) or animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects)
- Introduce new species of plants or animals into an area, or act as a barrier to the normal replenishment of existing species Figure 4.4-2
- Deteriorate existing fish or wildlife habitat (CEQA Guidelines, Appendix I (II.5.d))
- Conflict with any approved regional Habitat Conservation Plans (HCPs)

4.4.2 Proposed Project

4.4.2.1 Impacts

Impacts on fish or wildlife population to drop below self-sustaining levels and threaten elimination of a plant or animal community: The proposed Project would remove 160 acres of saltbush desert scrub and associated native biological resources, including habitat utilized by the threatened desert tortoise. The Project site comprises a total of 160 acres that is located within the approximately 9.3 million acre planning area of the proposed WMP. Of this planning area, there are approximately 3.3 million acres of public lands in the area of the Project site that are focused on desert tortoise conservation. The proposed



SOURCES:
USGS (7.5 Twelve Gauge Lake quad);
BLM (Desert Wildlife Management Areas, 2005);
Tait & Associates (project boundary).

DESERT TORTOISE SURVEY RESULTS
NURSERY PRODUCTS COMPOSTING SITE

URS

650 0 650 1300 Feet

SCALE: 1" = 1300' (1:15,600)

CREATED BY: MS	DATE: 07-24-06	FIG. NO: 4.4-2
PM: PM	PROJ. NO:27655137.00300	

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Project is also not expected to decrease the overall potential carrying capacity for wildlife species in the Project area or eliminate a plant or animal community.

Substantial affect, reduce the number, or restrict the range of unique, rare, or endangered species of animal or plant, or substantially diminish the habitat of the species: Loss of 160 acres of potential Mohave ground squirrel habitat would be considered adverse but not significant due to the lack of occupation by this sensitive species onsite. However, significant adverse impacts to desert tortoise will occur as a result of this Project, and include:

- Loss of 160 acres of desert tortoise habitat that is located within the Fremont-Kramer DWMA and ACEC, and BLM Category I desert tortoise habitat. No direct mortality of tortoise is expected;
- Increased truck traffic along existing access routes (including Helendale Road) may increase the potential for loss of desert tortoise through vehicle collisions;
- Increased truck traffic along the existing access routes may increase the amount of road-killed mammals and reptiles. This increased availability of carrion could attract ravens to the Project vicinity and lead to increased potential for predation of hatchling desert tortoise.
- It is important to note that composting facilities have been inaccurately compared to landfills; however, that is not an accurate comparison as the proposed composting activities will not likely attract ravens or other birds directly because the compost would not contain edible food or other garbage that would appeal to ravens and other scavengers (see photos in Section 2). Ravens were not recorded at a similar composting site in Adelanto over a recent 5-year monitoring period of the facility during monthly inspections by the San Bernardino County Environmental Health.

Substantial interference with the movement of resident or migratory fish or wildlife species: Although 160 acres of desert scrub will be lost by the proposed Project, the proposed Project is not expected to have a significant effect on wildlife movement due to the continuity of suitable habitat in existing corridors on public lands in the vicinity of the Project site. In addition, the site and the surrounding area is located within the Fremont-Kramer DWMA, which is part of a large-scale habitat conservation area proposed by the WMP to conserve desert tortoise, Mohave ground squirrel, and other species (Figure 4.4-1). As part of mitigation for loss of the desert tortoise habitat, the Project proponent should be encouraged to purchase parcels in the Project vicinity that would contribute to conserving the existing continuity of suitable habitat in the east-west direction.

All migratory and non-game native breeding bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA). Vegetation clearing during the bird nesting season could result in the direct loss of native birds or their active nests. Potential for these impacts can be avoided by limiting vegetation clearing to the non-breeding season (August to February).

Change in the diversity of species, or number of any species of plants or animals: The Project site is comprised of the same vegetation community with a similar level of diversity as the surrounding, largely undeveloped Project vicinity, with an apparently low density of desert tortoise (2 tortoises detected within 200 acres surveyed) occurring within and adjacent to the Project site. Direct Project impacts would

include removal of 160 acres of vegetation within the boundaries of the Project site; however, direct mortality of desert tortoise or other species is not expected.

Introducing new species of plants or animals into an area, or act as a barrier to the normal replenishment of existing species: The proposed Project will import green material to the site from a variety sources. The possibility exists that new species of plants could be introduced to the area. Without mitigation, this impact could be significant.

Deteriorate existing fish or wildlife habitat: Potential indirect impacts include the increased risk to desert tortoise of metal toxicity from air-borne particulate matter that may be carried by the wind from the windrows on the Project site to desert tortoise habitat. Heavy metals, including cadmium, mercury, lead, molybdenum, arsenic, selenium, chromium, and nickel, have been found in the livers and kidneys of ill tortoises, and are linked to upper respiratory tract disease, shell lesions, and other serious illnesses. It is unknown whether compost can cause such high levels of airborne metals that may affect desert tortoise through the food chain. Literature on the effect of compost use on heavy metal levels in the soil environment indicate that it varies according to soil type, plant species, and compost composition. It has also been reported that the metals in compost are important in minimizing metal absorption in plants, which could indirectly minimize heavy metals absorption in desert tortoise. Since tortoise will be removed from the site prior to construction, a permanent fence will be installed around the perimeter and the windrows will not be turned during high wind situations, desert tortoise are not expected to be exposed to increased levels of heavy metals from the composting site.

Conflict with any approved regional Habitat Conservation Plans (HCPs): The proposed Project site is located within the planning area of the proposed WMP; but the HCP that is proposed as part of WMP is not completed at this time. However, the mitigation measures that are proposed are consistent with the mitigation measures and BMPs recommended within the proposed WMP. Consequently, the proposed Project would not be in conflict with any approved regional HCPs.

4.4.3.2 Mitigation Measures

Project-related significant impacts include loss for desert tortoise habitat. The proposed West Mojave Plan outlines mitigation for impacts to tortoise occupied habitat. In addition, Best Management Practices (BMPs) for New Construction in Tortoise Habitat that have been developed by the proposed WMP (WMP Appendix I) will be incorporated as mitigation for this Project. Incorporation of the following mitigation measures will reduce direct and indirect impacts associated with the Project to a less than significant level:

B-1 The Project shall be phased, with the initial phase not to exceed 80 acres in size. An operational plan shall be provided for the County's review and approval outlining the conditions that would demonstrate the need for each subsequent phase.

B-2 Purchase of offsite conserved habitat shall be based upon the requirements of the CDFG and USFWS, and follow the WMP if in effect at the time.

B-3 All employees, subcontractors, construction personnel, and other individuals who work on-site shall participate in a desert tortoise awareness program with educational materials provided by the West Mojave Implementation Team. The program shall be administered by the Authorized Biologist or Environmental Monitor. The program may be given in the field prior to initiation of construction activities, and shall include truck drivers, delivery personnel, and other Project-related personnel

occasionally entering the work site. Wallet-sized certification cards shall be provided to personnel who have attended the training.

B-4 A permanent tortoise-proof fence shall be installed around the perimeter of the Project impact area prior to grading of the site. Once the fence is installed, clearance surveys for desert tortoise shall be conducted by qualified biologists to locate and remove any tortoises and close their burrows within the Project site. An authorized biological monitor shall be present during construction to ensure that tortoises do not re-enter the construction area and to remove or rescue any individuals that may be injured. Mortality of any tortoise shall be reported to wildlife agency staff.

B-5 Between February 15 and November 15, the tortoise clearance survey shall occur within 48 hours prior to ground disturbance. Between November 16 and February 14, the survey may be performed several days or weeks prior to ground disturbance.

B-6 Where practicable, vegetation clearing activities shall occur when tortoises are least likely to be active, generally between November 15 and February 15.

B-7 Cross-country (off-road) vehicle use shall be prohibited and signs posted.

B-8 Except on paved roads with posted speed limits, vehicle speeds shall not exceed 20 miles per hour through desert tortoise habitat. This speed limit shall be posted along all access routes associated with the Project. Any tortoises encountered on the roads shall be avoided by drivers where feasible (i.e. driver will stop and wait for tortoise to cross road).

B-9 All trash and discarded food items generated by construction and operation activities shall be promptly contained and regularly removed from the Project site to reduce the attractiveness of the area to ravens and other potential desert tortoise predators. Additionally, all artificial water sources must be covered or otherwise made inaccessible to wildlife.

B-10 As defined by permit conditions and the Implementing Agreement associated with the permit, adequate funding must be set aside to manage the conserved habitat and to monitor the effects of the Project on the surrounding habitat.

B-11 The Project proponent shall prepare an HCP and obtain an incidental take permit/authorization from the wildlife agencies prior to Project implementation.

B-12 Mohave ground squirrel trapping surveys shall be conducted prior to construction of the Project to determine this species presence within the Project area.

B-13 Baseline studies for invasive plants shall be done in the fire break of the property, as well as within a 500-foot buffer outside the fire break, no later than 30 days after the facility opens. These surveys should be conducted in early spring 2007 if the facility would open later that year. All plant species that are present shall be identified and this area monitored annually (early spring) to detect any invasive species that may be present. An herbicide that is appropriate to the species shall be applied to prevent dispersal of exotic or invasive plant species onto BLM property and adjacent habitat. The monitoring frequency may be reduced to once every four years if no invasive are detected during the first five years of monitoring.

B-14 The Project site must maintain an adequate water supply and delivery capacity as well as clear aisles between windrows for easy access in case of fire.

Many of the above mitigation measures are found in Appendix I of the proposed WMP: Best Management Practices for New Construction in Tortoise Habitat are described in detail within Appendix B of that document. All applicable BMPs shall be implemented by the Project proponent.

As a conclusion of this analysis, impacts to biological resources would be less than significant with implementation of the above mitigation measures and BMPs.

4.4.3 No Project Alternative

4.4.3.1 Impacts and Mitigation Measures

The No Project Alternative would result in no loss of saltbush desert scrub and associated native biological resources, and no impacts to desert tortoise habitat at the proposed Project site. No mitigation measures are required.

4.4.4 Reduced Capacity Alternative

4.4.4.1 Impacts and Mitigation Measures

Impacts from the Reduced Capacity Alternative would be similar to the proposed Project, except that the Reduced Capacity Alternative would require a lesser amount of replacement habitat as it is a smaller site. The other mitigation measures identified for the Project would also apply to this alternative. Impacts to biological resources after mitigation would be less than significant.

4.4.5 Fort Cady Alternative Site

The Fort Cady site is similar to the proposed site in that it is located in rolling open terrain in the Mojave Desert. It is dominated by desert scrub vegetation consisting of saltbush scrub with approximately 5 acres of dense honey mesquite bosque that occurs in small hummocks intermittently distributed across the southeastern and central areas of the site (AMEC Earth and Environmental, Inc 2005). Currently, fewer than 2,000 acres of honey mesquite bosque habitat exist in the state of California. This unique plant community is considered as rare by the California Department of Fish and Game (CDFG).

A biological resources survey was conducted in January 2005 that included focused surveys for desert tortoise (AMEC Earth and Environmental, Inc 2005). No special-status species were observed on the Fort Cady site, and the site is not located within critical habitat or a DWMA. However, the site contains marginally suitable habitat for desert tortoise, and a low potential exists for desert tortoise to forage and/or to disperse onto and occupy the Fort Cady Road site. Burrowing owl (*Athena cunicularis*) may also utilize the habitat on the Fort Cady site or habitat adjacent to the site.

4.4.5.1 Impacts and Mitigation Measures

Eighty acres of habitat would be removed at the Fort Cady Road site. Marginally suitable habitat for desert tortoise is present onsite, but it does not currently support this species or other special status species. If desert tortoise are present, harm or loss of this species would be considered a significant impact. If no desert tortoise are present, impacts would not be considered significant. Loss of honey

mesquite bosque habitat would be considered significant due to the threatened status of this habitat in California.

The following mitigation measures would reduce impacts to biological resources to less than significant.

B-15 Preconstruction clearance surveys for desert tortoise and burrowing owl would be required 48 hours prior to commencement of proposed grading and periodically during construction. If tortoise is detected adjacent to the site, a tortoise proof construction fence shall be placed at the site boundary to prevent tortoise from entering the site.

B-16 Honey mesquite shall be planted within preserved areas onsite at an appropriate mitigation ratio to the lost habitat. The mitigation ratio shall be established in consultation with the CDFG.

4.5 CULTURAL RESOURCES

This EIR evaluated potential impacts to cultural resources resulting from the implementation of the proposed Project. The term "cultural resources," according to CEQA, includes archeological, paleontological, and historic resources. Archeological resources may be either prehistoric or historic in origin. CEQA requires evaluation of such resources on project sites prior to development. Unique resources, as defined by state law, should be protected either by physical measures, or by locating development away from the site. If human remains are accidentally uncovered, State law requires immediate notification of the County coroner, and cessation of work until the situation is resolved.

URS Corporation conducted a Cultural Resources investigation in May 2006. The confidential technical report is incorporated into this EIR and is available at the County of San Bernardino for official use only. Protecting the location of cultural resources, particularly the location of prehistoric archaeological sites, is needed to preserve these resources from potential destruction by looting, pillaging or dismantling of key features. As such, the "location, character, or ownership of a historic resource" is protected from public disclosure through two key federal laws: the National Historic Preservation Act (NHPA) of 1966 and the Archaeological Resources Protection Act (ARPA) of 1979. Under the NHPA [16 U.S.C. 470w-39(a)], as amended in 2000, the lead federal agency may retain the disclosure of information related to cultural resources if there is a significant invasion of privacy, if the historic resource may be at risk to harm, or if there may be an impediment to the use of traditional religious sites by practitioners. ARPA [16 U.S.C. 470hh] furthers the NHPA by stating that "Information concerning the nature and location of any archaeological resource…may not be made available to the public."

In the State of California, the location of archaeological resources, as well as the location of Native American graves, cemeteries, and sacred places, are protected from disclosure to the public and are exempt from the Public Records Act (PRA). SB 922 (Ducheny), passed in September 2005, provides for the further protection of Native American sacred sites and archaeological information from the California Public Records Act; this bill amended Government Code Section 6254 to include the protection of archaeological resources and Native American sacred sites from the public domain.

The proposed Project and the alternative sites are described below in their prehistoric, ethnographic and paleontological setting.

4.5.1 Environmental Setting

Prehistoric Context

The chronological sequence for the Mojave Desert proposed by Warren (1980, 1984) and Warren and Crabtree (1986), divides the prehistoric era into five temporal periods: Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Shoshonean. The latter includes the ethnographic era, while the four previous periods encompass the middle to early Holocene. Claims have been made for archaeological assemblages dating to periods earlier than Lake Mojave, i.e., pre-15,000 years before present, but as Warren and Crabtree (1986) note, all are controversial and, even if valid, have little or no relationship to later cultural developments in the region.

The northeastern Mojave Desert sequence has been recently expanded by Sutton (1996) to include elements more closely aligned to the prehistoric periods described for the Owens Valley area farther to the northwest. Similar to Warren and Crabtree (1986), Sutton (1996) notes little evidence of a "Pre-Projectile Point" Pleistocene occupation of the Mojave Desert. In contrast to the earlier sequence, pre-Holocene era occupation is identified and termed the Paleoindian period. Other elements of Sutton's (1996) Mojave Desert chronology include the Lake Mojave period, Pinto period, Gypsum period, Rose Spring period, and Late Prehistoric period, as described below.

Ethnography

The Project area falls within the traditional boundaries of California Indians known as the Serrano (Kroeber 1925, Bean and Smith 1978). The Serrano, members of the much larger Shoshonean family, who occupied lands from the Pacific Ocean and throughout the desert southwest, spoke a language that falls within the Takic family of the Uto-Aztecan language. The Serrano comprised five groups or bands: Kitanemuk, Alliklik, Vanyume, Kawaiisu and Serrano. These groups were distributed from the San Bernardino Mountains, part of the Transverse Mountains east of the Cajon Pass across the Mojave Desert east as far as Twentynine Palms and from the Tehachapi Mountains to the northern Colorado Desert; and occupied most of modern day San Bernardino County which is fertile land (Bean and Smith 1978). Relatives of the Serrano included the Gabrieliño and Luiseño to the west and along the Pacific Coast and the Cahuilla inhabiting the Colorado Desert. For much of the Late Prehistoric Period, the Serrano band of the much larger Serrano tribe was the likely inhabitants of the western Mojave Desert, what is today the Cajon Pass and Barstow area. Little is known about early Serrano social organization because the band was not studied until the 1920s (Kroeber 1925) and had already been influenced by missionaries and settlers. Kroeber's work (1925) indicates that the Serrano were a hierarchically ordered society with a chief who oversaw social and political interactions both within the Serrano culture and with other groups. The Serrano had multiple villages ranging from seasonal satellite villages to larger, more permanent villages.

Paleontological Environmental Setting

According to the San Bernardino County Museum, previous geologic mapping of this part of the Mojave Desert (Bowen, 1954; Bortugno and Spittler, 1986) indicates that the proposed site property is located upon surface exposures of alluvial deposits of Pleistocene age (=unit Qo).

4.5.2 Thresholds of Significance

Potentially significant impacts to cultural resources would result if a project: (1) causes a substantial adverse change in the significance of a historical or archeological resource; (2) destroys a unique paleontological resource or site, or unique geologic feature; and (3) disturbs any human remains, including those interred outside of formal cemeteries (CEQA Guidelines, Appendix G).

Additionally, CEQA Guideline 15064.5 states that "historical resources include: (1) California Register of Historic Places; (2) local register of historic resources; and (3) resources identified as significant by the lead agency, provided the information is supported by substantial evidence.

4.5.3 Proposed Project

4.5.3.1 Impacts

Archaeological Resources

The literature review at SBAIC revealed no previously recorded cultural resource surveys or resources present within the Project Area of Potential Effect (APE). The intensive pedestrian survey of the Project APE resulted in the discovery of four prehistoric isolates and one historic isolate. Isolates are typically not considered significant for listing in the CRHR. No other cultural resources were observed within the APE. Therefore, the proposed Project will have no impact on historic properties or historical resources. However, because the Project is located several miles south of an ancient playa (Harper Lake) and several remnant tributaries of this ancient lake are within the Project area, subsurface cultural materials may be encountered during construction.

Paleontological Resources

The literature review revealed no previously-known paleontologic resource localities are recorded by the SBCM from within the boundaries of the study area. However, paleontologic resource locality SBCM 1.123.3 is situated approximately one mile northeast of the proposed Project property. This yielded fossil remains of small mammals of later Pleistocene age. Further, the Pleistocene sediments in the location of the property have the high potential to contain fossil resources, and so are assigned high paleontologic sensitivity. Published reports on the paleontologic resources of this area (Lander and Reynolds, 1985; Jefferson, 1991; Scott, 1997) demonstrate that excavation into Pleistocene sediments in this region has high potential to adversely impact significant fossil resources.

4.5.3.2 Mitigation Measures

Archaeological Resources

Impacts to cultural resources would be reduced to less than significant with the following mitigation measures. Despite efforts of a comprehensive resource identification effort, there remains the possibility that previously unidentified cultural resources may be discovered during project implementation in areas encompassed by the intensive pedestrian survey. Correspondingly, the following mitigation measure is required:

CR-1 Monitoring by a qualified archaeologist shall occur during grubbing, grading or any construction excavation that disturbs native soils. In the event that an unanticipated find is discovered during construction activities, the construction crew will stop work in the immediate vicinity of the discovery. Nursery Products will report the discovery to the San Bernardino County Museum and the Land Use Services Department (LUSD). A qualified archaeologist will be required to assess the integrity and significance of any discovery prior to work proceeding in the area. Should human remains be encountered, work in the vicinity must be terminated and the County Coroner will be notified immediately pursuant to Section 7050.5 of the Health and Safety Code, Section 7050.5 (c). If the coroner recognizes the remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she will contact the Native American Heritage Commission. LUSD may require Nursery Products to take reasonable

measures to avoid or minimize impacts to the resource if the resource is determined to be significant, i.e., eligible for the CRHR.

Adverse effects to significant non-renewable paleontological resources, shall be mitigated by the following mitigation measures to be conducted under the direction of a qualified professional vertebrate paleontologist

CR-2 Monitoring of excavation in areas identified as likely to contain paleontologic resources by a qualified paleontologic monitor is required for all excavation into undisturbed sediments of Pleistocene older alluvium, both at the surface and in the subsurface. Paleontologic monitors must be equipped to salvage fossils as they are unearthed, to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens.

CR-3 Any recovered specimens shall be prepared and stabilized to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates.

CR-4 Any small specimens collected shall be identified and curated into an established, accredited museum repository with permanent retrievable paleontologic storage (e.g., SBCM). These procedures are also essential steps in effective paleontologic mitigation (Scott and others, 2004) and CEQA compliance (Scott and Springer, 2003). The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontologic resources is not complete until such curation into an established museum repository has been fully completed and documented.

CR-5 If any paleontological resources are found during excavation, a report of findings with an appended itemized inventory of specimens, shall be prepared and submitted to the County Museum and LUSD.

4.5.4 No Project Alternative

4.5.4.1 Impacts and Mitigation Measures

The No Project Alternative will not result in an impact to cultural resources within the Project area of undertaking. Therefore, no mitigation measures are required.

4.5.5 Reduced Capacity Alternative

4.5.5.1 Impacts and Mitigation Measures

The Reduced Capacity alternative would result in grading activities similar to the proposed Project. Impact and mitigation measures for this alternative would be the same as the proposed Project.

4.5.6 Fort Cady Alternative Site

4.5.6.1 Archaeological Resources

The Project area is situated at the southeastern corner of an ancient Pleistocene lake, now known as Troy Dry Lake. At the beginning of the Holocene, approximately 15,000 years ago, the climate in the region of the Mojave changed with retreating glaciation, causing pluvial lakes to develop. As humans entered into the Mojave with the retreat of glaciers, the shores of these pluvial lakes were found to be suitable for the location of habitation sites as they provided access to a sustainable source of food and water. Troy Lake was one such pluvial lake and its shores were inhabited for many thousands of years, or until the climate changed around 5000 years ago, resulting in the drying of the pluvial lakes throughout the Mojave.

Ruth Simpson (Simpson 1965) completed the most extensive survey for archaeological sites around the ancient shoreline of Troy Lake in 1965. Although the exact extent of the survey is not known, Simpson did record 20 sites around the perimeter of the lake and identified a large collection of projectile points, which indicated that the lake was occupied throughout much of the early to middle Holocene. Less than 10 miles west of the Project area and on the southwest corner of the Troy Lake Basin, Gerald Smith (Smith 1963, Smith et al. 1957) excavated a cave site in Newberry. The cave contained a large quantity of perishable and non-perishable artifacts as well as pictographs painted onto the cave walls (Moratto 1984). Radiocarbon dating of some of the perishable items, including cane dart shaft fragments, yielded cave occupation dates of approximately 4000 years to 3000 years before present (Davis and Smith 1981). These two anecdotes suggest that Troy Dry Lake was once a significant area for humans during the early to middle Holocene.

In 2005, AMEC Earth and Environmental, Inc. (Switalksi and Gardner 2005) completed the cultural resources survey component for this site, as well as a review of archaeological site records at the San Bernardino County Archaeological Information Center in order to determine the presence of cultural resources (archaeology sites or historic architectural resources). In their survey, AMEC identified a prehistoric lithic scatter (CA-SBR-11998) and two jasper biface isolates (P-36-020417 and P-36-020418), which based on their proximity are all likely related. Site CA-SBR-11998 yielded "20 tertiary flakes of jasper, chert and chalcedony scattered in an area measuring 55 meters (east-west) by 30 meters (north-south)" suggesting the site is the remains of a lithic reduction (tool re-sharpening) workshop or camping site along the ancient shoreline of Troy Lake. The two isolates, P-36-020417 and P-36-020418, were 145 meters west and 85 meters southeast of CA-SBR-11998, respectively (Switalksi and Gardner 2005). AMEC identified one additional site, P-1804-11, during their record search that was possibly within the Project area. Although the record form for the site did not provide much useful information, it was likely another one of the sites recorded by Simpson in 1965 and is now in the location of a "ski lake facility." AMEC did not identify any artifacts associated with this particular site in the location where this site was plotted on the 7.5' series USGS topographic map. However, given the inaccuracies inherent in site plots made prior to the introduction of Global Positioning System (GPS), it is possible the site is located in a slightly different location. Alternatively, the Project site is located in aeolian, and possibly alluvial sediments, and artifacts that were exposed in 1965 may be buried beneath a lense of silt or sand. Correspondingly, the site may retain integrity below surface; many archaeological sites found around ancient Pleistocene lakes have been excavated to more than several meters below surface, with the Lake Manix site and Calico Hills site, located 30 miles west of Troy Lake, the closest example.

Historic Architectural Resources

AMEC did not find historic architectural resources within the site or within the area of potential effect that would be significantly affected by the Project undertaking.

Native American Consultation

AMEC also consulted with the Native American Heritage Commission (NAHC) regarding the presence of sacred sites or Native American Traditional Cultural Properties (TCPs) within the Project area. The NAHC replied to AMEC's request indicating that they have no indication of such resources within the Project area.

Paleontological Resources

According to the San Bernardino County Museum, geologic mapping (Bortugno and Spittler, 1986) in the location of the Project area indicates that the proposed study area is located on surficial Holocene (i.e., geological recent) alluvium. These sediments have the low potential to contain fossil resources, and so are assigned low paleontologic sensitivity. However, these sediments may overlie lacustrine (i.e., lake) sediments of ancient Lake Manix dating to the middle to later Pleistocene. If present, Lake Manix lacustrine deposits have high potential to contain significant non-renewable paleontologic resources, and so are assigned high paleontologic sensitivity.

4.5.6.2 Impacts and Mitigation Measures

AMEC Environmental identified an archaeological site (CA-SBR-11998) and two isolated artifacts. They recommended that site CA-SBR-11998 "may be potentially eligible for nomination to the National Register of Historic Places (NRHP)" but also stated that "there is insufficient data at this time to make that determination" (Switalksi and Gardner 2005). The two lithic isolates were not addressed in their report. Site CA-SBR-11998 would need to be evaluated against the California Register of Historical Places (CRHR) criteria, which essentially mirrors those of the NRHP. Typically, archaeological site significance falls under CRHR Criterion D, or sites that may have "yielded, or may be likely to yield, information important in prehistory or history." Based on its context, archaeological site CA-SBR-11998 appears eligible for the California Register and the two isolated artifacts may suggest that the site is much larger than described by AMEC Environmental. To fully appreciate the significance of the site, i.e., if the site is actually eligible for the CRHR, and to determine to what extent there may be significant adverse effects to the site by the Project, CA-SBR-11998 will need to be evaluated through an archaeological excavation testing program.

If the site is eligible for the CRHR and adverse impacts can not be avoided (the recommended mitigation measure by the cultural resources community and CEQA §15126.4(b)(3)(A) for significant archaeological sites is avoidance) then a data recovery plan is required per CEQA §15126.4(b)(3)(C).

CR-6 If site CA-SBR-11998 cannot be avoided, an archaeological, excavation testing program shall be developed and implemented by a qualified archeologist.

Mitigation measure CR-1 is also required for this alternative.

During the later Pleistocene (ca. 350,000 to 18,000 years ago), freshwater Lake Manix encompassed 85 square miles and was roughly 200 feet deep at its maximum. The sediments laid down in this lake, presently termed the Lake Manix formation (Jefferson, 1968, 1987), have yielded fossils of middle to later Pleistocene age; extinct animals represented by these fossils include mammoths, camels, llamas, large and small horses, ground sloths, scimitar-toothed cats, dire wolves, coyotes, short-faced bears, pronghorns, sheep and bison (Jefferson, 1987; Scott, 1997; Scott and Cox, 2002). Small mammals including jackrabbits and mice have also been recovered from Pleistocene Lake Manix. Rare fossils of birds including pelicans, storks, flamingos, swans, geese, ducks, gulls, and eagles are significant additions to the Lake Manix fossil assemblage; such remains are very delicate and only rarely preserved as fossils. Most of these birds fed upon small fish, although some preferred water plants or freshwater clams. Fossils of various freshwater claims and snails, as well as remains of western pond turtle and Mojave Chui Chub, confirm that Lake Manix provided abundant resources for the birds living along its shores (Jefferson, 1987).

It is not certain whether or not Lake Manix Formation sediments exist within the Project area boundaries. If present, however, they would exist subsurface and the Project would have a high potential to adversely impact significant non-renewable paleontologic resources. The following mitigation measures are required:

CR-7 A qualified vertebrate paleontologist shall conduct a field assessment of the study area as well as conducting a more thorough literature review analysis of previously conducted studies in this location. If Lake Manix Formation sediments are found to be present within the Project area, then the following mitigation measure shall be conducted under the direction of a qualified professional vertebrate paleontologist:

- Monitor excavation in any surface and subsurface sediments of the Lake Manix Formation. Paleontologic monitors must be equipped to salvage fossils as they are unearthed, to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Mitigation measures CR-3, CR-4 and CR-5 shall also be implemented.

Impact to cultural resources from the Fort Cady Site Alternative would be reduced to less than significant with the implementation of the mitigation measures listed above.

4.6 HAZARDS AND HAZARDOUS MATERIALS

4.6.1 Environmental Setting

The information and analysis presented in this section are based upon site reconnaissance, location of the site, and the research of agency records and other databases. The Project site does not appear to contain surface or subsurface contamination from hazardous materials. The entire site is relatively undeveloped desert area. The Project site is not listed as an Identified Hazardous Waste or Storage Site, although desert terrain is sometimes used for limited illegal hazmat dumping. In accordance with Government Code Section 65962.5, a computerized search of state and federal agency databases was performed. This search performed a HazMat information query of all site within a nine-mile radius of the center of the Project. The report concluded that there were no identified hazardous waste release sites within the Project boundary.

At the present time, the County maintains a HazMat Response Team, which provides support for local jurisdictions in handling HazMat situations. In addition, the State requires each City to prepare a City Hazardous Waste Management Plan (CHWMP), and the Project is located within the Barstow Sphere of Influence. Composting process does not create hazardous waste; and the Project will not accept hazardous wastes at the site.

Wildland Fires

The proposed Project site is located in a predominately undeveloped area of San Bernardino County. Within the site, an assortment of dry, desert vegetation is present, but it is generally low-lying and sparsely dispersed. The Project site is not listed in County Hazard maps as an area with significant wildfire potential, and the City of Barstow, which is to the northeast, describes their potential for wildland fires as “Low” (Barstow 1997).

Community-wide fire protection ratings are provided by the Insurance Service Organization (ISO) based on the location of fire station, response time, and availability of water. ISO rankings are on a scale of I to X (1-10) with I (or one) being the best protection and X (or ten) being the worst or no protection. The current ISO rating for the Project area is II (i.e., two).

Emergency Evacuation/Disaster Response

The Project site covers approximately 160 acres and is located the state route 58. The City of Barstow describes Interstate 15 as an evacuation route (Barstow 1997). The Project implementation would not alter emergency response or emergency evacuation routes. Roadways would not be blocked during construction and operation. As part of a condition of Project approval, County of San Bernardino Fire Department would review Project construction plans to ensure emergency response plans. Therefore, the Project would not conflict with an emergency response or evacuation plan.

4.6.2 Thresholds of Significance

The following criteria for establishing the significance of potential impacts from hazards and hazardous materials were derived from the State CEQA Guidelines (Appendix G). A significant impact would occur if the proposed Project:

- Creates a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Creates a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emits hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the Project Area;
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the Project Area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; and
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.6.3 Proposed Project

4.6.3.1 Impacts

***Hazardous Materials Storage and Transfer*:** The Project will require the use of petroleum based products such as oils, diesel fuel, and lubricants for equipment. These products are classified as potentially hazardous. These materials would be stored in 55-gallon drums, 35-gallon storage drums, and a proposed above-ground 2,000-gallon fuel storage tank with required containment structures. All used oils would be recycled or disposed of at a proper receiving facility. Deliveries of hazardous materials would be by approved shippers under proper manifests. Hazardous materials or fuel could spill during transfer or fueling activities, as a result of an accident or as a result of a leaking container. The mitigation measures below would reduce impacts to less than significant.

Combustion of the windrows or other onsite biosolids: The composting operation will require the biosolids and green material to reach certain high temperatures adequate for composting and there is the possibility that fire could result in the materials being composted. Based on similar composting facilities, the propensity for the windrows to spontaneously ignite is minimal. However, in the event of spontaneous combustion of biosolids on the proposed site, the mitigation measures below will limit the hazard to the subject property and reduce impacts to less than significant.

Exposure to a common fungus known as Aspergillus fumigatus, entotoxins, or other allergens and pathogens: The proposed Project will introduce composting operations that will utilize a variety of organic materials such as green material, and biosolids. Biosolids are residual solid material from

wastewater treatment plants and may contain human pathogens (i.e. viruses, bacteria, and parasites). Composting utilizes fungi and bacteria that are a normal and integral part of the composting process to bring about the everyday decay of leaves, wood, and other organic matter. An impoundment basin is proposed for collection of all storm water runoff from the site. The runoff may contain leachate from the composting process that can contain active pathogens and other contaminates.

Composting processes that include biosolids must follow rigid guidelines set forth in Title 40 Code of Federal Regulations (CFR), Part 503, and must be monitored regularly by the LEA. The regulations outline criteria to manage the time and temperature of composting material to implement the Process for the Further Reduction of Pathogens (PFRP) to reduce pathogen concentrations to safe levels.

Aspergillus is a fungus that occurs naturally in plant materials and normally obtains its nutrients from decaying organic matter. Although the body's immune system protects people from potential infections caused by this fungus, inhalation of aspergillus spores can cause skin rashes and burning eyes. While healthy individuals may not be affected, certain high-risk individuals, in particular those who are immunocompromised, may be at greater risk. Moreover, spore counts at composting facilities are high and the risk of operators and persons handling composted biosolids being exposed to these spores is also high (Epstein, 1998).

During one of the stages of the fungus' life cycle, spores are produced that may be dispersed into the ambient environment and are easily spread through air currents. Aspergillus is a hearty fungus that is frequently found in airborne spore surveys. In addition to compost, Aspergillus is found in soils, moldy grains, straw, bark woodchips, house dust and sewage sludge. Spores are often found in bird, cattle, horse and sheep manures. There is a demonstrated lack of health risk to healthy people, whether they are working at a composting facility or living nearby, attributable to the aspergillus fungus.

Aspergillus is the most pathogenic fungus species to humans, yet there has not been a dose-to-response curve, threshold concentration, or duration to sensitization data developed. Only two cases of illness have been identified in the world with links to aspergillus: an asthmatic individual contracted acute bronchopulmonary in the United States and a compost worker developed hypersensitivity pneumonitis in Belgium.

The EPA developed the biosolids regulations (40 CFR Part 503) after extensive research on biosolids management. These regulations were based in part on a review of epidemiologic data that indicated that with proper controls (specified in Part 503), biosolids could be managed, and even applied to land on farms, without a significant risk from pathogens to the public or the environment. Composting was identified as one of the techniques to safely and properly reduce the pathogens in biosolids. The proposed Project is required to operate in accordance with the guidelines specified in Part 503. The site will not be open to the general public thus significantly reducing potential exposure to pathogens. Though the proposed Project would likely have less than significant impacts related to disease and pathogens, the mitigation measures below are proposed to further reduce the potential impacts from exposure to fungi and other pathogens.

Exposure to disease and nuisance from vectors and vermin: Compost can potentially harbor vectors, such as flies, mosquitoes and fleas that can transit pathogens to human hosts. Unlike composting facilities that primarily process food waste, rodents and birds are not attracted to or associated with biosolids and green materials composting operations. These compostable materials are not "food" sources for these pests. Vector control will normally be carried out as a part of the PFRP compost rotation process, and during the screening and grinding process. These activities subject compost and windrow piles to

disturbances that will deter species from nesting and breeding within compost material while reducing odors that attract vector species to compost areas.

A biosolids and green material composting operation has the potential to create a significant vector impact if adequate measures are not taken to control fly breeding at the site. The easiest way to minimize fly breeding at a composting facility is to operate the windrows so that they reach a temperature of at least 130ºF as quickly as possible. Additional measures are available and have been used successfully to control fly breeding on site. The mitigation measures listed below will be necessary to reduce the impacts related to fly breeding to less than significant.

Other potential hazards: The proposed Project would not handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The Project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The Project is not located within an airport land use plan, within two miles of a public airport or public use airport, or within the vicinity of a private airstrip. There would be no impacts associated with these items.

4.6.3.2 Mitigation Measures

HM-1 The Project design includes guidelines for fuel transfer operations to minimize impacts associated with fueling areas and fuel transfer sites. An Emergency Contingency Plan will be prepared and adopted for the composting facility. The Plan will provide information such as emergency contact persons and numbers, the types of hazardous materials stored on-site, the correct emergency responders to contact for specific emergencies, and evacuation procedures and routes to use during an emergency event.

HM-2 A Spill Prevention, Control, and Countermeasure Plan (SPCC) will be prepared and certified prior to the commencement of on-site operations. Measures contained within the SPCC Plan would include: containment, clean-up, and reporting of spilled liquids containing petroleum products or hazardous materials, the use of absorbent pads near the sources of leaks, sand and gravel dikes to contain spills, inspections of containers, dispensers and fueling areas, employee awareness and training, and secondary containment areas. The SPCC Program also refers employees to Material Safety Data Sheets (MSDS) that explain the proper response for clean up of spills and emphasizes the use of personal protection equipment.

HM-3 The operator shall provide fire prevention, protection and control measures, including, but not limited to, temperature monitoring of windrows and piles, adequate water supply for fire suppression, and the isolation of potential ignition sources from combustible materials. A strip of sufficient width of cleared land must be maintained along the perimeter of site operations to act as a fire barrier or break. The applicant will consult with the local fire agency to determine the size of the fire break, and obtain approval prior to construction. Fires within the operational area of the facility will be limited to the area within the boundaries of the property with this mitigation measure and the impacts would be less than significant.

HM-4 Following each storm event or surface water discharge, no standing water shall be retained in the impoundment basin for more than 30 days. Water from the basin may be used for process water or for dust control on windrows.

HM-5 Compost leachate shall be captured and may be reused to maintain compost moisture levels.

HM-6 Perform misting or spraying of compost piles when mixing to control airborne spore movement.

HM-7 Wash down vehicles and equipment at regular intervals to reduce dust and spore levels.

HM-8 Employees engaged in moving or turning compost piles should be equipped with protective clothing, gloves, and face mask. Training programs shall be instituted to instruct employees on the necessary of wearing protective gear.

HM-9 Muscadine, or other suitable bait materials shall be distributed along the external Project boundaries of the composting pad if the LEA determines that periodic fly problems become an area nuisance.

HM-10 Biosolids shall be mixed with suitable bulking agents within 4 hours after arrival.

HM-11 Employees shall be trained in procedures to prevent, detect, and remedied fly breeding areas.

Implementation of these mitigation measures along with Project design features and standard conditions will reduce impacts related to the hazards and hazardous materials to less than significant levels.

4.6.4 No Project Alternative

4.6.4.1 Impacts and Mitigation Measures

No Project alternative results in no composting facility operation at the Project site. There will be no impacts related to potential hazardous materials transfer, inhalations risks or flies/vectors. No mitigation measure is required.

4.6.5 Reduced Capacity Alternative

4.6.5.1 Impacts and Mitigation Measures

Reduced Capacity Alternative will have similar impacts identified in the proposed Project. Implementation of the same mitigation measures (HM-1 to HM-13) would reduce the impacts to less than significant.

4.6.6 Fort Cady Alternative Site

4.6.6.1 Impacts and Mitigation Measures

Fort Cady Site Alternative will have same hazards and hazards materials impact identified for the Project. Implementation of the mitigation measures HM-1 to HM-13 would reduce the impacts to less than significant.

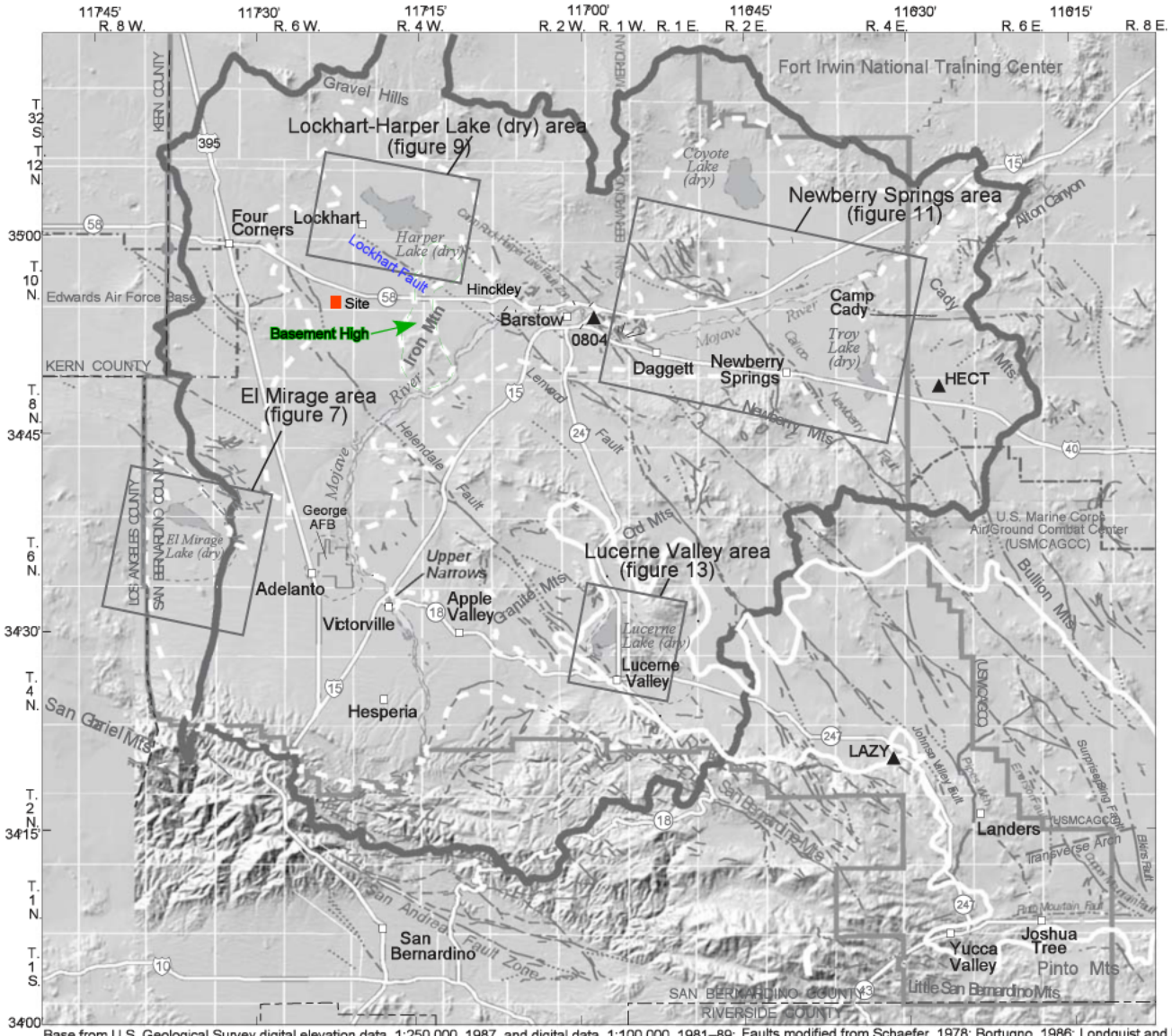
4.7 HYDROLOGY AND WATER QUALITY

4.7.1 Environmental Setting

The Project area is located in the Mojave Desert in gently rolling open terrain. The Mojave Desert is the driest desert in the continental United States with precipitation ranging from 2.23 to 2.5 inches per year, with much of the rain falling October to March and temperatures ranging from 40 to 110 °F. Perennial and intermittent streams and rivers are rare, and most surface water flow occurs in washes and flood-flow channels during major winter rain events that occur rarely. There are no significant streams in the area. The major surface drainage east of the Site flows towards the Mojave River, which located 8.5 miles to the southeast. Intermittent surface water flows northeast for approximately 7.5 miles towards Harper Dry Lake, interrupted by Highway 58. Other than Harper Dry Lake, no springs or natural surface water resources exist year-round within 25 miles of the Project site.

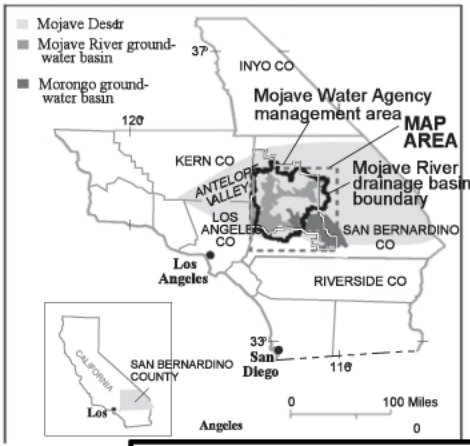
The Project site lies outside the 100-year flood hazard zone as defined by the Federal Emergency Management Agency (FEMA). Floods in the region generally coincide with winter storms, which occur between October and March. Infrequent thunderstorms during the summer and fall also produce flash floods.

The Project site is located within the regional Mojave River groundwater basin (Figure 4.7-1). The Mojave Basin is underlain by strata that represent an ancient, alluvium-filled lakebed. Natural recharge of the groundwater basin occurs via infiltration of surface water. The major source of recharge to the groundwater system in the basin is the Mojave River. Groundwater flow in the regional aquifers is towards the north to northeast. The region relies almost entirely on groundwater for its water supply, which has resulted in increased depths to groundwater due to groundwater extraction (overdraft conditions).



Base from U.S. Geological Survey digital elevation data, 1:250,000, 1987, and digital data, 1:100,000, 1981–89; Faults modified from Schaefer, 1978; Bortugno, 1986; Londquist and Martin, 1991; and J.C. Matti and G.I. Dixon,U.S. Geological Survey, written commun., 1994
Universal Transverse Mercator Projection, Zone 11. Shaded relief base from 1:250,000-scale Digital Elevation Model; simulated sun illumination from northwest at 30 degrees above horizon

0 10 Kilometers
0 10 Miles



EXPLANATION

Perched water—Approximate area

Fault—Dashed where approximately located, dotted where concealed

Boundaries—

Mojave River drainage

Mojave River ground-water basin (approximate)

Morongo ground-water basin (approximate)

Mojave Water Agency management area

MOJAVE RIVER GROUNDWATER BASIN
NURSERY PRODUCTS HAWES COMPOSTING PROJECT

URS	CHECKED BY: MS	DATE: 06-29-06	FIG. NO: 4.7-1
	PM: DM	PROJ. NO: 27655137.00600	

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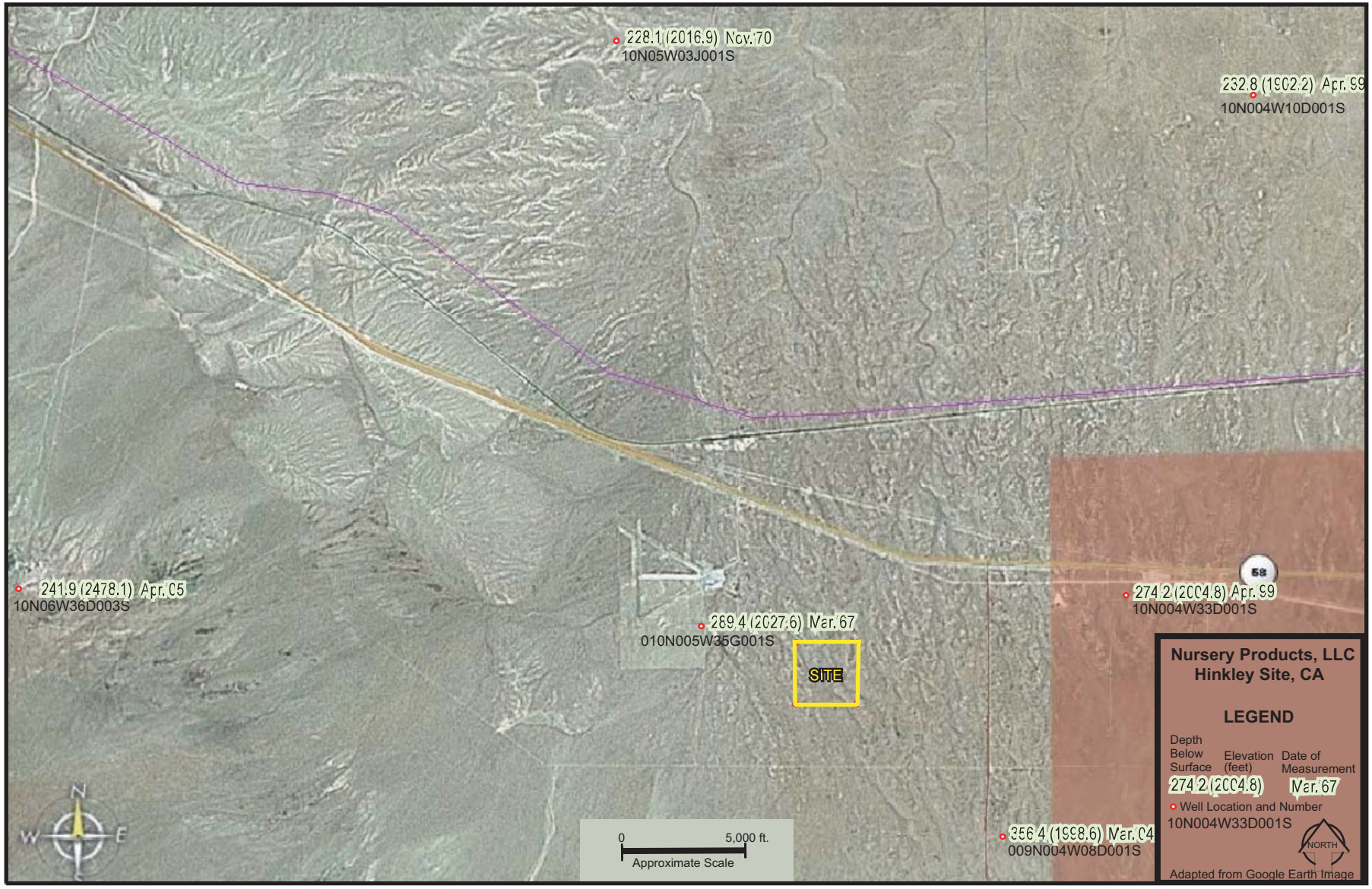
The site vicinity is underlain by three interconnected aquifers, the Centro floodplain aquifer, the Centro regional aquifer and Harper Lake regional aquifer. A series of local fault zones affect groundwater flow. The structural groundwater basins within the Mojave Region are divided by faulted bedrock and basement highs. Basement highs are impermeable bedrock areas that prevent groundwater flow. The faults and basement highs influence groundwater flow between the basins. The proposed Project is located within the Harper Valley Basin. The groundwater is restricted from flowing east by basement highs of igneous and metamorphic ridges in the area of Iron Mountain located approximately 6 miles east of the proposed Project (Figure 4.7-1). The combination of this basement highs and Lockhart Fault form an impenetrable barrier to ground water flow between the Harper Valley Basin beneath the property near Hawes Airport, and the groundwater within the Lower Mojave River Valley Basin, which underlies the Hinkley area.

According to the Lahontan Regional Water Quality Control Board Basin Plan, groundwater in the Site vicinity has designated beneficial uses for irrigation, domestic and most industrial uses. The average total dissolved solids (TDS) for this area is 830 ppm. The average nitrate and arsenic levels in the groundwater are 4.0 and 0.02 respectively The USGS National Water Information Service (NWIS) groundwater database, indicates that there are a limited number of water wells in the vicinity and there is little recent groundwater level and quality information for this area. Six water wells are reported to be located within a 6-mile radius of the Site. These wells are shown on Figure 4.7.2. The static water level in USGS Well 10N05W03J001S, located approximately 5 miles north of the Site was 228 feet below ground surface (bgs) in 1970. The depth to groundwater in USGS Well 10N005W35G001S, located on the southern boundary of the abandoned airfield, located less than 1 mile west of the Site, was 289.4 feet bgs in 1967. Since water levels have dropped steadily since the 1970s, the depth of the groundwater surface beneath the Site is probably 300 feet bgs or greater. For example, the depth to groundwater in USGS Well 009N004W08D001S, located approximately 2 miles southeast of the Site was 356.4 feet bgs in 2004 (Mojave Water Agency, 2004). No other data were available in the USGS data regarding the depth to water in the wells shown on Figure 4.7.2.



X:\ 27655137\FIGURE 4.7-2.ai

URS

LOCATION MAP OF WELLS
CENTRO SUBAREA AND HARPER LAKE
NURSERY PRODUCTS COMPOSTING SITE

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4.7.2 Thresholds of Significance

The CEQA Guidelines establish that a significant impact would be expected to occur if the project;

- Violates any water quality standards or Waste Discharge Requirements (WDRs).
- Substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- Substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site.
- Substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site.
- Creates or contributes runoff water that would exceed the capacity of existing or planned storm water drainage systems.
- Otherwise substantially degrades water quality.
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
- Exposes people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of failure of a levee or a dam.
- Results in inundation by seiche, tsunami, or mudflow.

4.7.3 Proposed Project

4.7.3.1 Impacts

Violates any water quality standards or Waste Discharge Requirements (WDRs). The proposed Project would include the use of retention basins to control surface water flow on the site (see Figure 2-3). These basins could promote infiltration; however, based on the arid climate, infrequent and limited annual precipitation there is a very low likelihood that site activities will affect groundwater. During precipitation events, the compost and surface soil in the surrounding pads will retain water. Under normal conditions, evaporation will occur such that there will be limited times when water is actually present in the retention basin. Furthermore, in order for the water contained in the retention basin to migrate to the level of groundwater, it must form a wetting front and then fill the air-filled pore space. The volume of water in the retention basin at any one time is not likely to be enough to migrate to the depth at which groundwater occurs, which is greater than 300 feet bgs beneath the site.

Quantitatively estimating the rate and quantity of water migrating through the unsaturated zone is difficult, particularly when soils consist of heterogeneous mixtures of sands, silts, and clays over 300 feet thick. Travel time through the unsaturated zone is dependent on the moisture content of the soil. As soil moisture decreases, the rate of migration decreases. Travel time to reach an aquifer 300 feet bgs can take decades depending on moisture of the unsaturated zone. The volume and quality of the water that may

reach groundwater will also depend on the volume of water that typically accumulates in the collection pond and evaporation rates that vary as a function of humidity and temperature.

To evaluate the potential for operations at the composting facility to adversely affect water quality, existing chemical analytical data was reviewed for compost from the Adelanto, California facility for February, March, April and June 2005. The analytical data for seven compost samples was compared to Total Threshold Limit Concentration (TTLC) hazardous waste regulatory limits, Land Application Ceiling Concentrations for sewage sludge (40CFR Part 503.13, Table), and U.S. EPA preliminary remediation goals (PRGs). As shown on Table 4.7.1, none of the constituents were present at concentrations above TTLC hazardous waste regulatory limits. The constituent concentrations in the compost were also significantly less than the land applications ceiling concentrations.

Table 4.7.1
Compost Chemistry Comparison to Regulatory Guidelines

Constituent	Compost (range in mg/kg)[a]	Compost (average mg/kg)	Hazardous Waste Criteria	PRG-Migration to Groundwater (mg/kg)[b]		Land Application Ceiling Concentration
			TTLC (mg/kg)	DAF 20	DAF 1	
METALS						
Antimony	NA	NA	500	5	0.3	---
Arsenic	5 - 11	7.3	500	29	1.0	75
Barium	NA	NA	10000	1600	82	---
Beryllium	NA	NA	75	63	3.0	---
Cadmium	2 - 4	2.9	100	8	0.4	85
Chromium	18 - 48	30.3	2500	38	2.0	---
Cobalt	7	7	8000	---	---	---
Copper	88 - 673	345	2500	---	---	4300
Lead	29 - 72	44.1	1000	---	---	840
Mercury	<1 - 1	0.8	20	---	---	57
Molybdenum	3 - 14	8.3	3500	---	---	75
Nickel	12 - 24	16.7	2000	130	7.0	420
Selenium	<1 - 2	1.1	100	5.0	0.3	100
Silver	NA	NA	500	34	2.0	---
Thallium	NA	NA	700	---	---	---
Vanadium	NA	NA	2400	6000	300	---
Zinc	318 - 713	495	5000	1200	620	7500

[a] mg/kg = milligrams per kilograms [b] PRG = preliminary remediation goals

U.S. EPA Region IX has developed PRGs as screening criteria for human health risk. These criteria have been developed for many chemicals of concern for soil, drinking water and air (USEPA, 2004). The criteria for drinking water are developed for situations where there is no dilution attenuation factor

(DAF=1) and instances where the DAF is 20 times from source to aquifer. Because groundwater at the Site is greater than 300 feet, the DAF 20 values for specific metals and detected chemicals were used as screening criteria as greater attenuation of chemical concentrations would be expected than if groundwater were shallower. The PRGs for constituents detected in typical compost are shown in Table 4.7.1. A review of metals analytical data for compost revealed that none of the average metals concentrations are above the respective DAF 20 for drinking water. The analysis for two of the seven samples reviewed exceeded the DAF 20 for chromium.

Based on this evaluation, there is a very low probability that runoff water will infiltrate the vadose zone and migrate to the level of groundwater and violate water quality standards. However the RWQCB establishes WDRs for such facilities that are often more stringent than water quality standards. The mitigation measures described below would result in compliance with stringent WDRs, and would reduce impacts related to violating water quality standards or WDRs to less than significant.

Substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level. The proposed Project will use either groundwater from a well or imported water, or a combination of both. The facility would use approximately 1,000 gallons per day. Most of the water would be used for dust control. If a well is installed and groundwater is used, this quantity would be considered a very small groundwater withdrawal and a substantial depletion of groundwater would not occur. The extraction of this volume of groundwater would not interfere with groundwater recharge and a lowering of the local groundwater table is not expected.

Substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site. As shown in Figure 2-3, the proposed Project will be constructed in a manner that will divert storm water flow around the site. This perimeter drainage system design would result in the diverted rain water leaving the site with approximately the same volume and velocity that currently exists. The perimeter drainage system discharge location is also in the same area where storm water is currently discharged from the site. Consequently, there will be no significant change in the existing drainage pattern. Since there are no streams or rivers at the site, the site will have no impact on erosion or siltation off site.

Construction of the storage facilities and treatment areas, and conversion of the natural vegetation would include vegetation removal, grading, and minimal excavation that would expose soils to erosion and may result in the transportation of sediment into local drainages. These construction-related impacts would be reduced to less than significant by the implementation BMPs that will be part of the required storm water pollution prevention plan (SWPPP).

Creates or contributes runoff water that would exceed the capacity of existing or planned storm water drainage systems; or Substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river; or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. The proposed Project site is relatively flat with no major intermittent drainage channels. No existing or planned storm water drainage systems are present in the area of the site. Additionally, the facility design includes retention basins designed to contain the entire runoff from a 24-hour, 100-year storm event.

Otherwise substantially degrades surface and/or groundwater water quality. There is the potential that the proposed Project could adversely affect surface water quality off-site. As previously indicated, construction activity would expose soils to erosion and could result in the transportation of sediment into

local drainages. Additionally, if fuel is accidentally spilled during re-fueling of heavy equipment during construction or operation of the facility water quality could be degraded. These impacts would be mitigated by implementing the BMPs that will be included in the SWPPP and the Spill Prevention and Countermeasures Control Plan (SPCCP) that will be required for the proposed 2000-gallon above ground fuel tank.

Federal regulations specify classifications, limits, and treatments to reduce pathogens in biosolids (40 CFR 503.32(a) and (b)) before they can be used in any land application. Composting is one of several methods identified in the regulations that may be used to reduce pathogen concentrations. Although some reductions from prior treatment may occur, fecal coliform, salmonella virus and other pathogens may remain in the biosolids feedstock delivered to the Project site. Runoff that comes in contact with windrows (especially newly-formed windrow) may contain pathogens. If this runoff enters surface water, it could substantially degrade water quality. Though this impact would be considered significant, the retention basins designed for the facility would prevent runoff from entering surface waters, reducing this impact to less than significant. Isolation of runoff from surface waters during the composting process is an important component of the water quality protection system. For this reason, the retention basin is included in the mitigation measures proposed below.

Place within a 100-year flood hazard area structures that would impede or redirect flood flows. The proposed Project lies outside the 100-year flood hazard zone as defined by the Federal Emergency Management Agency (FEMA) and no structures would be placed within a 100-year flood hazard area.

Exposes people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of failure of a levee or a dam. The proposed Project site is not susceptible to flooding at a magnitude that would be expected to result in loss, injury or death.

Results in inundation by seiche (a movement on the surface of an enclosed body of water such as a lake, usually caused by intense storm activity), tsunami (a large destructive ocean wave), or mudflow. The proposed Project site is not susceptible to seiche, tsunami or mudflows. There are no oceans or large bodies of water in the area of the site. Mudflows are not expected due to the flat terrain in the Project area.

4.7.3.2 Mitigation Measures

The following mitigation measures would reduce potential impacts to hydrology and water quality to less than significant.

W-1 The retention basin(s), designed and sized to contain the entire runoff from the windrow and compost storage area during a 24-hour, 100-year storm event is(are) essential to protect surface water and the public from runoff that could be contaminated with pathogens. The retention basin(s) must be included in any modification or redesign of the facility.

W-2 Prior to beginning operations at the site, in order to establish baseline soil conditions, at least ten samples shall be collected in the portion of the Phase 1 area that would be most frequently used for windrows. Two additional samples shall be collected from the lowest area of the retention basin after construction of the retention basin is complete. Samples shall be collected at each location using a drive sampler to a depth of approximately 1.5 feet. Samples collected at 0.5 and 1 foot shall be analyzed for nitrate, phosphate, chloride, arsenic, copper, lead, mercury,

molybdenum, nickel, selenium and zinc. The same sampling program shall be conducted in Phase 2 prior to commencing operations in the Phase 2 area. Results shall be submitted to the Lahontan RWQCB, the LEA, and LUSD for review and approval.

W-3 Soil beneath the retention basin and the composting pad shall be sampled annually to confirm that the migration of constituents into subsurface soil is limited. Soil sampling shall be conducted at six different locations on the most frequently used portion of the composting pad. Two soil samples shall be collected at least 100 feet apart at the lowest area of each retention basin. Samples will be collected at each location using a drive sampler to a depth of approximately 1.5 feet. Samples collected at 0.5 and 1 foot will be analyzed. The results will be compared to the levels listed in 40 CFR 503.13, Table 1 that specifies the ceiling metals concentrations at which the application of biosolids to land is not allowed. These ceiling concentrations currently are 85 mg/kg arsenic, 4,300 mg/kg copper, 840 mg/kg lead, 57 mg/kg mercury, 75 mg/kg molybdenum, 420 mg/kg nickel, 100 mg/kg selenium and 7,500 mg/kg zinc. These ceiling concentrations will be used as an indicator that further action is necessary. There are no ceiling concentrations for nitrate and phosphorous, therefore the analytical results for the site will be compared to those from the background location. Results shall be submitted to the Lahontan RWQCB, the LEA, and LUSD for review and approval.

If the sample results indicate that the limits in 40 CFR 503.13 have been exceeded or if the levels show a significant increase compared to the background conditions, the operator shall meet with the RWQCB and LEA to discuss an appropriate action plan. The additional action could include but are not limited to: removal of soil and replacement of compacted clean soil on the pad and/or retention basin, or lining the pads or basin with an appropriate liner.

If there are no significant exceedances of the constituent concentrations after five years of monitoring, the operator may request approval for either a reduction in the sampling frequency or to eliminate the monitoring program altogether. Upon closure of the facility, sampling will be conducted and affected soil will be handled in accordance with applicable cleanup criteria.

W-4 Prior to clearing and grading of the Project site, the applicant shall prepare a SWPPP to obtain coverage under the State-wide general construction storm water National Pollutant Discharge Elimination System (NPDES) permit. The BMPs outlined in the SWPPP shall be implemented.

W-5 Prior to operation of the facility, the operator shall obtain coverage under the State-wide general storm water NPDES permit for industrial facilities or obtain an individual facility storm water NPDES permit.

W-6 If a groundwater well is installed to provided water for the site, a sample shall be collected quarterly for the first year and analyzed for the constituents listed in mitigation measure W-2 (at a minimum) to establish baseline groundwater conditions at the site. Results shall be submitted to the Lahontan RWQCB, the LEA, and LUSD for review and approval.

4.7.4 No Project Alternative

4.7.4.1 Impacts and Mitigation Measures

The No Project Alternative would result in no change in existing hydrology and water resources of the Project site. Therefore, no impacts would occur, no mitigation measures are required.

4.7.5 Reduced Capacity Alternative

4.7.5.1 Impacts and Mitigation Measures

Potential impacts from the Reduced Throughput Alternative would be the same as the proposed Project. The implementation of mitigation measures W-1 to W-6 would reduce potential impacts to hydrology and water quality to less than significant.

4.7.6 Fort Cady Alternative Site

Environmental Setting

The Fort Cady Site Alternative area is generally flat with an elevation of approximately 1,780 feet above sea level. No springs or natural surface water resources exist year-round within 25 miles of this site. It does not lie within the 100-year flood hazard zone as defined by the Federal Emergency Management Agency (FEMA). Surface drainage flows towards Troy Lake, located 1 mile west of the site. Most watercourses are intermittent, and flow is present during infrequent precipitation events. Field surveys identified no perennial waterbodies within or immediately adjacent to the proposed site.

The Lower Mojave River Valley Groundwater Basin (Basin) underlies an elongate east-west valley, with the Mojave River flowing (occasionally) through the valley from the west across the Waterman fault and exiting the valley to the east through Afton Canyon. The two primary water-bearing units within the Mojave River Valley Basin system consist of regional Pliocene and younger alluvial fan deposits (fan unit) and of overlying Pleistocene and younger river channel and floodplain deposits, which are called the floodplain unit (DWR 1967), or the flood-plain aquifer (Lines 1996). The aquifers beneath the site consist of basin fill deposits that are primarily unconsolidated alluvial materials composed of clay, silt, sand, and gravel. Water-bearing deposits in this basin are predominantly unconfined. The basins are generally closed and commonly the groundwater flows to the center of the basins, where groundwater levels are near the ground surface. Generally, groundwater withdrawal from these aquifers for domestic and industrial uses is limited due to poor water quality. There are no designated sole source aquifers beneath the Fort Cady Alternative site. There are no protected watersheds in association with water supply wells near this proposed alternative. No public water supply wells were identified within 150 feet of proposed Site (CDWR 2000, California Department of Health Services 2000).

Depth to groundwater can be highly variable in the Mojave Desert. State Well Number 08N04E10E0015, located at latitude 34.8028, longitude -116.5533 (NAD), is approximately 600 feet southwest of the Site. The depth to groundwater in this well was 30 feet bgs in 2000. The depth to groundwater beneath the site is 36 feet bgs, based on a boring log prepared for a well installed in May 2005 (Frey 2005). A large, but sporadic contribution to recharge occurs when the Mojave River is flowing, with 40 feet of rise in the

water table observed during 1969 and 87 feet of rise observed in 1993 (Hardt 1969, Robson 1974, Lines 1996). Hydrographs for wells near Yermo and Newberry Springs show a decline in water level of about 80 to 100 feet over the last fifty years and an decrease of 1 to 2 feet over the during the 1990s (MWA 1999). The general groundwater flow pattern follows topography toward the active Mojave River channel, then it follows the course of the Mojave River eastward to Afton Canyon (Stamos and Predmore 1995; Lines 1996).

Groundwater samples from the well installed in 2005 had fluoride levels that exceeded 9.0 mg/l, confirming previously observed elevated fluoride concentrations in the Fort Cady area (BEE 1994). This level exceeds the primary maximum contaminant level (MCL) established by the California Department of Health Services. The primary MCL is the regulatory enforceable maximum concentration of a constituent that is allowed in a public drinking waste system. The groundwater sample also exceeded secondary MCLs for TDS, chloride, turbidity and specific conductance. Secondary MCLs established for taste, odor and appearance in drinking water.

4.7.6.1 Impacts

Violates any water quality standards or Waste Discharge Requirements (WDRs). The discussion of potential impacts for the Fort Cady Site Alternative is virtually identical to that described for the proposed Project. The difference is that for the Fort Cady Site Alternative, there is the potential for the water contained in the retention basin to migrate to the level of groundwater, since groundwater is present at a depth of approximately 36 feet bgs, compared to greater the 300 feet bgs at the Project site. The mitigation measures described below would reduce the potential impacts to groundwater to less than significant.

Substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level. Due to the hypersalinity of groundwater, a groundwater well, if installed, would be used only for operations. The groundwater is not potable and using water with such a high salinity could increase the salt concentration of the compost to be produced, and may reduce its quality. The Fort Cady Site Alternative would use imported water and there would be no depletion of groundwater supplies, interference with groundwater recharge, deficit in aquifer volume or lowering of the water table.

Substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site. The proposed Project will be constructed in a manner that will divert surface water flow around the site such that the run-on and the runoff from the site will be unchanged with no significant change in the existing drainage pattern. Since there are no streams or rivers at the site, the site will have no impact on erosion or siltation off site. Construction of the storage facilities and treatment areas, and conversion of the natural vegetation would include vegetation removal, grading, and minimal excavation that would expose soils to erosion and may result in the transportation of sediment into local drainages. These effects are mitigable with the implementation of Best Management Practices (BMPs) during and following construction.

Creates or contributes runoff water that would exceed the capacity of existing or planned storm water drainage systems. The proposed site is relatively flat with no major intermittent drainage channels. No existing or planned storm water drainage systems are present in the area of the site. Additionally, the

facility design includes retention basins designed to contain the entire runoff from a 24-hour, 100-year storm event.

Otherwise substantially degrades surface and/or groundwater water quality. The Fort Cady Alternative will use groundwater for dust control and processing needs. This alternative would use a little less groundwater than the Project because imported water would be used for potable water, but the volume of groundwater used for dust control would still be in the range of approximately 1,000 gallons per day. This quantity would be considered a very small groundwater withdrawal and a substantial depletion of groundwater would not occur. The extraction of this volume of groundwater would not interfere with groundwater recharge and a lowering of the local groundwater table is not expected.

Places within a 100-year flood hazard area structures that would impede or redirect flood flows. The proposed Project lies outside the 100-year flood hazard zone as defined by the Federal Emergency Management Agency (FEMA) and no structures would be placed within a 100-year flood hazard area.

Exposes people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of failure of a levee or a dam. The Fort Cady Alternative site is not susceptible to flooding at a magnitude that would be expected to result in loss, injury or death. No major flood channels are in the vicinity of the site.

Results in inundation by seiche, tsunami, or mudflow. The Fort Cady Alternative site is not susceptible to seiche, tsunami or mudflows. There are no oceans or large bodies of water near the site. Mudflows are not expected due to the flat terrain in the Project area.

4.7.6.2 Mitigation Measures

The following mitigation measures would reduce potential impacts to hydrology and water quality to less than significant.

W-7 The design of the Fort Cady Site Alternative shall include retention basin(s), designed and sized to contain the entire runoff from the windrow and compost storage area during a 24-hour, 100-year storm event. This feature is essential to protect surface water and the public from runoff that would likely be contaminated with pathogens.

Mitigation measures W-2 to W-6 shall be implemented for this alternative.

SECTION 5 EFFECTS FOUND NOT TO BE SIGNIFICANT

Pursuant to CEQA Section 15063, an Environmental Initial Study (IS) was prepared for the Nursery Products Hawes Composting Facility to identify potentially significant effects of the Project. In the course of this evaluation, certain impacts of the Project were found to be less than significant. CEQA Section 15128 requires that an EIR describe any potential environmental effects that were determined not to be significant. The statute provides that:

> "An EIR shall contain a statement briefly indicating reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. Such a statement may be contained in an attached copy of an Initial Study."

This section summarizes the analysis in the IS for environmental disciplines for which impacts were determined to be less than significant. Additional details can be found in the IS (Appendix A). This section also presents a discussion of the Fort Cady Site Alternative for each environmental discipline for which impacts were determined to be less than significant in the IS. It should be noted that because the Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site, the IS analysis for environmental topics with impacts determined to be less than significant for the proposed Project is also applicable to the Reduced Capacity Alternative.

5.1 AESTHETICS

The Project site is located off State Route 58, which has been designated by California Department of Transportation (Caltrans) as an Eligible State Scenic Highway although not formally adopted as Designated. There are no trees, rock outcroppings or buildings are located in the vicinity that would be affected by the Project. The Project area is comprised of relatively undisturbed natural areas, and none of the area has been characterized by the San Bernardino County General Plan as "scenic". The Project may create new sources of light and/or glare as necessary for project safety. The proposed lighting associated with the project will be shielded to preclude light pollution or light trespass on adjacent property in conformance with this the County Night Sky ordinance, the County General Plan, and the updated Development Code.

Although the appearance of the site would change, the viewer response to this change is considered less than significant. Overall impacts to visual character are considered less than significant.

The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have less than significant impacts. The No Project Alternative would have no aesthetics impacts.

The nearest resident to the Fort Cady alternative site is located one-half mile to the south. Similar to the proposed Project, although appearance of the site would change, the resource change to the site could be characterized as significant, the viewer response to this change is considered less than significant. Therefore, impacts to aesthetics would be less than significant.

5.2 AGRICULTURAL RESOURCES

Both the proposed Project site and the Fort Cady site are located in rural desert areas and have not been used for irrigated agricultural production. The sites are not known to contain soils that have been designated as prime or unique agricultural soils and agricultural activities have not historically occurred at these sites. The Project would not adversely impact prime or locally important agriculture as none occur within the Project area. The Project site is not under a Williamson Act contract. Therefore, impacts to agricultural resources would be less than significant. The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have less than significant impacts. The No Project Alternative would have no impacts.

5.3 GEOLOGY AND SOILS

The proposed Project site is located within the Centro Subarea of the Mojave River Basin which is generally flat with a very slight gradient towards the north. The Centro Subarea is part of a desert basin that is filled with alluvium sporadically interrupted by remnants of old ridges. No special hazard zones (active earthquake fault zones) delineated by the 1972 Alquist-Priolo Special Studies Zone Act are located within the proposed Project site. Since no mapped active or potentially active faults are known to pass through the site, the potential risk from fault rupture is considered very low. The proposed Project site is not within a liquefaction seismic hazard zone and, in general the site contains soils with a moderate to slight potential for erosion. The soils within the Project site have low potential for expansion and therefore present a less than significant potential impact.

The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have less than significant impacts. The No Project Alternative would have no impacts.

The Fort Cady Alternative site also is not located within an Alquist-Priolo special studies zone. The two faults located closest to the project site are the Calico fault and the Pisgah fault. The Fort Cady alternative site is located within a Uniform Building Code defined zone where the expected intensity of ground-shaking would likely cause minimal damage to facilities on the site. The alternative site has not been mapped as an area of potential liquefaction and the ancient flood plain nature of the site contains no topography that would be associated with landslides. Engineering classifications indicate that soils in the vicinity are mainly sandy and gravelly, exhibiting a high bearing strength, no plasticity, and a low potential for expansion. Soil and geology impacts for this alternative would be less than significant.

5.4 LAND USE

The project site is located in the Desert Region of the County of San Bernardino. Surrounding land uses to the project site include predominantly vacant desert with a single residence located over approximately 1.5 miles east of the project site. There are no residential communities for a distance of at least five miles to the north, west and south. Use of the site for composting operations will not conflict with existing surrounding land uses and there are no environmental justice issues as the surrounding land is vacant. The General Plan land use designation for the site is Resource Conservation (RC). A composting facility

may be allowed in any land use district subject to review and approval of a Conditional Use Permit application under the Additional Uses section of the development code. The Project would be developed consistent with the General Plan land use goals and policies and no significant land use impacts will occur.

The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have less than significant impacts. The No Project Alternative would have no impacts.

The Fort Cady Alternative site is also located in the Desert Region of the County of San Bernardino with a General Plan land use designation of RC. The property and areas to the north, south, east and west are vacant open space, and the nearest residence is over a half mile away. The alternative site would also be developed consistent with the General Plan land use goals and policies and no significant land use impacts will occur.

5.5 MINERAL RESOURCES

The proposed Project and Fort Cady Alternative sites are not within an area designated by the State for locally important mineral resources and neither lies within the County of San Bernardino's Mineral Resource Zone. No impacts to mineral resources would occur at either the Project site or the Fort Cady site as a result . The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have no impacts. The No Project Alternative would have no impacts.

5.6 NOISE

The proposed Project site, the Fort Cady Alternative site and adjacent area to both sites are undeveloped vacant land. No persons would be exposed to and noise levels would not be generated in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The proposed facility operations at either site would be in compliance with the County Noise Ordinance for stationary noise sources and the County Noise Element regarding residential land uses. Noise impacts would be less than significant. The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have less than significant impacts. The No Project Alternative would have no impacts.

5.7 POPULATION AND HOUSING

There are no residents living on or in the immediate vicinity or either the Project or Fort Cady Alternative sites. The Project will employ approximately eight staff members from the local area. Implementation of the Project or Fort Cady Alternative would not induce growth directly or indirectly. There would be no displacement of existing housing or people. There would be no impacts to population and housing. The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have no impacts. The No Project Alternative would have no impacts.

5.8 PUBLIC SERVICES

The proposed Project or the Fort Cady Alternative would not induce growth; therefore no additional public services are required. Existing public services' capacity, such as police and fire, would be adequate

to serve the Project or alternative. Impacts to public services are less than significant. The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have less than significant impacts. The No Project Alternative would have no impacts.

5.9 RECREATION

No increase in the demand for recreation facilities will result from either the proposed Project or the Fort Cady Alternative. The area surrounding both sites includes vast amounts of open space and available recreational access. The Project does not propose construction of new recreational facilities or expansion of the existing recreational facilities. No impact to recreational facilities is expected. The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have no impacts. The No Project Alternative would have no impacts.

5.10 TRANSPORTATION/TRAFFIC

A Traffic Impact Analysis (TIA) was conducted for the proposed Project in accordance with the guidelines set forth in the San Bernardino County Congestion Management Program (CMP) 2003 Update. The TIA conducted for the proposed Project indicates that the proposed Project will not create significant traffic impacts to the surrounding roadway circulation system according to the traffic impact analysis procedures, guidelines and threshold of significance specified by San Bernardino County CMP. Additionally, the proposed Project will have adequate emergency access for both fire and medical emergency vehicles. Very low existing baseline traffic and projected operational traffic volume will not hinder emergency response times. No significant transportation impacts would occur as a result of the proposed Project.

The Reduced Capacity Alternative would have less traffic than the Project at the same (Hawes) site and would also have less than significant impacts. The No Project Alternative would have no impacts.

An alternative site traffic impact analysis was conducted to evaluate potential traffic impacts for the Fort Cady Road Alternative site. Primary access to the site is via I-40, a four-lane divided freeway. Within the area the average daily traffic (ADT) is 14,000 vehicles per day. The following discussion summarizes the results of the roadway segment level of service analysis conducted for the study segment of I-40 and freeway entrance and exit ramps at Fort Cady Road.

5.10.1 Fort Cady Alternative Traffic Impact Analysis

The analyses were conducted using the Highway Capacity Manual freeway mainline and ramp segment analysis and consistent with methodologies outlined in Section 2.0 of the traffic report (Appendix D). The results of the roadway segment and intersection analyses are discussed below.

Table 5.10.1 displays the Level of Service (LOS) analysis results for the study roadway segments under existing conditions. LOS level range from LOS A (no congestion – best) to LOS F (most congested – worst) and the County of San Bernardino strives to maintain LOS C or better.

Table 5.10.1
Roadway Segment Level of Service
Existing Conditions

Roadway	Segment	AM Peak Hour Volume	PM Peak Hour Volume	AM Peak Hour (LOS)	PM Peak Hour (LOS)
I-40	West of Fort Cady Road	900	900	A	A
I-40 WB On-Ramp	at Fort Cady Road	30	47	B	B
I40 EB Off-Ramp	at Fort Cady Road	21	34	A	A

As shown in Table 5.10.1, I-40 is currently operating at excellent LOS A conditions as well as the two freeway access ramps at LOS B or better conditions.

Table 5.10.2 displays the projected results including traffic from the Fort Cady Alternative for the study roadway segments assuming that the Fort Cady Alternative opens at the end of 2006 (2006 Baseline with Conditions).

Table 5.10.2
Roadway Segment Level of Service
Opening Year (2006) Baseline with Fort Cady Alternative Conditions

Roadway	Segment	AM Peak Hour Volume	PM Peak Hour Volume	AM Peak Hour (LOS)	PM Peak Hour (LOS)
I-41	West of Fort Cady Road	906	906	A	A
I-40 WB On-Ramp	at Fort Cady Road	36	53	B	B
I40 EB Off-Ramp	at Fort Cady Road	27	40	A	A

As shown in Table 5.10.2, and similar to existing conditions, all study roadway segments are forecast to have sufficient roadway capacity to accommodate Fort Cady Alternative added traffic. I-40 is forecast to remain at excellent LOS A conditions as well as the two freeway access ramps operating at LOS B or better conditions. None of the study roadway segments will be significantly impacted by the Fort Cady Alternative.

In compliance with San Bernardino County requirements, an analysis of Project Horizon Year (2016) traffic conditions both with and without the Fort Cady Alternative was conducted with the following analysis scenarios:

- Horizon Year (2016) Baseline Conditions
- Horizon Year (2016) Baseline With Fort Cady Alternative Conditions

Year 2016 Baseline intersection geometrics were assumed to be similar to current roadway. Table 5.10.3 displays the LOS analysis results for the study roadway segments under Horizon Year (2016) Baseline Traffic Conditions.

Table 5.10.3
Roadway Segment Level of Service
Horizon Year (2016) Baseline Conditions

Roadway	Segment	AM Peak Hour Volume	PM Peak Hour Volume	AM Peak Hour (LOS)	PM Peak Hour (LOS)
I-41	West of Fort Cady Road	1055	1055	A	A
I-40 WB On-Ramp	at Fort Cady Road	34	54	B	B
I40 EB Off-Ramp	at Fort Cady Road	25	39	A	A

As shown in Table 5.10.3 and similar to 2006 Baseline conditions, all study roadway segments under Horizon Year (2016) Baseline Conditions are forecast to have sufficient roadway capacity to accommodate future baseline traffic. I-40 is forecast to remain at excellent LOS A conditions and the two freeway access ramps operating at LOS B or better conditions.

Table 5.10.4 displays the LOS analysis results for the study roadway segments under Horizon Year (2016) Baseline with Fort Cady Alternative Conditions.

Table 5.10.4
Roadway Segment Level Of Service
Horizon Year (2016) Baseline with Fort Cady Alternative Conditions

Roadway	Segment	AM Peak Hour Volume	PM Peak Hour Volume	AM Peak Hour (LOS)	PM Peak Hour (LOS)
I-41	West of Fort Cady Road	1061	1061	A	A
I-40 WB On-Ramp	at Fort Cady Road	40	60	B	B
I40 EB Off-Ramp	at Fort Cady Road	31	45	A	A

As shown in Table 5.10.4, even with the combined effects of the traffic volume expansion factors as well as Fort Cady Alternative operational trips under Horizon Year (2016) Baseline with Fort Cady Alternative Conditions, all study roadway segments will continue to experience acceptable LOS A conditions for the I-40 freeway mainline and LOS B or better at the freeway ramps serving the alternative Fort Cady Alternative site.

The result of the traffic assessment indicated that traffic impacts from the Fort Cady Site Alternative would be less than significant.

5.11 UTILITIES AND SERVICE SYSTEMS

The proposed Project and the Fort Cady Site Alternative would not affect or cause an increased need for additional public utilities or service systems. A maximum of eight employees are anticipated at any one time, generating a small amount of solid waste that will be transported to the Barstow Sanitary Landfill. Domestic water will be provided by an on-site well or be purchased and stored. Telephone service will be cellular. Electricity will be supplied by solar equipment, with a portable diesel-fueled generator backup. Site run-off from rainfall will be directed into a retention basin and no impacts to storm water drainage facilities is expected. Impacts to public utilities or service systems would be less than significant. The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have less than significant impacts. The No Project Alternative would have no impacts.

SECTION 6 OTHER CEQA CONSIDERATIONS

6.1 CUMULATIVE IMPACT ASSESSMENT

Section 15355 of the State California Environmental Quality Act (CEQA) Guidelines, as amended, provides the following definition of cumulative impacts: "Cumulative impacts refers to two or more individual effects which, when considered together, are considerable, or which compound or increase other environmental impacts." Pursuant to Section 15130(a) of the CEQA Guidelines, cumulative impacts of a project shall be discussed when the project's effect is cumulatively considerable, as defined in Section 15065(c) of the Guidelines.

As indicated above, a cumulative impact involves two or more individual effects. CEQA Guidelines Section 15130(b) indicates that the discussion of cumulative impacts shall be guided by the standards of practicality and reasonableness. Per guidelines, the following elements are necessary in an adequate discussion of significant cumulative impacts (CEQA Guidelines Section 15130[b]):

1. Either:
   a. A list of past, present and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the Agency, or
   b. A summary of projections contained in an adopted General Plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.
2. A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and
3. A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

Court interpretations of CEQA have further defined CEQA's statutory provisions. For example, a cumulative impact discussion may be found inadequate if it does not include the elements listed in CEQA Guidelines Section 15130 (*Cumulative Impacts*); specifically, either a list of closely related past, present, and reasonably foreseeable future projects, or a summary of projections contained in an adopted planning document which is designed to evaluate regional or area-wide conditions. This section further requires that the analysis include a discussion of projects under review by the lead agency and projects under review by other relevant public agencies, using reasonable efforts to discover, disclose, and discuss other related projects.

6.1.1 Cumulative Projects

Each environmental issue analyzed in Section 4.0, is evaluated in terms of cumulative impacts. The discussion of each issue identifies the "universe" against which regional baseline the Project impact will be evaluated, and will identify any regional plans, programs, or documents that relate to either a

determination of potential cumulative impacts of the Project, or to methods of mitigating potential cumulative impacts.

Table 6.1 summarizes the development projects identified through the County of San Bernardino Planning Department as well as utilizing CEQAnet environmental database of the State Clearinghouse within the Office of Planning and Research. This table has been further developed for the Final EIR to reflect very recent project applications in the County of San Bernardino. The latest "Inter-Governmental Review" (IGR) report from the Southern California Association of Governments (SCAG), indicates there are no major private residential, commercial, or industrial projects proposed in or near the proposed Project area.

Table 6.1
Cumulative Projects

Project Name	Agency / Location	Proposed Uses	Status	Impacts
Kramer Junction Expansion Project	City of Adelanto	Construction of a 4-lane expressway on Highway 58 between the Kern County line and 7.5 miles east of Highway 395.	ND	–
Barstow Distribution Center - West Barstow Specific Plan #4	City of Barstow Lenwood Road, between Jasper Road and Agate Road	1,069,000 square feet of building structures, consisting of: an approximately 1,019,000 square foot warehouse, 26,000 square feet of office space, a 15,000 square foot truck maintenance building, a 7,000 square foot energy center, a 1,600 square foot fire pump house, and a 400 square foot guardhouse.	NOP	N/A
Construction and Operation of a Regional Biosolids Processing Facility	City of Rialto East Santa Ana Avenue / Riverside Avenue	A new composting facility with the design capacity to process 125 dry tons per day (tpd) of biosolids at approximately 20 percent solids and to produce approximately 105 dry tpd at approximately 5 percent moisture of E-Fuel, the finished product.	EIR	Air Quality
Barstow Sanitary Landfill Expansion	Highway 247 and landfill entrance road	The County of San Bernardino Solid Waste Management Division (SWMD) is proposing to expand the existing Barstow Sanitary Landfill by 284 acres, in five (5) phases.	NOP	N/A
National Trails Highway Passing Lane (County) Near Helendale	Near Helendale	National Trails Highway from 0.75 mile north of Oro Grande; adding 1 passing lane in each direction.	NOP	N/A
Ronald Wall / Applicant	West Side of Shasta Road	General Plan Land Use District Amendment; Tentative Parcel Map to Create 4 parcels on a 30 acres.	ND	N/A

Table 6.1
Cumulative Projects
(Continued)

Project Name	Agency / Location	Proposed Uses	Status	Impacts
Best Rock Quarry	Located on the North Side of Neuman Street Approx. 2 Miles Northwest of the City of Barstow	An application for a revision to a Mining Conditional Use Permit and Reclamation Plan (CUP/Reclamation Plan) to continue an aggregate mining operation on 62.3 acres (55.3 acre parcel plus 7 acres designated for stockpile use on a leased adjoining parcel). The applicants are requesting approval for a 10-year extension with expected disturbance on 57.5 acres.	ND	N/A
Barstow Casinos	Lenwood Road and Mercantile Road	Construction of two 49,000 square foot casinos, two 100 room hotels, and parking for approximately 3,900 cars.	NOP	N/A

Air Quality

The proposed Project, Reduced Capacity Alternative and Fort Cady Site Alternative would be located several miles from any other appreciable stationary source of air pollutants. The facility's impacts to air quality are expected to occur in the near vicinity of the project site, where impacts of the nearest other sources would be small. However, as described previously, each of these alternatives would introduce significant unmitigable emissions ozone precursors (VOCs), which will contribute to regional nonattainment conditions. Given these circumstances, the proposed Project, Reduced Capacity Alternative and Fort Cady Site Alternative cumulative air quality impacts are all considered to be significant. The No Project Alternative would have no impacts.

Biology

An incremental reduction in desert scrub vegetation and loss of native biological resources will occur as a result of the proposed Project or the Reduced Capacity Alternative. However, the Hawes site is a relatively small area considering the large block of habitat proposed for conservation within the Fremont-Kramer DWMA and ACEC and the much larger proposed conservation area of the WMP. The site is located on private property, and there is a large patchwork of state-and federal-owned lands in the surrounding area. It is not foreseeable that the federally-owned lands would be developed, and no large-scale development plans have been identified for other private lands in the project vicinity. Much of this area is zoned RC, further restricting the potential for large-scale development of private lands in the project area. Cumulative impacts to biological resources would be less than significant.

The Fort Cady Site Alternative has lower quality biological habitat than the Hawes site. Based on the discussion above, this alternative would not have significant cumulative biological resources impacts. No cumulative impacts to biological resources would occur under the No Project Alternative.

Traffic

The traffic report prepared for the proposed Project (Appendix D) analyzes the project impacts for both current conditions and the horizon year 2016. The horizon year analysis methodology includes projected traffic increases anticipated by growth and other known projects in the region (i.e., it is a cumulative impacts analysis by nature). The horizon year analysis indicates that roadway segments are expected have an expected LOS of "C" or better. The traffic analysis for all of the alternatives resulted in the same conclusion. Consequently, cumulative traffic impacts would be less than significant for the proposed Project and all of the alternatives.

Other Resource Areas Cumulative Impacts

The proposed Project and each of the project alternatives would have either no or less than significant direct or indirect impacts related to these resource areas:

- Aesthetics: The proposed modification to the visual characteristics of either the Project site, Reduced Capacity Alternative, or the Fort Cady Alternative Site would result in an incremental impact to these rural sites. However, the open space view is essentially conserved by the RC zoning that allows one residence per 40 acres. At "build-out" either of the sites would still remain rural; therefore, no cumulative impact would result.
- Agricultural Resources: Neither the Hawes or Fort Cady site is being utilized for agricultural uses. The rural type of zoning would allow agricultural uses in either vicinity with only a minimal loss of land that could be used for agriculture. The loss of this amount of land (78 to 160 acres) is not a cumulatively considerable impact to agricultural resources.
- Cultural Resources: The Project will not result in significant impacts as no cultural resources eligible for CRHR listing are known on site. While there are cultural resources on the Fort Cady Alternative Site, it is anticipated that these resources could be conserved by the collection and curation of any resources that might be encountered during site preparations. Therefore, the impact to cultural resources would not result in a significant cumulative impact.
- Hydrology and Water Quality: The County's regional flood control plans have considered future growth. Because the scale of the Project and its alternatives do not exceed allowed types of land uses, the Project or alternatives would not result in a cumulative impact to hydrology and water quality with the implementation of project-specific mitigation measures described in Section 4.
- Land Use: The County's zoning allows rural land uses in the vicinity of the Hawes and Fort Cady sites. Because the proposed Project is considered an Additional Use that may be permitted through the Conditional Use Permit process, the Project or alternatives would not result in a cumulative impact to land use.

- Mineral Resources: Neither the Hawes or Fort Cady sites contain significant mineral resources, so the Project or alternatives do not contribute to a cumulative impact to mineral resources.
- Population and Housing: The Project would employ approximately 8 people. Adequate housing exists in the area to accommodate the employees. Therefore the Project or alternatives do not contribute to a cumulative impact to population and housing.
- Public Services: Adequate public services exist in the area to accommodate the 8 employees. Therefore the Project or alternatives do not contribute to a cumulative impact to public services.
- Recreation: The Project would not require additional recreational opportunities for the 8 employees. Therefore the Project or alternatives do not contribute to a cumulative impact to recreation.
- Utilities: The Project would not require public water or sewer services. Adequate electrical services exist in the area to accommodate the utility needs. Therefore the Project or alternatives do not contribute to a cumulative impact to utilities.

For each of these environmental resource areas, no project or group of projects was identified that would have cumulative impacts great enough such that the direct impacts from the proposed Project or alternatives would contribute to significant cumulative effects. Consequently, the proposed Project and the alternatives would have less than significant cumulative impacts for each of the bulleted environmental resource areas.

6.2 GROWTH INDUCING IMPACTS

CEQA Guidelines Section 15126 requires the evaluation of growth-inducing impacts of a proposed project. This discussion must address ways the project could encourage economic and population growth, or construction of additional housing in the surrounding area, either directly or indirectly. Projects that remove obstacles to population growth, or allow or encourage growth that would not otherwise have occurred if the project were not built, would be growth inducing. Potential growth-inducing impacts are also assessed based on a project's consistency with adopted plans that have addressed growth management from a local and regional standpoint. Also required is a discussion of project characteristics, which may encourage or facilitate other activities that could significantly affect the environment, either individually or cumulatively.

Growth inducement can take many forms. A project can remove barriers, provide access, or eliminate other constraints, which encourage growth that has already been approved and anticipated through the General Plan process. The Project will be developed consistent with the County General Plan and Conditional Use Permit requirements.

Implementation of the proposed Project would not result in growth inducing impacts since the Project will not foster future population growth by developing new housing or economic opportunities. The Project involves an industrial biosolids and green material recycling process which in most cases do not induce growth. The lack of a composting facility is not a barrier to growth that would be removed by implementing the Project, the Reduced Capacity Alternative or the Fort Cady Alternative. The Project will employ approximately eight (8) staff and would not require the substantial development of

unplanned/unforeseen support uses and services. Therefore, the proposed Project and all alternatives would not be growth inducing.

6.3 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

As indicated in Section 4, the proposed Project would result in significant unavoidable impacts to air quality even with implementation of the project-specific mitigation measures. The operational VOC emissions from the Project would exceed the MDAQMD daily and annual emissions thresholds.

6.4 SIGNIFICANT IRREVERSIBLE IMPACTS

The CEQA Guidelines mandate that the EIR must address any significant irreversible environmental changes which would be expected should the proposed action be implemented (*CEQA Guidelines*, Section 15126[c]). An impact would fall into this category if:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of the project would generally commit future generations to similar uses;
- The project involves uses from which irreversible damage could result due to any potential environmental incidents associated with the project; or
- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

Natural resources in the form of construction materials (e.g. metal for fencing, concrete, asphalt, etc.) and fuel will be utilized in the construction of the proposed Project. Fuel will also be used during the long-term operations of the Project. Compared to the quantities of these materials available, the proposed Project would not involve a large commitment of nonrenewable resources.

Determining whether the proposed Project may result in significant irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them. Implementation of the Project would result in the disturbance of approximately 160 acres. However, no significant agricultural, cultural, mineral, or scenic resources will be lost as a result of project implementation. The natural habitat would be lost as long as the site operates, but because only very limited structure would be constructed on the site, the loss of this habitat could be likely be reversed when operations stop at the site. The restoration of viable habitat after operations cease may take decades.

No wasteful consumption of resources is anticipated from the proposed Project. In fact, the Project would likely result in processing biosolids and green materials that are currently being sent to a landfill into compost that will be used for agricultural purposes, reducing the waste of this resource.

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The proposed Project would generate impacts related to air quality, biological resources, cultural resources, and hazards and hazardous materials, and hydrology and water quality. Without mitigation, these impacts would be significant. All impacts, with the exception of those identified for air quality can be mitigated to a less than significant level. The identified air quality impacts remain significant and unavoidable, even with the mitigation measures.

The "No Project Alternative" would eliminate and/or reduce all environmental impacts from those anticipated for the proposed Project.

The "Reduced Capacity Alternative" would also result in impacts to air quality, biological resources, cultural resources, hazards and hazardous materials, and hydrology and water quality. Without mitigation these impacts would be significant, though the impacts would be less than the proposed Project without mitigation. Similar to the proposed Project, air quality impacts would be significant and unavoidable, though the VOC emissions would be less than the proposed Project. All other impacts would be mitigated to less than significant. The off-site land that would be conserved for loss of habitat under this alternative would be less than the proposed Project because the area that would be impacted would be smaller.

The Fort Cady Site Alternative would also result in impacts to air quality, biological resources, cultural resources, hazards and hazardous materials, and hydrology and water quality. Unmitigated, the air quality, hazards and hazardous materials, and hydrology and water quality impacts would be similar to unmitigated impacts from the proposed Project. Unmitigated impacts to biological resources would be less than unmitigated biological resource impacts from the proposed Project or the Reduced Capacity Alternative. This alternative would likely have greater unmitigated impacts to cultural resources than the proposed Project or Reduced Capacity Alternative, though these impacts could be fully mitigated. Air quality impacts would be significant and unavoidable, similar to the proposed Project.

Table 6-2 provides a summary of the comparative impacts after mitigation for each alternative by environmental resources area. The No Project Alternative is the environmentally superior alternative in that this is the only alternative that would not result in significant, unmitigable air quality impacts.

Section 15126.6(e)(2) of the CEQA Guidelines: *"If the environmentally superior alternative is the "No Project" Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."* An alternative would be considered environmentally superior if it reduces significant impacts. Thus, the Reduced Capacity Alternative is considered to be the environmentally superior alternative because the air emissions that exceed the regulatory significance threshold for this alternative would be less than the other alternatives. All other impacts would be mitigated to less than significant.

Table 6.2
Comparison of Alternative Environmental Impacts with Proposed Project

Issue	Project Impacts	No Project	Reduced Capacity Alternative	Fort Cady Alternative Site
Aesthetics	Less than Significant	L	E	E
Agricultural Resources	No Impact	E	E	E
Air Quality	Significant	L	L	E
Biology	Less than Significant with Mitigation	L	E	E
Cultural Resources	Less than Significant with Mitigation	L	E	E
Geology and Soils	Less than Significant	L	E	E
Hazards and Hazardous Materials	Less than Significant with Mitigation	L	E	E
Hydrology and Water Quality	Less than Significant with Mitigation	L	E	E
Land Use	No Impact	L	E	E
Noise	Less then Significant	L	E	E
Mineral Resources	No Impact	E	E	E
Population and Housing	No Impact	E	E	E
Public Services and Facilities	Less than Significant	L	E	E
Recreation	No Impact	E	E	E
Transportation	No Impact	E	E	E
Utilities	Less than Significant	L	E	E

E - Impact is Equivalent to impact of proposed Project (neither environmentally superior nor inferior).

L - Impact is potentially Less than impact of proposed Project.

G - Impact is potentially Greater than impact of proposed Project

SECTION 7 MITIGATION MONITORING PROGRAM

Section7 of this EIR identifies the mitigation measures that will be implemented to reduce the impacts associated with the Nursery Products Hawes Composting Facility. The California Environment Quality Act (CEQA) was amended in 1989 to add Section 21081.6, which requires a public agency to adopt a monitoring and reporting program for assessing and ensuring compliance with any required mitigation measures applied to proposed development. As stated in Section 21081.6 of the Public Resources Code, *". . . the public agency shall adopt a reporting or monitoring program for the changes to the project which it has adopted, or made a condition of project approval, in order to mitigate or avoid significant effects on the environment."*

Section 21081.6 provides general guidelines for implementing mitigation monitoring programs and indicates that specific reporting and/or monitoring requirements, to be enforced during project implementation, shall be defined prior to final certification of the EIR. The mitigation monitoring table below lists those mitigation measures that may be included as conditions of approval for the project. These measures correspond to those outlined in Section 1 and discussed in Section 4. To ensure that the mitigation measures are properly implemented, a monitoring program has been devised which identifies the timing and responsibility for monitoring each measure. The applicant will have the responsibility for implementing the measures, and the various County of San Bernardino departments will have the primary responsibility for monitoring and reporting the implementation of the mitigation measures.

SECTION 8 AGENCIES AND PERSONS CONSULTED

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SAN BERNARDINO COUNTY FIRE DEPARTMENT

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OTHER AGENCIES

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SECTION 10 GLOSSARY OF ACRONYMS

AAQS	Ambient Air Quality Standards
ACEC	Area of Critical Environmental Concern
ACOE	United States Army Corps of Engineers
ADAM	Aerometric Data Analysis & Management
ADC	Alternate Daily Cover
ADT	Average Daily Trips
AMSL	Above Mean Sea Level
APE	Area of Potential Effect
AQMD	Air Quality Management District
AQMPs	Air Quality Management Plans
ARA	Aggregate Resource Area
ARPA	Archaeological Resources Protection Act
BGS	Below Ground Surface
BLM	Bureau of Land Management
BMP	Best Management Practices
CA	California
CAA	Federal Clean Air Act
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHWMP	City Hazardous Waste Management Plan
CIWMB	California Integrated Waste Management Board
CMP	Congestion Management Program
CNEL	Community Noise Equivalent Level
CO	Carbon Monoxide
CRHR	California Register of Historical Places

CRWQCB	California Regional Water Quality Control Board
CSSC	California Species Special of Concern
CUP	Conditional Use Permit
CWA	Clean Water Act
CWP	California Water Plan
CUP	Conditional Use Permit
D/T	Dilution to Threshold Ratio
DAF	Dilution Attenuation Factor
dB	Decibels
dB(A)	Decibels on the A-weighted scale (closest to human hearing)
DCP	Dust Control Plan
DHS	Department of Health Services
DWMA	Desert Wildlife Management Area
DWR	Department of Water Resources (State)
EIR	Environmental Impact Report
EMFAC	Emission Factor
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
GPD	Gallons per day
GPS	Global Positioning System
H_2S	Hydrogen Sulfide
hazmat	(Haz-Mat) Hazardous Materials
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
IEUA	Inland Empire Utilities Agency
IGR	Inter-Governmental Review
IS	Initial Study
ISCST3	Industrial Source Complex Short Term 3
kg	Kilograms
KwH	Kilowatt-hour

lbs/day	Pounds per Day
lbs/hr	Pounds per Hour
Ldn	Noise Descriptor
LEA	Local Enforcement Agency
LEQ	Steady-State Noise Energy Level
LOS	Level of Service
LRWQCB	Lahontan Regional Water Quality Control Board
LUSD	Land Use Services Department
MBAW	Mojave Basin Area Watermaster
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
mg	milligrams
MRZ	Mineral Resource Zones
MSDS	Material Safety Data Sheets
MSHCP	Multi-Species Habitat Conservation Plan
MSL	Mean Sea Level
MWA	Mojave Water Agency
N/A	Not Available
NA	Native American
NAD	North American Datum
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
ND	Negative Declaration
NHPA	National Historic Preservation Act
NO2	Nitrogen Dioxide
NOP	Notice of Preparation
NOx	Oxides of Nitrogen
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service (Department of Agriculture)
NWIS	National Water Information Service

O3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OIMP	Odor Impact Minimization Plan
Pb	Lead
PFRP	Process for Further Reduction of Pathogens
PM	Particulate Matter
PRA	Public Records Act
PRC	Public Resources Code
PRGs	Preliminary Remediation Goals
RACT	Reasonably Available Control Technology
RC	Resource Conservation
REL	Reference Exposure Limit
RMP	Resource Management Plan
ROC	Reactive Organic Compounds
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBCM	San Bernardino County Museum
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCAQMP	South Coast Air Quality Management Plan
SIP	State Implementation Plan
SO2	Sulfur Dioxide
SOx	Sulfur Oxides
SPCC	Spill Prevention, Control, and Countermeasure Plan
SR	State Route
SWMD	Solid Waste Management Division
SWPPP	Stormwater Pollution Prevention Plan
SWQCB	California State Water Quality Control Board
SWRCB	California State Water Resources Control Board
TACs	Toxic Air Contaminants
TCM	Transportation Control Measures

TCPs	Traditional Cultural Properties
TDS	Total Dissolved Solids
TIA	Traffic Impact Analysis
TOG	Total Organic Gas
TSM	Transportation System Management
TTLC	Total Threshold Limit Concentration
USFWS	United State Fish and Wildlife Service
USGS	United States Geological Service
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
VPD	Vehicles per day
WDRs	Waste Discharge Requirements
WMP	West Mojave Plan

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