Soil Contamination Section:
Arsenic and Dieldrin
Excavation of the soil

Draft Environmental Impact Report

Santa Clara Gardens Development Project

VOLUME I
DEIR Text and Appendices A, K and M

Lead Agency

City of Santa Clara
SCH #2003072093

March 9, 2006

EDAW

increases from area source emissions (i.e. landscape maintenance equipment). Therefore, operational air emissions from the All Single-Family Development Alternative would be less than significant.

Table 7-2
Carbon Monoxide Modeling Results
Under the All Single-Family Development Alternative

	Existing		Future No Alternative		Future with Alternative	
Receptor	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour
1. Pruneridge Avenue/San Thomas Expressway	11.4	6.9	12.2	7.3	12.2	7.3
2. Stevens Creek/San Tomas Expressway	13.9	7.3	14.7	7.6	14.7	7.6
3. Stevens Creek/Monroe Street	12.4	6.9	13.4	7.3	13.5	7.4
California Standards	20	9.0	20	9.0	20	9.0

Notes: EMFAC2002 used to generate vehicle emission rates. CALINE4 modeling used to estimate ambient concentrations. 1-hour background concentration of 6.0 ppm and 8-hour concentration of 3.7 ppm based on data from the measuring/monitoring station in accordance with the CO protocol. A persistence factor of 0.7 was used to convert 1-hour to 8-hour concentrations.

Source: EDAW 2004

Construction-related emissions are generally short-term in duration, but can cause adverse air quality impacts. PM_{10} is the pollutant of greatest concern with respect to construction activities. PM_{10} emissions result from the generation of fugitive dust associated with a variety of construction activities, including excavation, grading, demolition, site preparation, and vehicle travel on paved and unpaved surfaces. Construction equipment also produces CO and ozone precursor emissions. These emissions are included in the emissions inventory that is the basis for regional air quality plans, and are not expected to impede attainment of ozone or maintenance of CO standards in the Bay Area.

The BAAQMD does not require that construction emissions be quantified. Rather, the significance of construction emissions should be determined based on whether BAAQMD's feasible control measures would be implemented with construction activities associated with the alternative (BAAQMD 1999). Implementation of BAAQMD control measures can result in overall reductions in fugitive dust emissions by approximately 50–75%. It is assumed that for purposes of this analysis, that the developer of this alternative would include implementation of feasible BAAQMD PM_{10} construction mitigation measures, which can result in 50–75 % reductions in fugitive dust emissions. Therefore, because all feasible BAAQMD control measures would be implemented, this alternative's PM_{10} construction-related emissions would be less than significant.

As a result of pesticide use related to past agricultural practices on the site some soils have concentrations of arsenic and dieldrin above EPA preliminary remediation goals. To implement the alternative the DGS would be required to remediate onsite soils to bring them

to levels suitable for proposed uses (i.e., unrestricted residential use) before construction. Pursuant to DGS' Voluntary Cleanup Agreement (VCA) with the DTSC, DGS has prepared a RAW that identifies necessary remediation activities. Elements of the RAW include excavation and removal of onsite contaminated soils and importation of clean fill material. During these activities, disturbance of onsite soils could result in dust generation and release contaminants to the atmosphere and imported fill could contain contaminants (i.e., naturally occurring asbestos). The approved RAW would include dust control measures in compliance with BAAQMD requirements, including but not limited to: wet suppression, air monitoring and collection of meteorological data, and installation of a wind fence (50% porosity) to reduce wind speed and minimize offsite travel of dust particles. Implementation of these dust control measures would reduce the potential for nearby residents to be exposed to contaminants present in onsite soils through the air pathway to less-than-significant levels. Further, the RAW would include measures (i.e., soil testing) to prevent the importation of fill material that contains contaminants. Therefore, this would be a less-than-significant impact.

Construction of this alternative could result in odors associated with construction equipment exhaust, asphalt paving and other activities. The nearest sensitive land uses include residential development that immediately borders the north, west, and southern site boundary. These impacts would be short-term in nature, terminating after construction is complete. As such, construction-related emissions of odorous compounds would not be anticipated to result in frequent or prolonged exposure of sensitive receptors to odors. This alternative does not include the long-term operation of any major stationary source of odorous emissions. Implementation of this alternative would not generate substantial odors during construction or operation and odor impacts would be less than significant.

This alternative would result in minor increases in vehicular trips associated with the development. This alternative (200 single-family homes) would generate 165 a.m. and 226 p.m. peak-hour vehicle trips per day. These vehicle trips were entered into the URBEMIS2002 model to estimate the increase in air emissions associated with implementation of this alternative. The results of the emissions modeling are presented in Tables 7-1 and 7-2. As described in those tables, this alternative would not increase emissions of ROG, NO_x, CO, or PM_{10} above BAAQMD or California significance thresholds. Further, based on modeling results presented in Appendix B, this alternative would not result in substantial increases from area source emissions (i.e., landscape maintenance equipment). Therefore, this alternative's project-related operational air emissions would be less than significant.

This alternative would result in comparable construction-related odor and remediation related air quality impacts to the project. This alternative's operational (i.e., vehicle trips) air quality impacts would be slightly greater than the project, but would not exceed any BAAQMD or California significance thresholds. Overall, this alternative would result in less-than-significant air quality impacts, but these impacts would be slightly greater than the project's air quality impacts.

and prepared a draft RAW that identifies the necessary remediation activities to excavate and remove onsite contaminated soils. The approved RAW would require the preparation of a site Health and Safety Plan. This plan would outline measures that would be employed to protect construction workers and residents from exposure to hazardous materials during remediation activities. These measures could include, but would not be limited to installing security barriers, posting notices, limiting access to the site; air monitoring, watering, and installing wind fences. Further, development contractors would be required to comply with state health and safety standards for all demolition work. This would include compliance with OSHA and Cal-OSHA requirements regarding exposure to asbestos and lead-based paint. Because remediation activities would occur in accordance with measures outlined in the RAW and demolition activities would comply with OSHA requirements, the potential to expose construction workers and residents to safety hazards as a result of remediation and demolition activities would be less than significant.

Impact 4.6-2

Create a Significant Hazard to the Public or the Environment. *The project would not involve the routine storage, use, or transportation of any hazardous materials. The use, storage and handling of hazardous substances during remediation activities and removal of existing buildings (e.g., contaminated soils, asbestos, lead-based paint) and during construction (e.g., fuels, asphalt) would occur in accordance with the approved RAW and applicable local, state, and federal laws. Therefore, impacts related to creation of significant hazards to the public through transport, use, disposal and risk of upset would be less than significant.*

As a result of pesticide use related to past agricultural practices on the site, arsenic and dieldrin concentrations in onsite soils are a potential health risk of concern. As described above, DGS has prepared a draft RAW that identifies necessary remediation activities for unrestricted residential use, including excavation and removal of onsite contaminated soils, and importation of clean fill material. The project includes measures that ensure the safe transport, use, and disposal of contaminated soil and building debris removed from the site. The development contractors would be required to comply with the approved RAW and applicable local, state, and federal laws. The RAW outlines measures for specific handling and reporting procedures for hazardous materials, and disposal of hazardous materials removed from the site at an appropriate offsite disposal facility. Analysis and mitigation measures addressing the potential release of hazardous materials into the atmosphere are addressed in Section 4.3, Air Quality, of this Draft EIR.

The project would include the construction of up to 110 single-family residences, 165 senior housing units, a 1 acre municipal park, and infrastructure typically associated with residential development. None of these uses would involve the use, storage or transport of hazardous materials on a routine basis. During construction, minor use, storage and handling of hazardous substances, including fuel and asphalt, would be expected. This would be done in accordance with applicable local, state and federal regulations, including Cal-OSHA requirements, and manufacturers' instructions. Because all activities would be in compliance

with applicable laws pertaining to the handling, transport, and storage of hazardous materials, this impact would be less than significant.

4.6.3 MITIGATION MEASURES

No mitigation measures are necessary for the following less-than-significant impacts.

4.6-1: Create a Safety Hazard for Construction Workers and Adjacent Residences.

4.6-2: Create a Significant Hazard to the Public or Environment.

4.6.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The project's hazards and hazardous materials impacts (Impact 4.6-1 and 4.6-2) would be less than significant. No mitigation is required.

4.6 HAZARDS AND HAZARDOUS MATERIALS

Past agricultural operations at the project site resulted in the potential for soils with elevated pesticide concentrations. DGS conducted extensive testing at the site to determine if project site soils pose a potential health risk to future occupants. Based on soil testing results, a number of chemicals of potential concern were identified. Some onsite soils have concentrations of arsenic and dieldrin above EPA Preliminary Remediation Goals. Because of these conditions, DGS entered into a Voluntary Cleanup Agreement (VCA) with the California Department of Toxic Substances Control (DTSC). The VCA provides the basis for DTSC to exercise regulatory control and oversight for the investigation and ultimate cleanup of contamination on the project site.

Pursuant to the VCA, DGS has prepared a draft Removal Action Workplan (RAW) that identifies necessary remediation activities for soils with arsenic concentrations above background levels and dieldrin above cleanup levels. The objectives of the RAW are to (1) minimize exposure of future site residents to surface soils containing arsenic above 20 micrograms per kilogram (mg/kg), (2) ensure the mean concentration of dieldrin in an individual field is below 30 mg/kg, and (3) leave the site in a physical condition that is compatible with single-family residential use. The project includes unrestricted residential use of the property. This use would allow future residents to pursue a normal range of activities, including gardening, without restriction.

The draft RAW includes the excavation and removal of onsite soils with arsenic concentrations greater than 20 mg/kg. These soils would be hauled to an appropriately permitted disposal facility. Approximately 5,000 to 6,000 cubic yards (cy) of soil would be excavated and removed from the site, and under worst case conditions a similar volume would be brought to the site as fill. It is possible that some of the soil excavated from the proposed senior housing parking garages could be used as fill. Confirmation soil samples would be taken at the site to ensure that arsenic and dieldrin levels do not exceed cleanup goals. DTSC must approve the draft RAW and circulate it for review by public agencies and public before its implementation. DGS would be responsible for the cleanup of onsite soils in accordance with the VCA and RAW approved by DTSC and would be required to prepare an Implementation Report. Remediation activities outlined in the RAW are elements of the project and have been evaluated throughout this Draft EIR.

The goal of the following discussion is to identify as clearly as possible the extent and type of contamination found on the site and the actions proposed to reduce impacts to the general public, construction workers, and future users of the site. The following analysis is based on a Phase I Environmental Assessment Report (Phase I) and Phase II Site Characterization Report (Phase II) prepared by Environ International Corporation (2002 and 2003). A copy of these reports are included in this Draft EIR as Appendix D and E. Copies of Phase I and II reports, including sampling results, are also on file with the City of Santa Clara Planning Department and are available for review during regular business hours. These reports were peer reviewed by Hallenbeck/Allwest in July 2003.

4.6.1 ENVIRONMENTAL SETTING

The project site is not located within ¼ mile of an existing or proposed school, nor is the site within an airport land use plan or within 2 miles of a public or private airport. Further, the project site is surrounded by urban development and therefore would not be subject to wildland fires. As such, these issues are not evaluated further in this Draft EIR. The effects of the project on emergency access routes and plans is discussed in Section 4.10, Transportation and Circulation.

The U.S. EPA's Envirofacts website database was searched to identify potential hazardous contamination sites on or near the project site. The project is not listed in the Envirofacts database as a known hazardous material contamination site. No sites within ¼ mile of the project site have the potential to create a hazardous condition on the project site or in groundwater beneath the site. Further, investigations of groundwater beneath the site revealed that no contamination was present (please refer to Section 4.8, Hydrology and Water Quality) (U.S. EPA 2003). Therefore, this issue is not addressed further in this Draft EIR.

The site has been used as an agricultural research station since the 1920s. A variety of different buildings have been present on the site, some of which have historically been used for purposes such as storage or use of small quantities of pesticides. These buildings and storage areas included greenhouses, storage sheds and the administrative building basement. The small quantities of hazardous materials previously stored on the site have been removed. The field plots and greenhouses contain shallow surface soil residues from past use of agricultural chemicals such as pesticides and herbicides.

SOIL/GROUNDWATER

Based on the results of the Phase I report (Appendix D), project site operations could have resulted in elevated pesticide concentrations in onsite soils. Arsenic and dieldrin were identified as chemicals of potential concern and these pesticides could have percolated to deeper soils and groundwater. The report recommended that soil samples and testing be conducted to determine the concentrations of contaminants in onsite soils.

The Phase I report also indicated that in 1973, an evaporation bed was installed to dispose of diluted pesticide wastes (Exhibit 4-4). The evaporation bed was located adjacent to and west of the equipment wash station, next to the pesticide shed. Use of the evaporation bed was discontinued in 1985. Soils beneath the bed were tested for the presence of pesticides. Pesticide levels in these soils were below regulatory standards and were removed from the site to minimize potential contamination risk. The Phase I report concluded that operation of the evaporation bed had a low potential to contaminate soils at the site (Environ 2002).

The Phase II report (Appendix E) evaluated whether current or past chemical and pesticide use at the site resulted in soil concentrations that pose a potential threat to human health and the environment. Over 50 soil samples were collected from onsite locations. These samples

were tested for 14 chemicals and over 60 pesticides commonly used before 1979. Locations of soil samples are shown in Exhibit 4-5.

The Phase II Site Characterization was conducted under the assumption that future land use would be unrestricted (i.e., that residential development would be a possibility). Receptors that could come in contact with onsite contaminated soils include construction workers and residents. The report assumed that receptors could be exposed to onsite contaminated soils through ingestion of soil, dermal contact with soil, and inhalation of airborne particles released from soil. Inhalation would be the main concern during cleanup. Evaluation of the project's potential to release hazardous materials into the atmosphere are addressed in Section 4.3, Air Quality, of this Draft EIR.

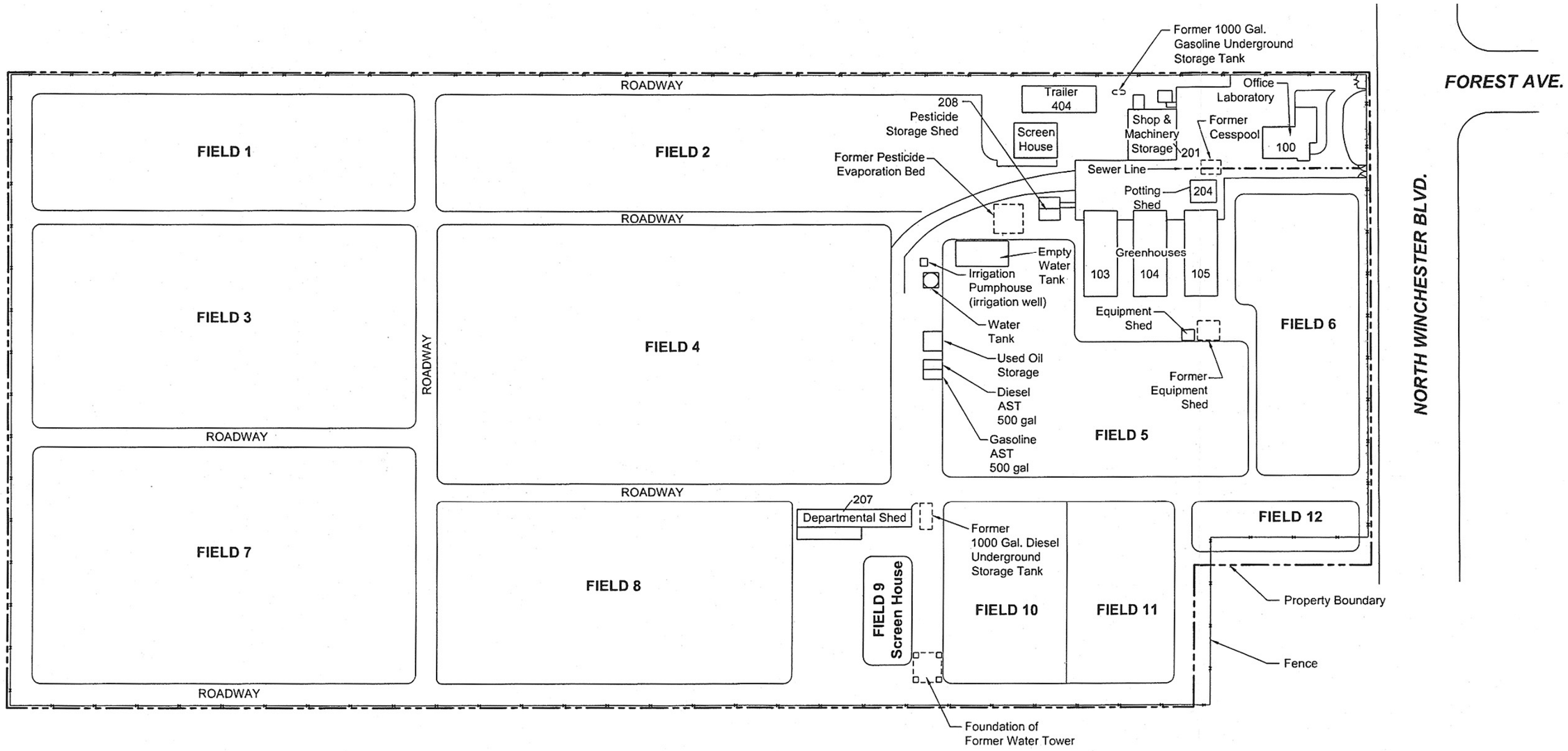
The Phase II Site Characterization indicated that arsenic and dieldrin were found in surface soils (0.5 to 3 feet below ground surface [bgs]) at concentrations above U.S. EPA Preliminary Remediation Goals (PRGs). The elevated concentrations of dieldrin found in Fields 1, 3, and 7 were isolated and limited in their horizontal and vertical extent. No remediation of dieldrin would be necessary (Environ 2003). Arsenic concentrations in shallow surface soils (i.e., 0 to 0.5 feet bgs) in the eastern portion of Field 4 were above background concentrations normally found in soils in northern Santa Clara County. In addition, elevated concentrations of arsenic were found in a small area (less than 5 square feet) adjacent to the dirt road in front of the former screen house, and in the dirt road between Fields 11 and 12. The Phase II report indicated that these arsenic concentration levels could be potentially carcinogenic to construction workers and residents and that removal of these soils would minimize potential health risks. In response, DGS entered into a VCA with the DTSC to cleanup and remove contaminated onsite soils.

SEPTIC TANK AND LEACH FIELD

Before 1977, wastewater generated in the administrative building was discharged into a sewage leach pit. The leach pit was located west of the administrative building and was abandoned in 1977 in accordance with Uniform Plumbing Code Standards for cesspools (Environ 2002). Soil samples beneath the leach pit were collected and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), organochlorine pesticides, total petroleum hydrocarbons (TPH), and metals/inorganics. VOCs, SVOCs, organochlorine pesticides and TPH were not detected in soil samples, but metals were found at low concentrations (Environ 2003). The metal concentrations were well within background levels for soils in the area. Therefore, there is no evidence that operation of the sewer leach pit adversely affected onsite soils or groundwater (Environ 2003).

ASBESTOS

A limited asbestos survey of project facilities was conducted in 1989. The survey found that asbestos was present in several buildings primarily in heating ducts, insulation material in bench top ovens, planter boxes, vent pipes, and hard-board bench tops (Environ 2002).



Source: Environ 9/02

Layout of the Former Research Facility

EXHIBIT 4-4

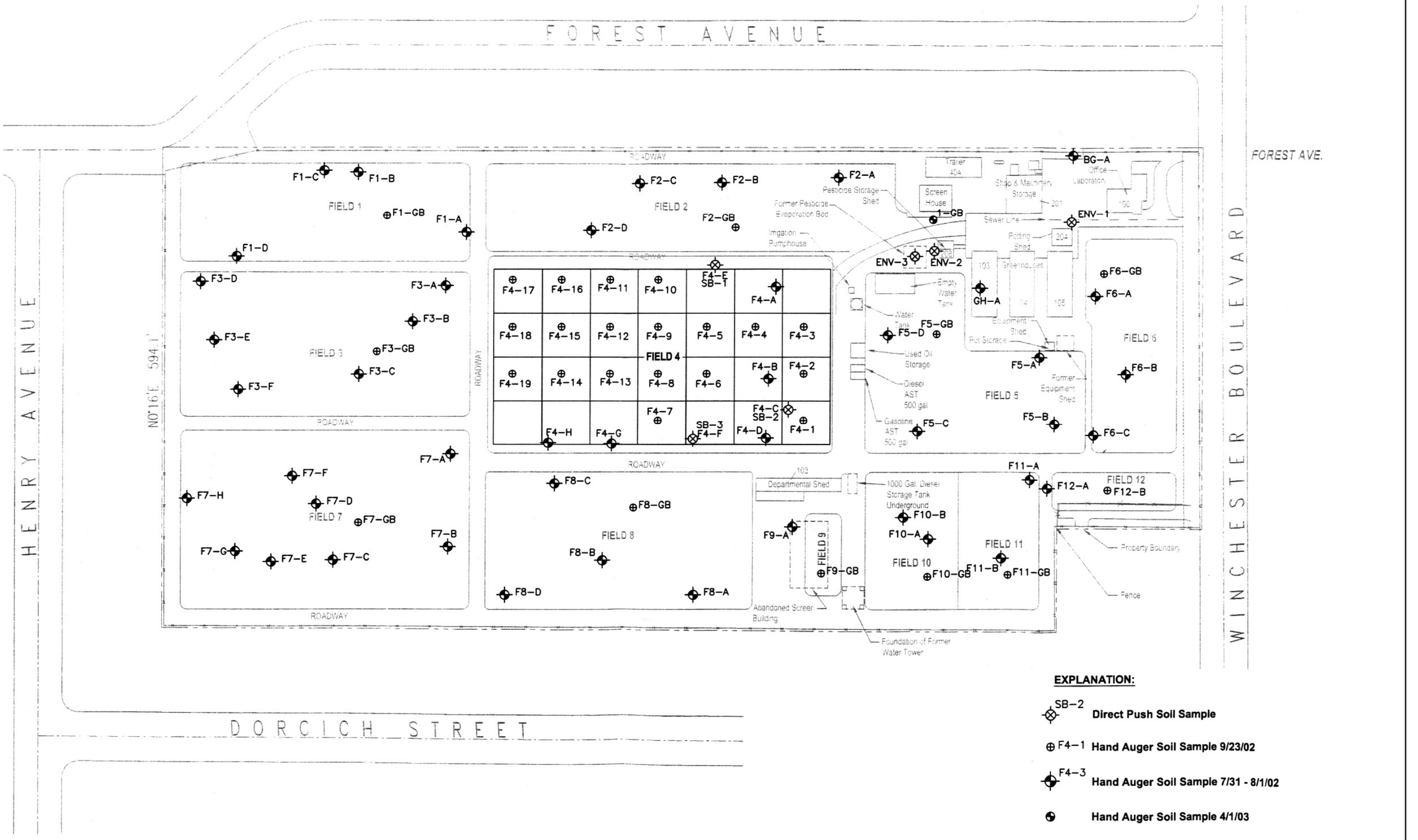
Santa Clara Gardens Development Project Draft EIR

G 3T008.01 08/03

0 50 100 Feet

NORTH

EDAW



Source: Environ 4/29/03

Location of Soil Samples

EXHIBIT 4-5

Santa Clara Gardens Development Project Draft EIR

G 3T008.01 10/03

0 60 120 Feet

NORTH

EDAW

LEAD PAINT

The use of lead as an additive to paint was discontinued in 1978. Although a lead-based paint survey was not performed at the site because site facilities were constructed before 1978, it is likely that lead-based paint is present in many of the buildings. The Phase I report recommended that the laboratory/office building be surveyed for lead-based paint if this building were to remain and could be occupied (Environ 2002).

PCBS

Several pole-mounted transformers and fluorescent light ballasts were observed on the project site. These objects may contain polychlorinated biphenyls (PCBs). The transformers were served by Pacific Gas and Electric (PG&E) which would be responsible for their removal before project construction. Fluorescent light ballasts would be removed during demolition of existing buildings.

PETROLEUM HYDROCARBONS

A 1,000-gallon gasoline underground storage tank (UST), located adjacent to the maintenance shop, and a 1,000-gallon diesel UST located adjacent to a storage building were removed from the project site in 1993. Before removal, the USTs were inspected and found to be in good condition with no evidence of leakage (i.e., stained soil, holes). Soil samples beneath the USTs were collected and analyzed for the presence of petroleum hydrocarbons. The analysis indicated that no petroleum hydrocarbons were present in soils beneath the USTs (Environ 2003).

PESTICIDE RESIDUES

The soil sample analysis results in portions of the project site indicate that 7 organochlorine pesticides, diquat, and 13 inorganic compounds were detected. A comparison of the pesticide results with U.S. EPA Region IX PRGs indicated that only dieldrin and arsenic exceeded applicable PRGs. However, dieldrin was not considered a chemical of potential concern because only 3 of 60 soil samples had concentrations above PRGs in surface soils and the concentrations were of limited horizontal and vertical extent. Therefore, dieldrin in onsite soils would not pose a significant adverse human health risk effect (Environ 2003). DGS has entered into a VCA with DTSC and prepared a draft RAW that identifies necessary remediation activity for soils contaminated with arsenic.

Radon is an odorless, invisible gas that naturally occurs in soils. Natural radon levels vary and are closely related to geologic formations. It cannot be detected without specialized equipment. Radon may enter buildings through basement sumps or other openings.

The United States Environmental Protection Agency (EPA) has established the recommended safe radon level at 4 pCi/L. The EPA has prepared a map dividing the country into three Radon Zones; Zone 1 for those areas with the average predicted indoor radon concentration in residential dwellings exceeding the EPA action limit of 4 pCi/L; Zone 2 for those areas where

IMPACT ANALYSIS

Impact 4.3-1

Construction and Remediation-Related Air Emissions. *Although implementation of the project would generate PM_{10} emissions during construction and remediation activities, the developers would implement all feasible BAAQMD PM_{10} control measures to control construction-related dust emissions at the site, and as part of the RAW for proposed remediation activities would implement dust control measures consistent with DTSC Standards to control dust and prevent the airborne exposure of soil contaminants to nearby residents. Therefore, this would be a less-than-significant impact.*

Construction

Construction-related emissions are generally short-term in duration, but have the potential to cause adverse air quality impacts. PM_{10} is the pollutant of greatest concern with respect to construction activities. While construction equipment and hauling of trucks emit CO and ozone precursors, these emissions are included in the emissions inventory that is the basis for regional air quality plans, and are not expected to impede attainment of ozone or maintenance of CO standards in the Bay Area. PM_{10} emissions can result from a variety of construction activities, including excavation, grading, demolition, site preparation, hauling of soil offsite, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust.

The BAAQMD emphasizes implementation of effective and comprehensive control measures rather than requiring a detailed quantification of construction emissions. The BAAQMD requires that all feasible control measures, which are dependent on the size of the construction area and the nature of the construction operations involved, shall be incorporated into the project design and implemented during all construction activities (BAAQMD 1999). Implementation of BAAQMD control measures reduce fugitive dust emissions by approximately 50–75%. The project applicants have agreed to implement all feasible BAAQMD-recommended control measures for construction-generated PM_{10} emissions. Therefore, short-term construction-generated PM_{10} emissions would be less than significant.

Remediation

As a result of pesticide use related to past agricultural practices on the site some soils have concentrations of arsenic and dieldrin above EPA preliminary remediation goals. To develop the site, the Department of General Services (DGS) would be required to remediate onsite soils to bring them to levels suitable for proposed uses (i.e., unrestricted residential use), before construction of any proposed buildings. Pursuant to DGS' Voluntary Cleanup Agreement (VCA) with the DTSC, DGS has prepared a RAW that identifies necessary remediation activities. Elements of the RAW include excavation and removal of onsite contaminated soils and importation of clean fill material. During these activities, disturbance of onsite soils could result in dust generation and release contaminants to the atmosphere and imported fill could contain contaminants (i.e., naturally occurring asbestos). The approved RAW would include dust control measures in compliance with BAAQMD requirements, including but not limited to: wet suppression, air monitoring and collection of meteorological data, and installation of a

wind fence (50% porosity) to reduce wind speed and minimize offsite travel of dust particles. Implementation of these dust control measures would reduce the potential for nearby residents to be exposed to contaminants present in onsite soils through the air pathway to less-than-significant levels. Further, the RAW would include measures (i.e., soil testing) to prevent the importation of fill material that contains contaminants. Therefore, this would be a less-than-significant impact.

Impact 4.3-2

Exposure to Objectionable Odors. *Odors from construction activities would be intermittent and temporary in nature, and would dissipate rapidly from the source with increases in distance. In addition, no existing odor sources are located in the vicinity of the proposed project site and the project would not include the long-term operation of any new sources. Thus, the proposed project would not result in the frequent exposure of the public to objectionable odors. As a result, this impact would be considered less than significant.*

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. While offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

Offensive odors can often be unpleasant, although they rarely cause long-term physical harm. The nearest sensitive land uses include residential development that immediately border the north, west, and southern site boundaries.

The construction of the proposed project would result in odors from the diesel exhaust of on-site construction equipment and asphalt paving emissions. The diesel exhaust and paving emissions would be intermittent and temporary in nature, and dissipate rapidly from the source with increases in distance. In addition, no existing odor sources are located in the vicinity of the proposed project site and the project would not include the long-term operation of any new sources. Thus, the operation of the proposed project would not result in the frequent exposure of the public to objectionable odors. As a result, this impact is considered less than significant.

Impact 4.3-3

Long-term Operational Criteria Air Pollutant Emissions. *Long-term operation of the project would not result in regional or local criteria air pollutant emissions that exceed the BAAQMD-recommended significance thresholds for ROG, NO_x, PM_{10}, or CO. Therefore, this impact would be less than significant.*

Long-term operation of project would result in criteria air pollutant emissions primarily from mobile (i.e., vehicle) sources. According to the transportation impact analysis, project implementation would generate a total of approximately 2,159 average daily vehicle trips (ADT) (Fehr & Peers 2005). In accordance with BAAQMD-recommended guidance, regional mobile-source emissions of ROG, NO_X, and PM_{10} associated with the operation of the project were estimated using URBEMIS 2002 Version 8.7.0 computer program, as discussed above, based on proposed land use types and number of units, project trip generation estimates from