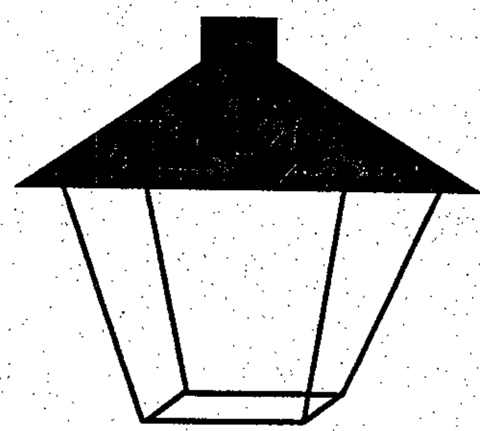
FINAL

ENVIRONMENTAL IMPACT REPORT

TOWN AND COUNTRY VILLAGE



CITY OF SAN JOSE

JUNE 1998

97-036

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VOLUME III OF IV : DRAFT EIR APPENDICES B-G

APPENDIX B

AIR QUALITY ANALYSIS

97-036

AIR QUALITY IMPACT ANALYSIS FOR THE TOWN AND COUNTRY VILLAGE PROJECT, SAN JOSE

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97-036

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I. EXISTING CONDITIONS

Air Pollution Climatology

The amount of a given pollutant in the atmosphere is determined by the amount of pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain and, for photochemical pollutants, sunshine.

Northwest winds and northerly winds are most common in the project area, reflecting the orientation of the Bay and the San Francisco Peninsula. Winds from these directions carry pollutants released by autos and factories from upwind areas of the Peninsula toward San Jose, particularly during the summer months. Winds are lightest on the average in fall and winter. Every year in fall and winter there are periods of several days when winds are very light and local pollutants can build up.

Pollutants can be diluted by mixing in the atmosphere both vertically and horizontally. Vertical mixing and dilution of pollutants are often suppressed by inversion conditions, when a warm layer of air traps cooler air close to the surface. During the summer, inversions are generally elevated above ground level, but are present over 90 percent of the time in both the morning and afternoon. In winter, surface-based inversions dominate in the morning hours, but frequently dissipate by afternoon.

Topography can restrict horizontal dilution and mixing of pollutants by creating a barrier to air movement. The South Bay has significant terrain features that affect air quality. The Santa Cruz Mountains and Hayward Hills on either side of the South Bay restrict horizontal dilution, and this alignment of the terrain also channels winds from the north to south, carrying pollution from the northern Peninsula toward San Jose.

The combined effects of moderate ventilation, frequent inversions that restrict vertical dilution and terrain that restrict horizontal dilution give San Jose a relatively high atmospheric potential for pollution compared to other parts of the San Francisco Bay Air Basin.

Ambient Air Quality Standards

Both the U. S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. Table 1 identifies the major criteria pollutants, characteristics, health effects and typical sources.

The federal and California state ambient air quality standards are summarized in Table 2 for important pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and PM-10.

The U.S. Environmental Protection Agency has recently announced new national air quality standards for ground-level ozone and for fine Particulate Matter. The existing 1-hour ozone standard of 0.12 PPM will be phased out and replaced by an 8-hour standard of 0.08 PPM. New national standards for fine Particulate Matter (diameter 2.5 microns or less) have also been established for 24-hour and annual averaging periods.

Table 1: Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen. Often called photochemical smog.	•Eye Irritation •Respiratory function impairment.	The major sources ozone precursors are combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	•Impairment of oxygen transport in the bloodstream. •Aggravation of cardiovascular disease. •Fatigue, headache, confusion, dizziness. •Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	Reddish-brown gas that discolors the air, formed during combustion.	•Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants.
Sulfur Dioxide	Sulfur dioxide is a colorless gas with a pungent, irritating odor.	•Aggravation of chronic obstruction lung disease. •Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.
Particulate Matter	Solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time.	•Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.

Table 2: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 PPM	0.09 PPM
Carbon Monoxide	8-Hour 1-Hour	9.0 PPM 35.0 PPM	9.0 PPM 20.0 PPM
Nitrogen Dioxide	Annual Average 1-Hour	0.05 PPM --	-- 0.25 PPM
Sulfur Dioxide	Annual Average 24-Hour 1-Hour	0.03 PPM 0.14 PPM --	-- 0.05 PPM 0.25 PPM
PM_{10}	Annual Average 24-Hour	50 μg/m³ 150 μg/m³	30 μg/m³ 50 μg/m³
$PM_{2.5}$	Annual 24-Hour	15 μg/m³ 65 μg/m³	-- --
Lead	30-Day Avg. Month Avg.	-- 1.5 μg/m³	1.5 μg/m³ --

PPM = Parts per Million

$\mu g/m^3$ = Micrograms per Cubic Meter

Ambient Air Quality

The Bay Area Air Quality Management District (BAAQMD) monitors air quality at several locations within the San Francisco Bay Air Basin. The monitoring site closest to the project site is in downtown San Jose. Table 3 summarizes exceedances of State and Federal standards at the downtown San Jose monitoring site during the period 1994-1996. Table 3 shows that ozone and PM_{10} exceed the state standards in the project area. Violations of the carbon monoxide standards had been recorded at the downtown San Jose site prior to 1992.

Of the three pollutants known to at times exceed the state and federal standards in the project area, two are regional pollutants. Both ozone and PM_{10} are considered regional pollutants in that concentrations are not determined by proximity to individual sources, but show a relative uniformity over a region. Thus, the data shown in Table 3 for ozone and PM_{10} provide a good characterization of levels of these pollutants on the project site.

Carbon monoxide is a local pollutant, i.e., high concentrations are normally only found very near sources. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes.

The data shown in Table 3 for carbon monoxide are not necessarily representative of concentrations that would be found near the proposed project site. For this reason, concentrations of carbon monoxide have been estimated using a computer simulation model that predicts concentrations based on information on roadway locations, traffic volumes and traffic conditions. The results of this analysis are described in Section II, Project Impacts.

Table 3: Summary of Air Quality Data for Downtown San Jose[1,2]

Pollutant	Standard	Days Exceeding Standard in:		
		1994	1995	1996
Ozone	Federal 1-Hour	0	1	0
Ozone	State 1-Hour	3	14	5
Carbon Monoxide	State/Federal 8-Hour	0	0	0
PM_{10}	Federal 24-Hour	0	0	0
PM_{10}	State 24-Hour	10	4	2

1 California Air Resources Board, California Air Quality Data, Annual Summaries, 1994-1995.

2 Bay Area Air Quality Management District, Air Currents, April 1997.

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Attainment Status and Regional Air Quality Plans

The federal Clean Air Act and the California Clean Air Act of 1988 require that the State Air Resources Board, based on air quality monitoring data, designate portions of the state where the federal or state ambient air quality standards are not met as "nonattainment areas". Because of the differences between the national and state standards, the designation of nonattainment areas is different under the federal and state legislation.

Federal Air Quality Program

The Bay Area is currently a nonattainment area only for carbon monoxide. However, the U.S. Environmental Protection Agency has proposed reclassifying the Bay Area from "maintenance area" to nonattainment for ozone also based on recent violations of the federal standards at several locations in the air basin. This would reverse the air basin's reclassification to "maintenance area" for ozone in 1995. Reclassification would require an update to the region's federal air quality plan.

The revisions to the national ambient standards for ozone and Particulate Matter have no immediate effect on nonattainment planning. Existing ozone and Particulate Matter designations will remain in effect until U.S. E.P.A establishes new designations based on any new ozone or Particulate Matter standard. Final promulgation of guidance for development of nonattainment plans for any new ozone or Particulate Matter standard is scheduled for June of 1999.

State Air Quality Program

Under the California Clean Air Act Santa Clara County is a nonattainment area for ozone and PM_{10}. The county is either attainment or unclassified for other pollutants.

The California Clean Air Act requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or if not, provide for adoption of "all feasible measures on an expeditious schedule".

The current area-wide plan required by the California Clean Air Act was adopted in October 1994.[3] The Plan proposes the imposition of controls on stationary sources (factories, power plants, industrial sources, etc.) and Transportation Control Measures designed to reduce emissions from automobiles. Since the Plan does not provide for a 5% annual reduction in emissions, it proposes the adoption of "all feasible measures on an expeditious schedule".

Sensitive Receptors

The Bay Area Air Quality Management District defines sensitive receptors as facilities where sensitive receptor population groups (children, the elderly, the acutely ill and the chronically ill) are likely to located. These land uses include residences, schools playgrounds, child care centers, retirement homes, convalescent homes, hospitals and medical clinics. Existing residential areas north and east of the site along Redwood Avenue and Baywood and new residential areas under construction east of the site represent the closest sensitive receptors to the project site. The proposed project itself would contain residential uses that would be new sensitive receptors.

Significance Criteria

CEQA Guidelines provide that a project would normally have a significant air quality

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[3] Bay Area Air Quality Management District, Bay Area '94 Clean Air Plan (CAP), 1994.

impact: if it would:

- Violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations (CEQA Guidelines, Appendix G (x)).

- Result in substantial emissions or deterioration of ambient air quality (CEQA Guidelines, Appendix I(II.2.a)).

- Create objectionable odors (CEQA Guidelines, Appendix I (II.2.b)).

- Alter air movement, moisture, or temperature, or result in any change in climate, either locally or regionally (CEQA Guidelines, Appendix I (II.2.c)).

For the purpose of this study, an impact is considered to be significant is any of the following conditions would result from implementation of the proposed project.

- For localized pollutants such as carbon monoxide, an increase in predicted concentrations that would cause a new violation of the most stringent State or Federal standard (20.0 PPM for one-hour, 9.0 PPM for eight-hours) or contribute substantially to an existing violation of the standards.

- The significance of regional emission increases is determined by comparison of project-related emissions to "thresholds of significance" suggested by the Bay Area Air Quality Management District. These thresholds are 80 pounds per day for ozone precursors and PM_{10}. The significance threshold for carbon monoxide is 550 pounds per day, although exceedance of this threshold only triggers the need for estimates of carbon monoxide "hot spot" concentrations.[4]

[4] Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, 1996.

II. PROJECT IMPACTS

Construction Impacts

Construction activities such as demolition, excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth would generate exhaust emissions and fugitive particulate matter emissions that would affect local and regional air quality.

Demolition and site preparation activities would be the greatest source of air pollutant emissions during project construction. Removal of buildings and pavement materials and site grading would generate relatively large amounts of dust and PM_{10} and lesser amounts of equipment exhaust gases such as reactive organic gases, oxides of nitrogen and carbon monoxide.

Construction dust could affect local air quality at various times during construction of the project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed to the atmosphere.

The local effects of construction activities would include increased dustfall and locally elevated levels of PM_{10} downwind of construction activity. Depending on the weather, soil conditions, the amount of activity taking place and nature of dust control efforts these impacts could extend beyond the site boundaries. This impact is considered to be potentially significant.

Local Impacts

On the local scale, the project would change traffic on the local street network and within the site's internal roads and parking areas. Carbon monoxide levels along roadways used by project traffic would also be changed. Carbon monoxide is an odorless, colorless poisonous gas whose primary source in the Bay Area is automobiles. Concentrations of this gas are generally highest near intersections of major roads because of the amount of idling, acceleration and deceleration occurring..

The CALINE-4 computer simulation model was applied to eight intersections near the project site. These intersections were selected on the basis of PM peak hour Level of Service. All would operate at Level of Service D or worse for one or more of the traffic scenarios.

The model results were used to predict the maximum 1-and 8-hour concentrations, corresponding to the 1- and 8-hour averaging times specified in the state and federal ambient air quality standards for carbon monoxide. The CALINE-4 model and the assumptions made in its use for this project are described in Attachment 1.

Table 4 shows the results of the CALINE-4 analysis for the peak 1-hour and 8-hour traffic periods in parts per million (PPM). The 1-hour values are to be compared to the federal 1-hour standard of 35 PPM and the state standard of 20 PPM. The 8-hour values in Table 4 are to be compared to the state and federal standard of 9 PPM.

Table 4 shows that existing 1-hour averaged concentrations do exceed the 1-hour ambient standards at two of the eight intersections modeled. Predicted 8-hour averaged concentrations at all eight intersections exceed the state/federal ambient air quality standards.

Future concentrations at study intersections would be influenced by two opposing tends: increasing traffic volumes and declining emission rates from vehicles. By 2002, the assumed build-out year for approved, project and cumulative development, concentrations would be lower than existing concentrations at all intersections. No exceedances of the

Table 4: Predicted Worst-Case Carbon Monoxide Concentrations at Selected Intersections, in Parts Per Million

Intersection	Existing (1997) 1-Hour	Existing (1997) 8-Hour	Existing + Approved (2002) 1-Hour	Existing + Approved (2002) 8-Hour	Existing + Approved+ Project (2002) 1-Hour	Existing + Approved+ Project (2002) 8-Hour	Cumulative (2002) 1-Hour	Cumulative (2002) 8-Hour
Bascom/ San Carlos	16.7	<u>9.6</u>	12.6	7.1	12.7	7.2	12.8	7.3
Hamilton/ Winchester	<u>21.2</u>	<u>12.8</u>	15.2	9.0	15.2	9.0	15.3	9.0
Monroe/ Stevens Creek	18.1	<u>10.6</u>	14.1	8.2	14.8	8.7	14.9	8.8
Moorpark/ San Tomas	18.2	<u>10.7</u>	13.4	7.7	13.4	7.7	13.5	7.8
Moorpark/ Winchester	18.6	<u>11.0</u>	13.9	8.1	14.0	8.1	14.0	8.1
Winchester/ Stevens Creek	19.2	<u>11.4</u>	14.3	8.3	14.5	8.5	14.6	8.5
Stevens Creek/ Saratoga	17.3	<u>10.0</u>	12.9	7.4	13.0	7.4	13.0	7.4
San Tomas/ Stevens Creek	<u>20.1</u>	<u>12.0</u>	14.7	8.6	14.8	8.7	14.9	8.6

Concentrations exceeding applicable standard are underlined.

1-hour or 8-hour standards are predicted.

The addition of proposed project traffic would increase both 1-hour and 8-hour averaged concentrations. Project traffic would increase 1-hour and 8-hour concentrations by as much as 0.7 PPM. This increase would not create any new exceedances of the 1-hour or 8-hour standards, nor would the project "contribute substantially to an existing or projected violation" of the standards, so project impacts on local carbon monoxide concentrations are considered to be less than significant.

Permanent Regional Impacts

Trips to and from the project would result in air pollutant emissions affecting the entire San Francisco Bay air basin. Regional emissions associated with project vehicle use has been calculated using the URBEMIS-5 computer program. The URBEMIS-5 program and the assumptions made in its use are described in Attachment 2.

The estimated incremental daily emissions associated with new traffic generated by the Town and Country project are shown in Table 5 below for Reactive Organic Gases and Nitrogen Oxides (two precursors of ozone) and PM_{10}. Emissions associated with current use of the site has been similarly calculated.

Guidelines for the evaluation of project impacts issued by the Bay Area Air Quality Management District consider emission increases to be significant if they exceed 80 lbs per day for any regional pollutant.[5] Proposed new project emissions shown in Table 5 would exceed this criterion for all three pollutants, so the proposed project would have a significant effect on regional air quality.

Table 5: Regional Emissions in Pounds Per Day

Source	Reactive Organic Gases	Nitrogen Oxides	PM_{10}
Project Emissions	189.6	237.8	273.0
Emissions from Uses Eliminated	76.1	105.5	128.2
Net Change	113.5	132.3	144.8
BAAQMD Significance Threshold	80.0	80.0	80.0

III. CUMULATIVE IMPACTS

The carbon monoxide modeling conducted for the project and summarized in Table 4 superimposed project traffic on traffic volumes reflecting anticipated cumulative traffic increases. The carbon monoxide analysis indicated that in the future carbon monoxide concentrations can be expected to decline, despite project and cumulative traffic increases. The project, singularly or cumulatively, would not increase the number of violations of the carbon monoxide standards are forecast, nor "contribute substantially to an existing or projected violation".

Project-related regional emissions do exceed the significance thresholds for ozone precursors (NOx) and PM_{10}. BAAQMD guidance states that any proposed project that would individually have a significant air quality impact (based on BAAQMD thresholds of significance) would also be considered to have a significant cumulative air quality impact. Since the project would have a significant regional impact individually, it would also have a significant air quality impact cumulatively.

IV. MITIGATION MEASURES

Construction Impacts

The severity of construction impacts can be reduced to a level that is less-than-significant through application of mitigation measures.

Conditions of approval should include the following requirements for demolition activities:

- Whenever possible, dust-proof chutes should be used for loading construction debris onto trucks.
- Watering should be used to control dust generation during demolition of structures and break-up of pavement.
- All trucks removing debris from the site should be covered.
- Internal haul roads should be paved, sealed or stabilized to control dust from truck traffic. Paved haul roads should be regularly swept or cleaned to remove accumulated dust.
- The recycling of demolition materials should be considered, as it would reduce the number of truck trips to the site during construction. It is possible that materials from the demolition of the shopping center buildings and pavement could be recycled after being crushed on site. The use of a crusher on the site would be subject to regulation by the Bay Area Air Quality Management District.

The Bay Area Air Quality Management District considers the following feasible control measures appropriate for large construction sites:

- Water all active construction areas at least twice daily.

- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.

- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.

- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more.

- Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.)

- Limit traffic speeds on unpaved roads 15 mph.

- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.

- Replant vegetation in disturbed areas as quickly as possible.

The above measures should be required by all construction contracts for the proposed project.

Regional Air Quality Impacts

The project is a mixed-use development placing residential and retail uses in close proximity. This characteristic provides for much higher internal and non-auto travel mode percentages compared to typical suburban residential or commercial development. The air quality analysis was based upon trip generation figures reflecting this characteristic.

The potential for reducing vehicle trips through Transportation Systems Management programs (e.g., carpool/vanpool matching, transit incentives/driving disincentives) is very limited since these programs target employees at the place of work, and very few of the project trips are employee trips.

The following are measures that can be implemented to further promote non-auto travel to the project site:

- Provision of secure and convenient residential and non-residential bicycle parking.
- Preferential parking for low emission vehicles and carpools within parking garages.
- Construct transit facilities such as bus turnouts, benches, shelters and information kiosks.
- Charge rent for residential parking spaces as opposed to including parking space costs in residential rental rates. This would provide a subsidy for residents who do not own cars.

The above mitigation measures would be expected to reduce project trip generation by 1-5%. Since a reduction in trips of 42% would be necessary to reduce project regional and cumulative regional impacts to a level that is not significant, project impacts would remain significant and are considered unavoidable.

ATTACHMENT 1: CALINE-4 MODELING

The CALINE-4 model is a fourth-generation line source air quality model that is based on the Gaussian diffusion equation and employs a mixing zone concept to characterize pollutant dispersion over the roadway.[1] Given source strength, meteorology, site geometry and site characteristics, the model predicts pollutant concentrations for receptors located within 150 meters of the roadway. The CALINE-4 model allows roadways to be broken into multiple links that can vary in traffic volume, emission rates, height, width, etc..

The intersection mode of the model was employed, which distributes emissions along each leg of the intersection for free-flow traffic, idling traffic and accelerating and decelerating traffic. The intersection model extended 500 meters in all directions. Receptors (locations where the model calculates concentrations) were located at distance of 20 feet from the roadway edge for all four corners of the intersection and at locations 50 feet in either direction, for a total of 12 receptors. Figure 1 is a schematic diagram showing the location of receptors.

The worst case mode of the CALINE-4 model was employed. In this mode the wind direction is varied to determine which wind direction results in the highest concentration for each receptor. Emission factors were derived from the California Air Resources Board EMFAC-7F model. Adjustments were made for vehicle mix and hot start/ cold start/ hot stabilized percentages appropriate to each roadway. Temperature was assumed to be 50 degrees F.

The computation of carbon monoxide levels assumed the following worst-case

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[1] California Department of Transportation, CALINE-4- A Dispersion Model for Predicting Air Pollutant Concentrations Near Roadways, Report No. FHWA/CA/TL-84-15, 1984.

ATTACHMENT 2: URBEMIS-5

Estimates of regional emissions generated by project traffic were made using a program called URBEMIS-5.[2] URBEMIS-5 is a program which estimate the emissions that result from various land use development projects. Land use project can include residential uses such as single-family dwelling units, apartments and condominiums, and nonresidential uses such as shopping centers, office buildings, and industrial parks. URBEMIS-5 contains default values for much of the information needed to calculate emissions. However, project-specific, user-supplied information can also be used when it is available.

Inputs to the URBEMIS-5 program include trip generation rates, vehicle mix, average trip length by trip type and average speed. Trip generation rates for project land uses were provided by the project transportation consultant. Average trip lengths and vehicle mixes for the Bay Area were used. Average speed for all types of trips was assumed to be 30 MPH.

The URBEMIS-5 runs assumed summertime conditions with an ambient temperature of 75 degrees F.

The URBEMIS-5 program provides emission rates for Total Organic Gases (TOG). The TOG emission was multiplied by 0.92 to estimate Reactive Organic Gases (ROG).

PM-10 emissions from road dust are not calculated by the URBEMIS-5 program. Daily Vehicle Miles Travelled (VMT) generated by project traffic was multiplied by a road dust emission factor[3] of 0.69 grams per mile, and this emission was added to the URBEMIS-5

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2 California Air Resources Board, URBEMIS-5 Computer Program Version 5.0 User Guide, July 1995.

3 Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, 1996.

meteorological conditions:

Windspeed: 1 mps

Stability: F Category

Mixing Height: 1000 meters

Surface Roughness: 100 cm

Standard Deviation of Wind Direction: 10 degrees

The CALINE-4 model calculates the local contribution of nearby roads to the total concentration. The other contribution is the background level attributed to more distant traffic. The assumed 1-hour background level was 10.1 P.M. in 1997 and 8.4 PPM in 2002. The assumed 8-hour background level was 5.0 PPM in 1997 and 4.2 PPM in 2002. These background concentrations were developed using carbon monoxide background levels and correction factors for future years prepared by the BAAQMD. To generate estimates of 8-hour concentrations from the 1-hour CALINE results a persistence factor of 0.70 was employed.

APPENDIX C

NOISE STUDY

97-036

TOWN AND COUNTRY MASTER PLAN EIR SAN JOSE, CALIFORNIA ENVIRONMENTAL NOISE ASSESSMENT

November 7, 1997

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SETTING

a. Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its loudness. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. *A decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level or dBA*. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

TERM	DEFINITIONS
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Day/Night Noise Level, L_{dn}	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

DEFINITIONS OF ACOUSTICAL TERMS **TABLE 1**

At a Given Distance From Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
	140		
Civil Defense Siren (100')	130		
Jet Takeoff (200')	120		Pain Threshold
	110	Rock Music Concert	
Diesel Pile Driver (100')	100		Very Loud
	90	Boiler Room Printing Press Plant	
Freight Cars (50') Pneumatic Drill (50')	80		
Freeway (100') Vacuum Cleaner (10')	70	In Kitchen With Garbage Disposal Running	Moderately Loud
	60	Data Processing Center	
Light Traffic (100') Large Transformer (200')	50	Department Store	
	40	Private Business Office	Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing
	0		

TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

TABLE 2

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The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level, CNEL*, is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level,* L_{dn}, is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Effects of Noise

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise, but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard which is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Sleep and Speech Interference

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noise of sufficient intensity (above 35 dBA) and fluctuating noise levels above about

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Regulatory Background

Federal and State

There are no Federal or State regulations directly applicable to the proposed project. The California Environmental Quality Act (CEQA) includes qualitative guidelines for determining the significance of adverse environmental noise impacts. According to CEQA, a substantial increase in noise at a sensitive location, such as a residence or a school, resulting from a project is considered to cause a significant adverse impact (Appendix G[p] of the CEQA Guidelines document).

City of San Jose

The City of San Jose has adopted a Noise Element as part of its 2020 General Plan. The Noise Element sets forth specific Goals and Policies for compatible noise and land use planning. It is the goal of the City of San Jose to minimize the impact of noise on people through reduction and suppression techniques and through appropriate land use policies. These policies that pertain to this project include the following:

Policy 1. The City's acceptable noise level objectives are 55-L_{dn} as the long-range exterior noise quality level, 60-L_{dn} as the short-range exterior noise quality level, 45-L_{dn} as the interior noise quality level, and 76-L_{dn} as the maximum exterior noise level necessary to avoid significant adverse health effects. The City recognizes that because of existing noise levels and the need for State and Federal noise legislation, a short-term outdoor standard of 60-L_{dn} is considered to be more realistic than 55-L_{dn}.

Policy 8. The City should discourage the use of outdoor appliances, air conditioners and other consumer products which generate noise levels in excess of the City's exterior noise standards.

Policy 9. Construction operations should use available noise suppression devices and techniques.

Policy 10. Commercial drive-through uses should only be allowed when consistent with the City's exterior noise level standards and compatibility with adjacent land uses can be demonstrated.

45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA L_{dn}. Typically, the highest steady traffic noise level during the daytime is about equal to the L_{dn} and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA L_{dn} with open windows and 65-70 dBA L_{dn} if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed, those facing major roadways and freeways typically need special glass windows.

<u>Annoyance</u>

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 55 dBA L_{dn}. At an L_{dn} of about 60 dBA, approximately 2 percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent of the population. There is, therefore, an increase of about 1 percent per dBA between an L_{dn} of 60-70 dBA. Between an L_{dn} of 70-80 dBA, each decibel increase increases by about 2 percent the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the L_{dn} is 60 dBA, approximately 10 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 2 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 3 percent increase in the percentage of the population highly annoyed.

Policy 11. When located adjacent to existing or planned noise sensitive residential land public/quasi-public land uses, non-residential land uses should mitigate noise generation to meet the 55 dBA L_{dn} guideline at the property line.

The noise and land use compatibility guidelines adopted by the City of San Jose are shown in Figure 1. The City recognizes that because of the existing noise levels in San Jose, a short-term outdoor standard of 60 L_{dn} is considered to be more realistic than 55 L_{dn} for the assessment of ground transportation noise.

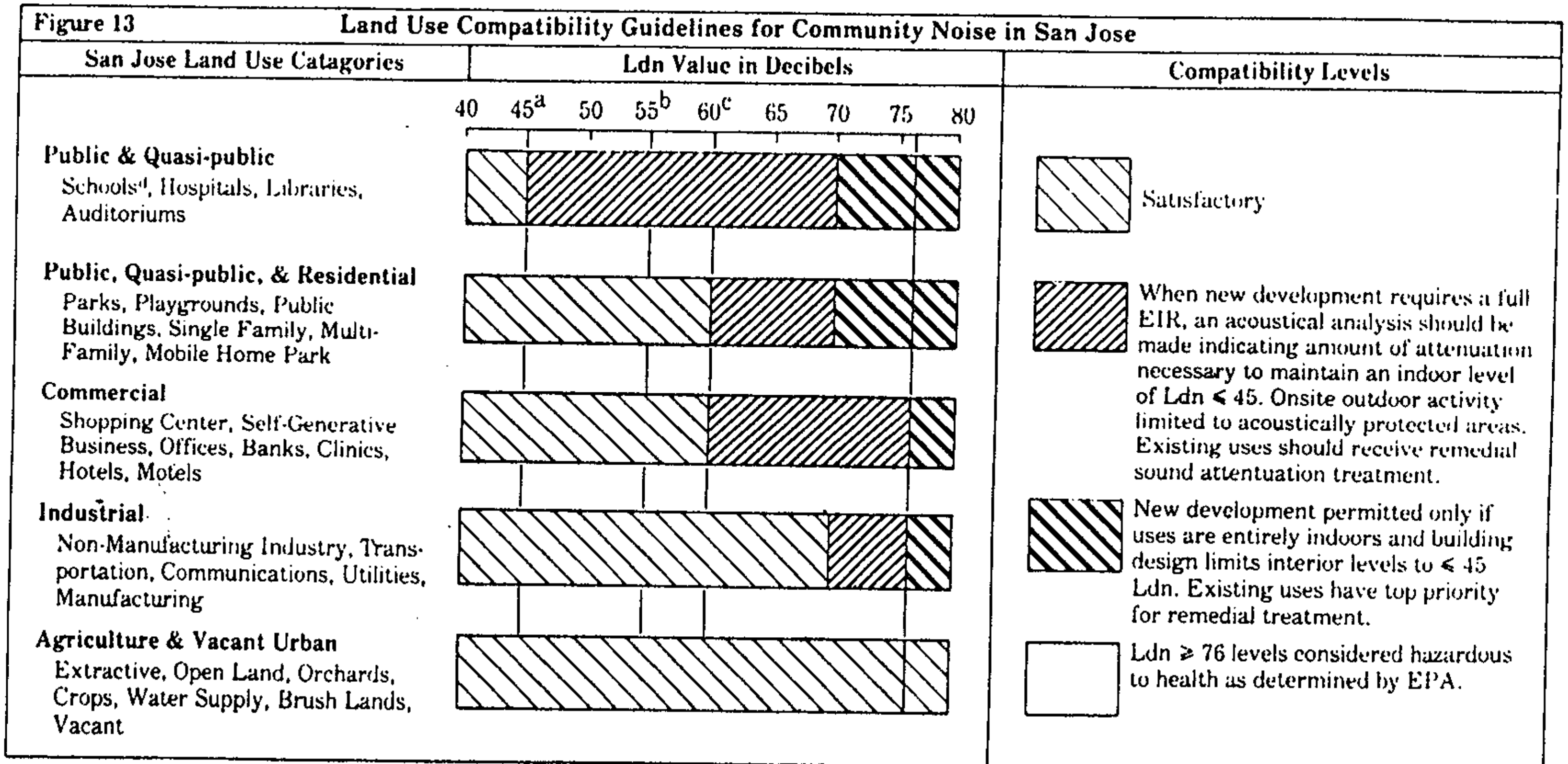
State of California

Title 24, Part 2 of the State Building Code contains uniform minimum noise insulation performance standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses, and dwellings other than detached single-family dwellings from the effects of excessive noise. The State Code mandates that noise levels inside multi-family residential structures proposed to be located where exterior noise levels exceed 60 dB must not exceed 45 dB. The noise metric shall be either the day/night average sound level (L_{dn}) or the Community Noise Equivalent Level (CNEL), consistent with the noise element of the local general plan. In assessing the noise environment against the State Code, worst case noise levels, either existing or future, should be used as the basis for determining compliance. Future noise levels should be predicted for a minimum period of ten years from the time of building permit application. Evidence of compliance should consist of submittal of an acoustical analysis report, prepared under the supervision of a person experienced in the field of acoustical engineering, with the application for a building permit. If interior allowable noise levels are met by requiring that windows be unopenable or closed, the design of the structure must also specify ventilation or air conditioning systems to provide a habitable interior environment.

Existing Noise Environment

The project site is shown in Figure 2. The portion of the site west of Redwood Avenue contains the currently developed Town and Country Shopping Center. Land uses in the vicinity of the site are residential, office, retail, and commercial. Existing residences are located along Redwood Avenue, Hemlock Avenue, and Monroe Avenue.

GOALS AND POLICIES



a. Interior Noise Quality Level
b. Long-Range Exterior Noise Quality Level
c. Short-Range Exterior Noise Quality Level
d. L_{eq} value of $L_{eq(3)}$ • is used for the evaluation of school impact by the airport

Source: Horizon 2000 General Plan, City of San Jose

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NOISE AND LAND USE COMPATIBILITY GUIDELINES | **FIGURE 1**

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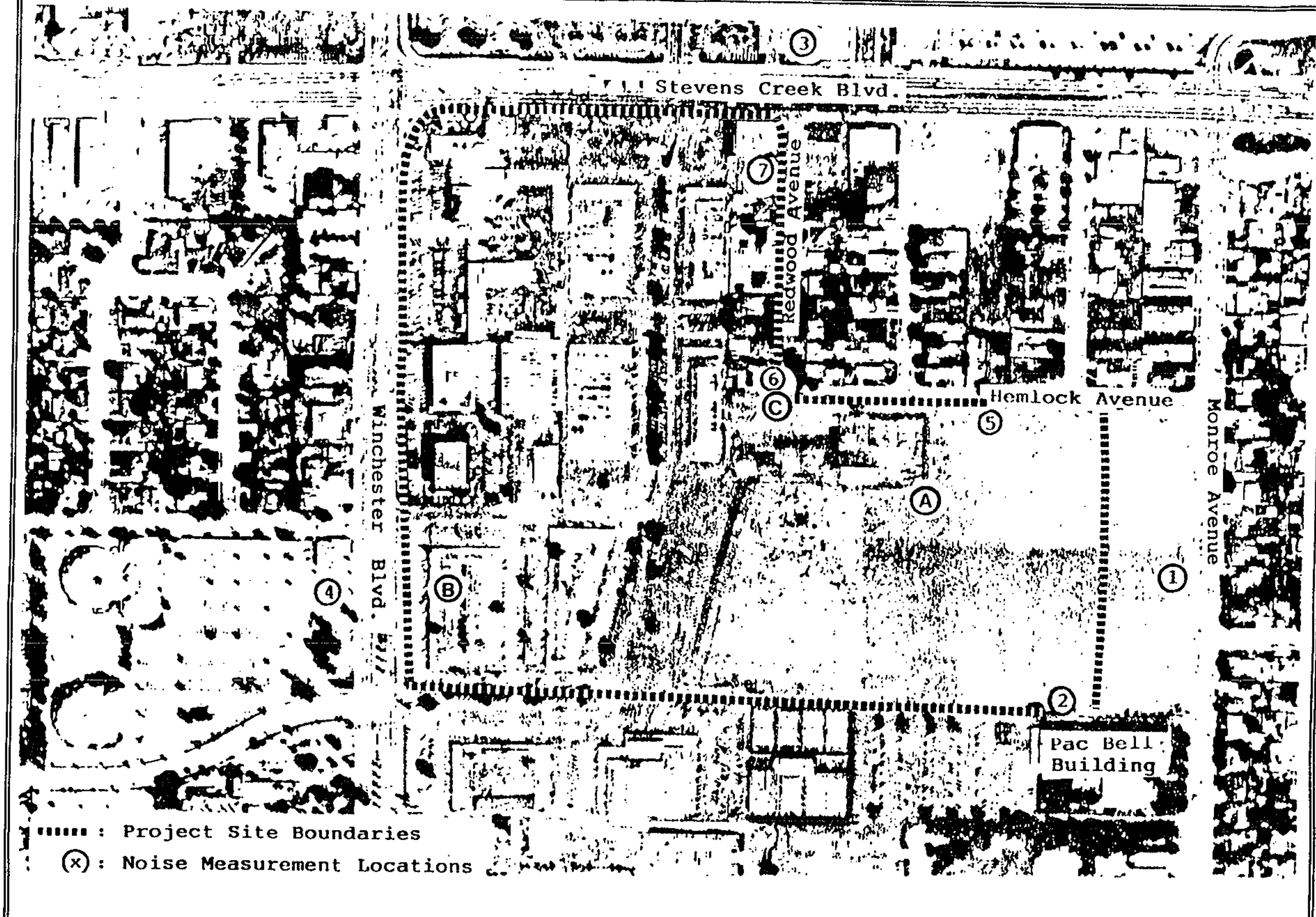


NOISE MONITORING LOCATIONS

FIGURE 2

ILLINGWORTH & RODKIN, INC./Acoustics • Air Quality

Noise levels in and around the site were monitored during site visits on January 16 and 17, 1992, and July 9 and 10, 1997. The 1992 noise survey consisted of one daily (Location A) and seven 15-minute (Locations 1-7) measurements. The 1997 survey added two daily measurements (Locations B and C). The measurement locations are shown in Figure 2. The site is currently exposed to noise from traffic on the local street network, distant traffic on Interstate 280 and 880, and aircraft overflights from the San Jose International Airport. The noise measurements were taken with Larson-Davis Laboratories Model 700 integrating sound level meters equipped with Bruel & Kjaer 4176 condenser microphones. All meters were calibrated before and after the measurements.

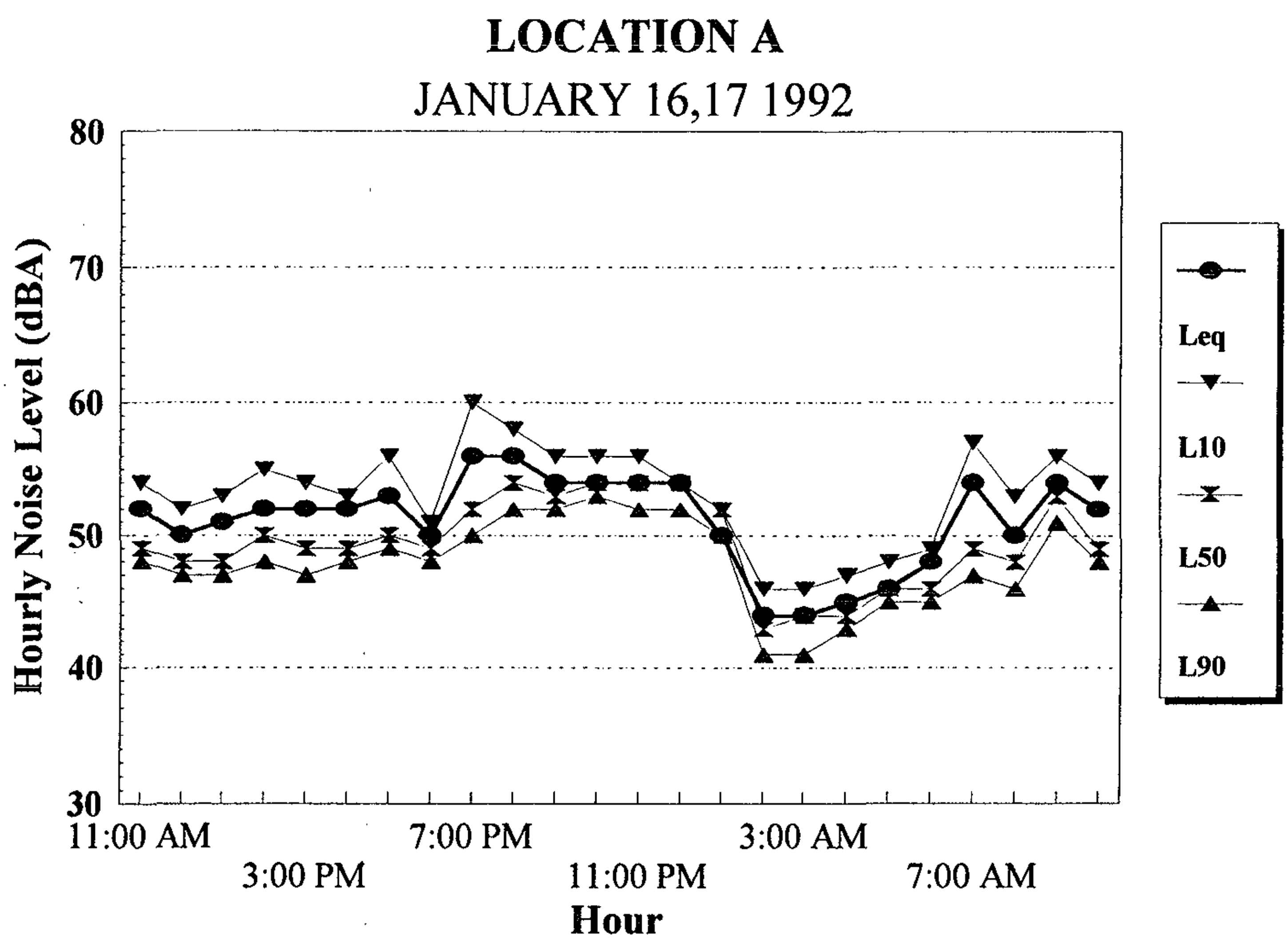
1992 Noise Survey

Location A was on the site, approximately 220 feet from Hemlock Avenue and at a significant setback from Monroe Avenue. Noise data collected at this location are shown in Figure 3. The L_{dn} was 58 dBA. The noise of distant traffic on Stevens Creek Boulevard, Winchester Boulevard, and nearby freeways were most significant. Traffic on Monroe Avenue and Hemlock Avenue did not significantly influence noise levels. Aircraft overflights generated the highest noise levels, ranging between 60 and 74 dBA. Although aircraft overflights were the loudest single events recorded at this location, such events were rather infrequent and did not affect the L_{dn} noise level significantly.

Table 3 summarizes the results of the short-term measurements. The table shows the average noise level (L_{eq}) for each measurement and also an estimate of the 24-hour average noise level (L_{dn}). The use of existing traffic data for streets surrounding the site and noise data collected at the long-term monitor were used to estimate the L_{dn} noise level at each satellite location.

Location 1 was 50 feet from the centerline of Monroe Avenue. Noise levels were dominated by traffic on Monroe Avenue. Distant freeway traffic was audible but not significant. The L_{dn} is estimated to be 64 dBA. Existing residences fronting Monroe Avenue are exposed to noise levels measured at this location.

Location 2 was at the southern property boundary, 330 feet from Monroe Avenue. A Pacific Bell office building adjoins the site to the south. Noise levels at this location were influenced by traffic on Monroe Avenue, occasional aircraft overflights, some distant freeway traffic, and equipment noise from the mechanical room on the Pacific Bell property.



NOISE LEVELS MEASURED NEAR MONROE AVE. RESIDENCE

FIGURE 3

ILLINGWORTH & RODKIN, INC./Acoustics • Air Quality

Location	Description	Date	Time Starting	L_{eq} [1]	Estimated L_{dn} [2]	Comments
1	50 ft. from the center of Monroe Ave.; typical existing residence setback.	1/16/92 1/17/92	10:30 am 4:30 pm	59 62	64	Mostly noise from traffic on Monroe Ave.; I-280 traffic noise at 50-52 dBA; I-880 traffic not audible; occasional jet aircraft at 55-68 dBA.
2	330 ft. from Monroe Ave.; at property line with Pacific Bell.	1/16/92 1/17/92	11:00 am 4:00 pm	54 58	58-60	Mostly noise from traffic on Monroe Ave.; mechanical room noise from Pac Bell bldg. at 49-51 dBA; occasional jet aircraft at 54-70 dBA.
3	70 ft. from the center of Stevens Creek Blvd.; on the Valley Fair Mall shopping center; typical office bldg. setback.	1/16/92 1/17/92	11:30 am 3:15 pm	66 71	70-71	Traffic on Stevens Creek Blvd. is the only significant noise source.
4	80 ft. from the center of Winchester Blvd.; typical bldg. setback.	1/16/92	12:00 pm	65	68-69	Traffic on Winchester Blvd. is the dominant noise source.
5	30 ft. to Hemlock Ave.; typical residence and/or office bldg. setback.	1/16/92	12:45 pm 3:45 pm	58 56	56-58	Mostly noise from traffic on Hemlock Ave.; Stevens Creek Blvd. traffic noise at 46-50 dBA; I-280 traffic noise at 48-50 dBA; occasional jet aircraft at 54-70 dBA.
6	Corner of Hemlock with Redwood; 40 ft. from the center of Redwood Ave.; typical house setback.	1/17/92	2:15 pm	55	55-58	Mostly traffic noise on Redwood and Hemlock Ave.; Stevens Creek Blvd. traffic noise at 45-58 dBA; I-280 traffic noise at 45-49 dBA.
7	25 ft. from the center of Redwood Ave.; 150 ft. south of Stevens Creek Blvd.; typical homes/offices setback.	1/17/92	2:45 pm	59	63-65	Mostly traffic noise on Stevens Creek Blvd.; some noise from local traffic on Redwood Ave.

[1] L_{eq} -- The average A-weighted noise level during the measurement period.

[2] L_{dn} **(Day/Night Sound Level)** -- A descriptor established by the U.S. Environmental Protection Agency (EPA) for the 24-hour average A-weighted noise level.

Sound levels during the hours from 10:00 pm to 7:00 am are penalized 10 dB to account for the increased sensitivity of people during the nighttime hours.

15-MINUTE NOISE MEASUREMENTS

TABLE 3

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These noise sources contributed approximately equally towards an L_{dn} estimated between 58 and 60 dB.

The mechanical room for Pacific Bell is located approximately 40 feet from the property line. Based on a brief measurement taken at the nearest point of the common property line to the mechanical room the equipment generates a steady noise level of 56 to 57 dBA. Assuming that the equipment runs continuously, the L_{dn} noise level at this nearest point on the common property line would be 63 dBA.

Location 3 was 70 feet from the centerline of Stevens Creek Boulevard. Stevens Creek Boulevard traffic was the dominant noise source at this location. The L_{dn} is estimated to be 72 dBA. Existing office and commercial buildings adjacent to Stevens Creek Boulevard are exposed to similar noise levels.

Location 4 was 80 feet from the center of Winchester Boulevard, the typical setback of existing office buildings, restaurants, and retail establishments. The L_{dn} is estimated to be 68 to 69 dBA. Traffic on Winchester Boulevard was the dominant noise source during the measurements.

Location 5 was 30 feet from Hemlock Avenue, the typical setback of several residences and office buildings. Noise levels were influenced by occasional car passbys on Hemlock Avenue and steady background noise generated by distant traffic on Stevens Creek Boulevard and the freeways. The L_{dn} is estimated to be 56 to 58 dBA.

Location 6 was at the corner of Hemlock Avenue and Redwood Avenue, 30 feet from the road. Several residences are present in the area. The noise environment was dominated by traffic on the local street network and distant traffic on Stevens Creek Boulevard and the freeways. The L_{dn} is estimated to be 55 to 58 dBA.

Location 7 was 25 feet from the center of Redwood Avenue, approximately 150 feet south of Stevens Creek Boulevard. Residences and businesses front Redwood Avenue near this measurement location. The noise environment was dominated by traffic on Stevens Creek Boulevard. Noise from traffic on Redwood Avenue was not significant. The L_{dn} is estimated to be 63 to 65 dBA.

1997 Noise Survey

Location B was about 90 feet from the centerline of Winchester Boulevard at a location on the project site proposed for residential development. The results of noise measurements at Location B are shown in Figure 4. The L_{dn} is estimated to be 67 dBA. Traffic on Winchester Boulevard was the only significant noise source known to affect the measurements. These data confirm the previous short-term measurements from 1992.

Location C was at the intersection of Redwood Avenue and Hemlock Avenue (Location 6 from the 1992 survey). Traffic on Redwood/Hemlock and distant traffic on Stevens Creek Boulevard were the dominant noise sources at this location. The results of the noise measurements are shown on Figure 5. The hourly data during the daytime correlates very well with the results from the 1992 survey. The measured L_{dn} is estimated to be 60 dBA.

IMPACTS AND MEASURES TO REDUCE IMPACTS

The proposed project is a mixed-use shopping center, hotel, and multi-family housing development. The project is divided into six sections (Figure 6).

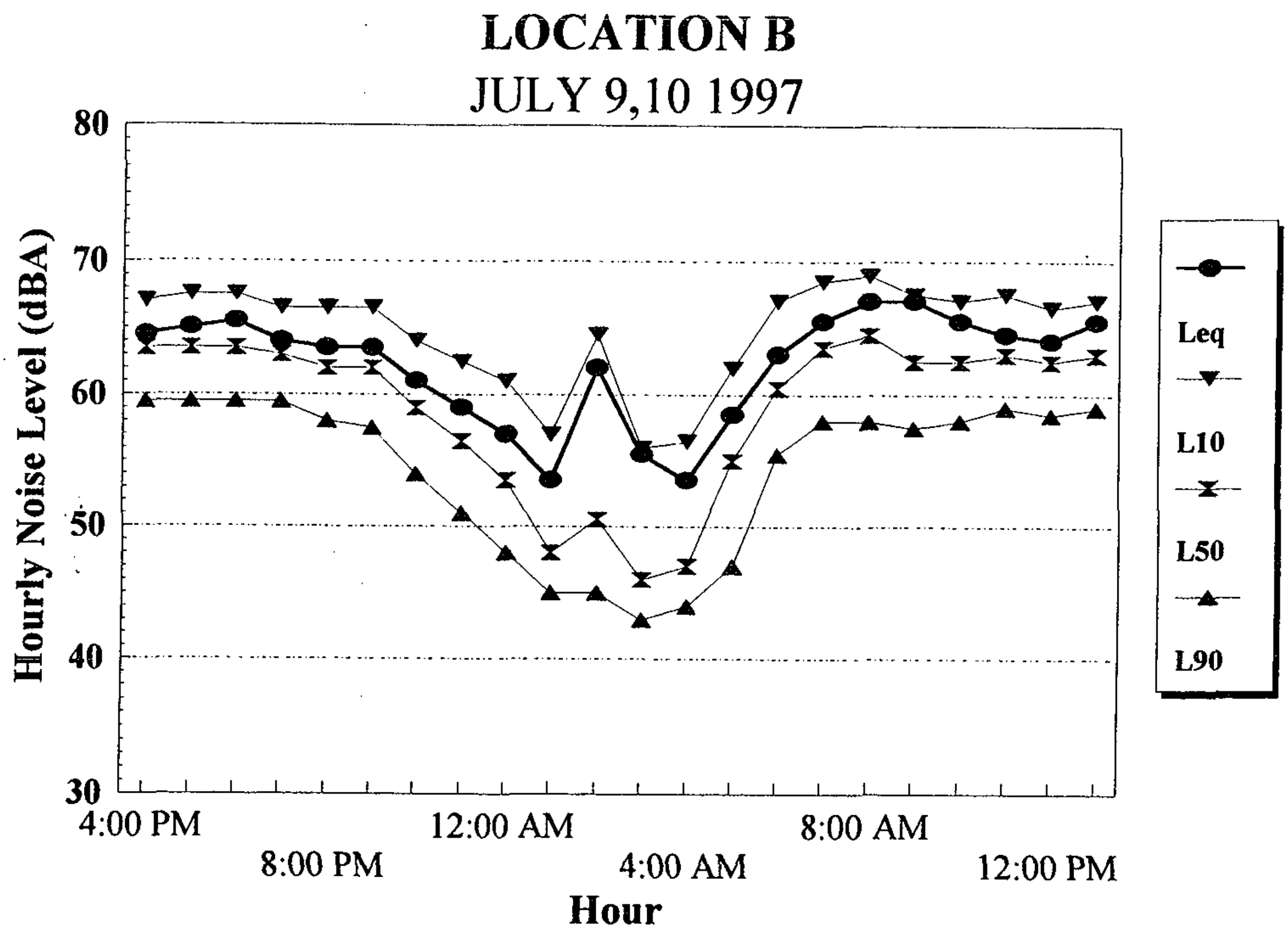
Potential noise issues associated with this development consist of the following:

(1) The compatibility of the proposed land uses with the noise environment on the site;
(2) The extent to which project-generated noise would adversely impact existing residences and businesses in the area; and
(3) The effect of construction noise during development of the site.

Traffic data, used to assess ground transportation noise, was supplied by the transportation consultant (Barton-Aschman Associates). The site's exposure to aircraft noise was based on information contained in the San Jose International Airport Environs Plan.

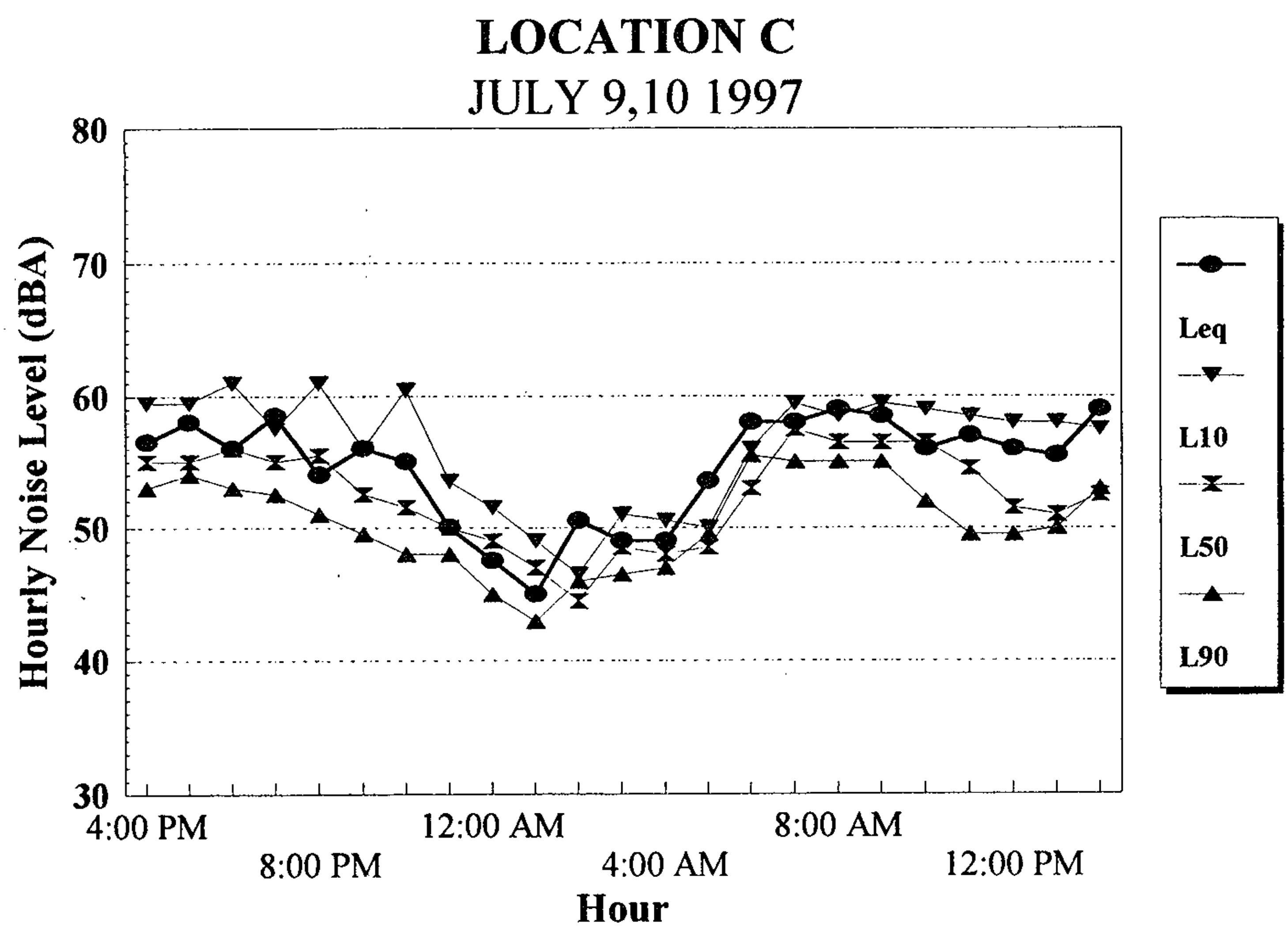
Significance Criteria

The City of San Jose's Goals and Policies contained in the San Jose 2020 General Plan, as amended in 1996 (General Plan Annual Review Report, 1996 Annual Review) are used to assess the significance of noise impacts associated with this project. The project impacts would be considered significant if:



NOISE LEVELS MEASURED ON WINCHESTER BLVD. | FIGURE 4

ILLINGWORTH & RODKIN, INC./Acoustics • Air Quality



NOISE LEVELS MEASURED ON HEMLOCK AVE.

FIGURE 5

ILLINGWORTH & RODKIN, INC./Acoustics • Air Quality

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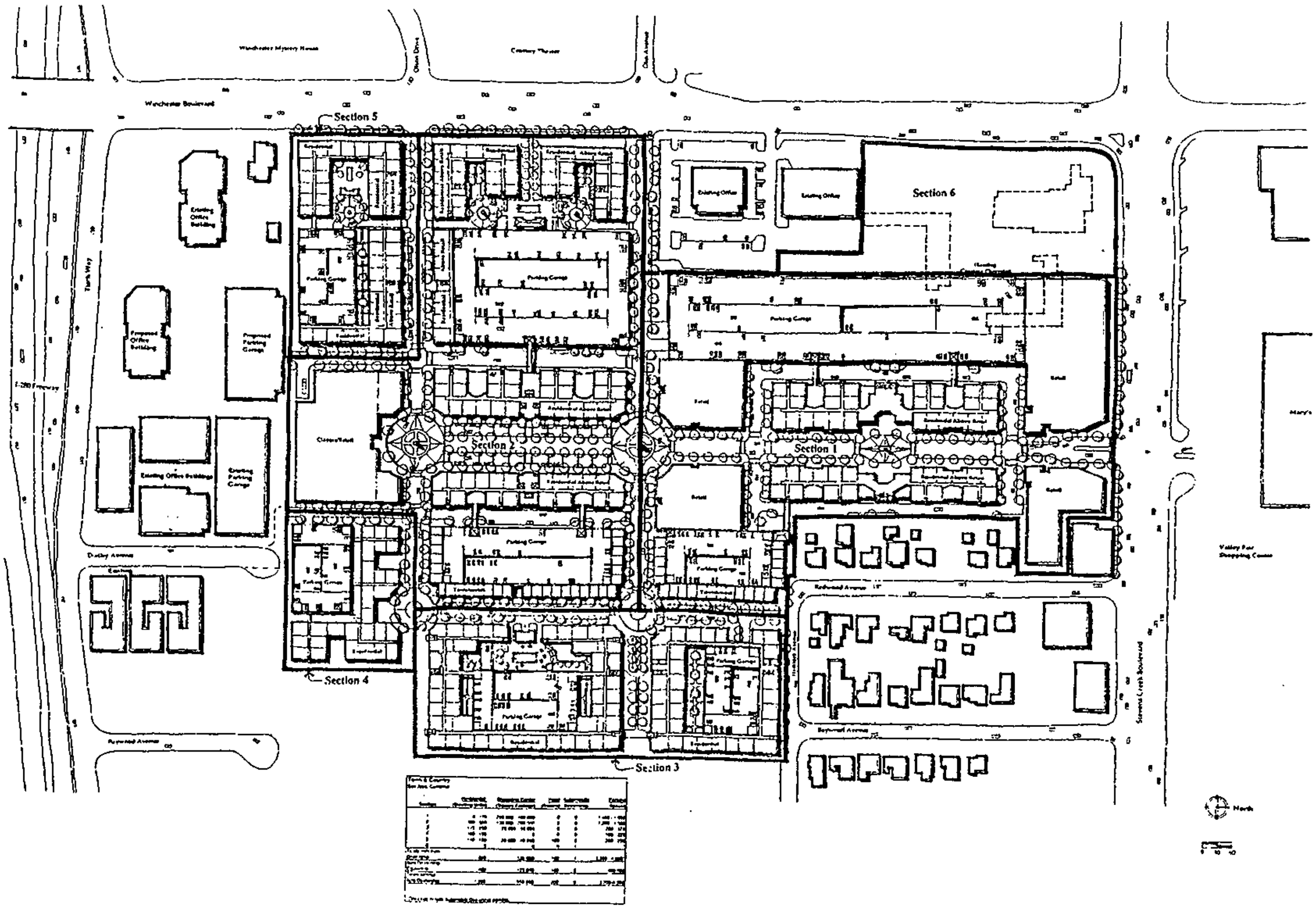

DEVELOPMENT PLAN

FIGURE 6

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- they raised existing (ambient) noise levels, from below to above the applicable criteria;
- noise resulting from the project increased average ambient noise levels, which are already above the applicable criteria, by more than 3 dBA; or
- noise generated by the project resulted in a 5 dBA increase and the resulting level remained below the normally acceptable limit. These limits are in terms of changes in the L_{dn}.

These criteria for significance recognize the following:

- The threshold levels of acceptability established by the City of San Jose;
- That once the threshold level has been exceeded, any noticeable change above that level (a dBA increase) results in a further degradation of the noise environment; and
- A clearly noticeable change (a 5 dBA increase) in the noise environment, even though the threshold level has not been reached, results in a significant impact because people respond adversely to such a change regardless of the absolute level of the noise.

Noise of demolition and construction is assessed somewhat differently. The demolition and construction phases do not generate a long-term increase in noise levels. The long-term goals of the City of San Jose are not appropriate criteria for determining the significance of the noise impact upon sensitive receptors during demolition and construction. The potential for speech interference during the daytime or sleep disturbance at night are the most appropriate criteria for assessing construction noise impacts. Construction noise levels exceeding 60 dBA during the daytime or 55 dBA during the nighttime outside a residence would be significant.

Impact 1:

The project site will be exposed to noise levels in excess of 60 dBA L_{dn} due to existing and projected noise generated by traffic along major roadways adjacent to the site. However, the City of San Jose recognizes that it may not be possible to achieve an exterior noise level of 60 dBA L_{dn} at land uses along major roadways.

The proposed project includes multi-family residential development and a hotel in Section 5 along Winchester Boulevard, residential development along Hemlock Avenue, and residential development in the southeast corner of the project site adjacent to the Pacific Bell building.

The noise exposure along Winchester Boulevard is an L_{dn} of 67 to 70 dBA at the residential building setback. The L_{dn} along Redwood Avenue/Hemlock Avenue is about 60 dBA and the L_{dn} at the residential buildings proposed near the Pacific Bell building is similarly about 60 dBA. The current site plan shows building massing along Winchester Boulevard which would provide shielding for private and common outdoor activity areas.

Measures to Reduce Noise for Impact 1: Locate common residential outdoor use areas in areas that are shielded from major roadways and discourage the design of residential balconies that directly face major roadways.

(a) Common outdoor use areas for the multi-family residences should be provided at locations set back and/or shielded by buildings from traffic noise produced by Winchester Boulevard and from the mechanical equipment noise associated with the Pacific Bell building. The overall plan, as noted above, already incorporates these features. This concept should be carried out in any revisions to the Master Plan in order to reduce traffic noise in the outdoor activity areas.

(b) Outdoor balconies and patios on residential units facing Winchester Boulevard should be discouraged in the building plans. To the extent possible, private outdoor areas should be oriented into the protected courtyards created by the major buildings.

Impact 2:

The project site will be exposed to noise levels in excess of 60 dBA L_{dn} due to existing and projected noise generated by traffic along major roadways adjacent to the project site. Since exterior noise levels are in excess of 60 dBA L_{dn}, special building design for residential and retail uses may be required to meet the City and State interior noise limits of 45 dBA L_{dn}.

Under the City's Noise Element policy, residential and commercial uses proposed in noise environments above 60 dBA L_{dn} must undergo further detailed acoustical analysis to determine the amount of attenuation necessary to maintain a maximum interior noise level of 45 dBA L_{dn}. Multi-family residential development on the project site is also subject to the requirements of the State Building Code.

Measures to Reduce Noise for Impact 2: **Prepare detailed acoustical analyses specifying the treatments necessary to achieve an interior noise level of 45 dBA L_{dn} or less for residential and commercial buildings.**

(a) Multi-family residential development on the project site is subject to the requirements of the City Noise Element and the State Building Code. A detailed acoustical analysis shall be prepared and submitted with the building plans prior to issuance of a building permit specifying the treatments which have been incorporated into the plans to provide an interior noise level of 45 dBA L_{dn} or less. Physical mitigation measures, such as forced air mechanical ventilation so that windows may be kept closed at the discretion of the building occupants, sound rated windows, and/or special building constructions may be necessary for buildings proposed adjacent to Winchester Boulevard. Forced air mechanical ventilation would be necessary along Winchester Boulevard, Redwood Avenue/Hemlock Avenue, and for units located near the southeast corner within about 100 feet of the Pacific Bell building.

(b) Commercial uses are subject to the requirements of the City Noise Element. A detailed acoustical analysis shall be prepared and submitted with the building plans prior to issuance of building permit specifying the treatments necessary to achieve an interior noise level of 45 dBA L_{dn} or less. This requirements would apply for uses proposed along Winchester Boulevard and Stevens Creek Boulevard. Typically, standard commercial building construction will provide the noise reduction necessary to achieve the interior noise limit.

Impact 3:

Traffic resulting from the proposed project, in combination with other background development in the area, and the cumulative development resulting from this project and the expansion of the Valley Fair Shopping Center, would not result in a 3 dBA increase in traffic noise on any roadway in the area. The increase in traffic noise would not be substantial and the impact would be less than significant.

The proposed redevelopment of the shopping center would generate additional vehicle trips on the roadway network. Increases in noise levels due to increases in traffic along local streets serving the project site were calculated based on traffic data supplied by the transportation consultant for this project (Barton-Aschman Associates). Potential traffic noise increases were analyzed for weekdays and Saturdays. On weekdays, project-generated traffic

would increase peak hour and daily average noise levels by less than 1-2 dBA along all local street segments analyzed, including Winchester Boulevard, Stevens Creek Boulevard, and Monroe Avenue. Similar increases are predicted along all street segments analyzed except along Monroe between Stevens Creek and the site where a 3 dBA increase is expected. The projected increase in noise would be imperceptible and would be below the significance threshold of 3 dBA except along Monroe on Saturdays. Project traffic would, therefore, result in a significant noise impact upon residents of Monroe Avenue.

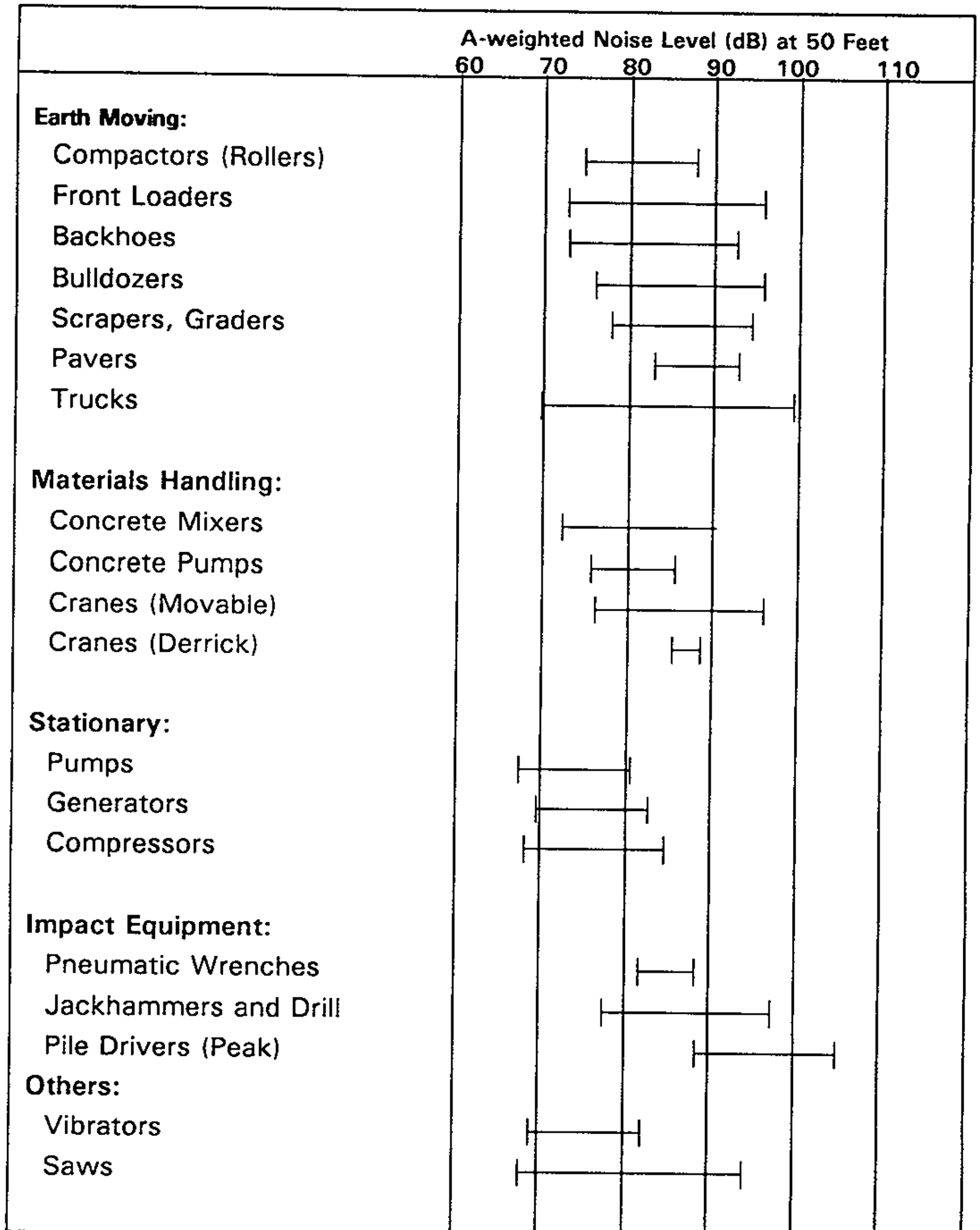
The effect of other background and cumulative trips in the vicinity of the project on noise levels in the area were also analyzed. A worst case assessment was conducted by comparing noise levels in the future assuming approved cumulative and project trips to existing traffic noise levels. Noise levels would increase by no more than 1 dBA to 2 dBA along all of the roadway segments identified above except Monroe Avenue south of Stevens Creek Boulevard, where noise levels are predicted to increase 3 dBA. The cumulative and project impacts are the same.

Measures to Reduce Noise for Impact 3: Houses along this Monroe Avenue front onto the street and have drive access. Noise barriers are not feasible. This impact is unavoidable.

Impact 4:

During project construction, residences and businesses in the vicinity of the site would be occasionally exposed to high noise levels. This is considered a significant short-term unavoidable impact.

The proposed project would demolish existing buildings on the project site and construct new buildings and parking structures. Noise impacts resulting from demolition and construction depend on the noise generated by the various pieces of construction equipment, the timing and length of noise-generating activities, and the distance between the noise-generating construction activities and the nearby sensitive receptors. Construction activities are typically carried out in stages. During each stage of construction, there will be a different mix of construction equipment operating. Construction noise levels, therefore, vary by stage and vary within each stage depending upon the number and types of equipment operating. Typical levels are shown in Tables 4 and 5. Table 4 shows maximum noise level ranges for



Source: Handbook of Noise Control, Cyril M. Harris, 1979

CONSTRUCTION EQUIPMENT NOISE LEVEL RANGE	TABLE 4

ILLINGWORTH & RODKIN, INC./Acoustical Engineers

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TYPICAL RANGES OF ENERGY EQUIVALENT NOISE LEVELS, L_{eq} IN dBA, AT CONSTRUCTION SITES

	Domestic Housing		Office Building, Hotel, Hospital, School, Public Works		Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station		Public Works Roads & Highways, Sewers, and Trenches	
	I	II	I	II	I	II	I	II
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.

II - Minimum required equipment present at site.

Source: U.S.E.P.A., Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.

NOISE LEVELS BY CONSTRUCTION PHASES **TABLE 5**

ILLINGWORTH & RODKIN, INC./Acoustical Engineers

The noise exposure along Winchester Boulevard is an L_{dn} of 67 to 70 dBA at the residential building setback. The L_{dn} along Redwood Avenue/Hemlock Avenue is about 60 dBA and the L_{dn} at the residential buildings proposed near the Pacific Bell building is similarly about 60 dBA. The current site plan shows building massing along Winchester Boulevard which would provide shielding for private and common outdoor activity areas.

Measures to Reduce Noise for Impact 1: Locate common residential outdoor use areas in areas that are shielded from major roadways and discourage the design of residential balconies that directly face major roadways.

(a) Common outdoor use areas for the multi-family residences should be provided at locations set back and/or shielded by buildings from traffic noise produced by Winchester Boulevard and from the mechanical equipment noise associated with the Pacific Bell building. The overall plan, as noted above, already incorporates these features. This concept should be carried out in any revisions to the Master Plan in order to reduce traffic noise in the outdoor activity areas.

(b) Outdoor balconies and patios on residential units facing Winchester Boulevard should be discouraged in the building plans. To the extent possible, private outdoor areas should be oriented into the protected courtyards created by the major buildings.

Impact 2:

The project site will be exposed to noise levels in excess of 60 dBA L_{dn} due to existing and projected noise generated by traffic along major roadways adjacent to the project site. Since exterior noise levels are in excess of 60 dBA L_{dn}, special building design for residential and retail uses may be required to meet the City and State interior noise limits of 45 dBA L_{dn}.

Under the City's Noise Element policy, residential and commercial uses proposed in noise environments above 60 dBA L_{dn} must undergo further detailed acoustical analysis to determine the amount of attenuation necessary to maintain a maximum interior noise level of 45 dBA L_{dn}. Multi-family residential development on the project site is also subject to the requirements of the State Building Code.

Measures to Reduce Noise for Impact 2: Prepare detailed acoustical analyses specifying the treatments necessary to achieve an interior noise level of 45 dBA L_{dn} or less for residential and commercial buildings.

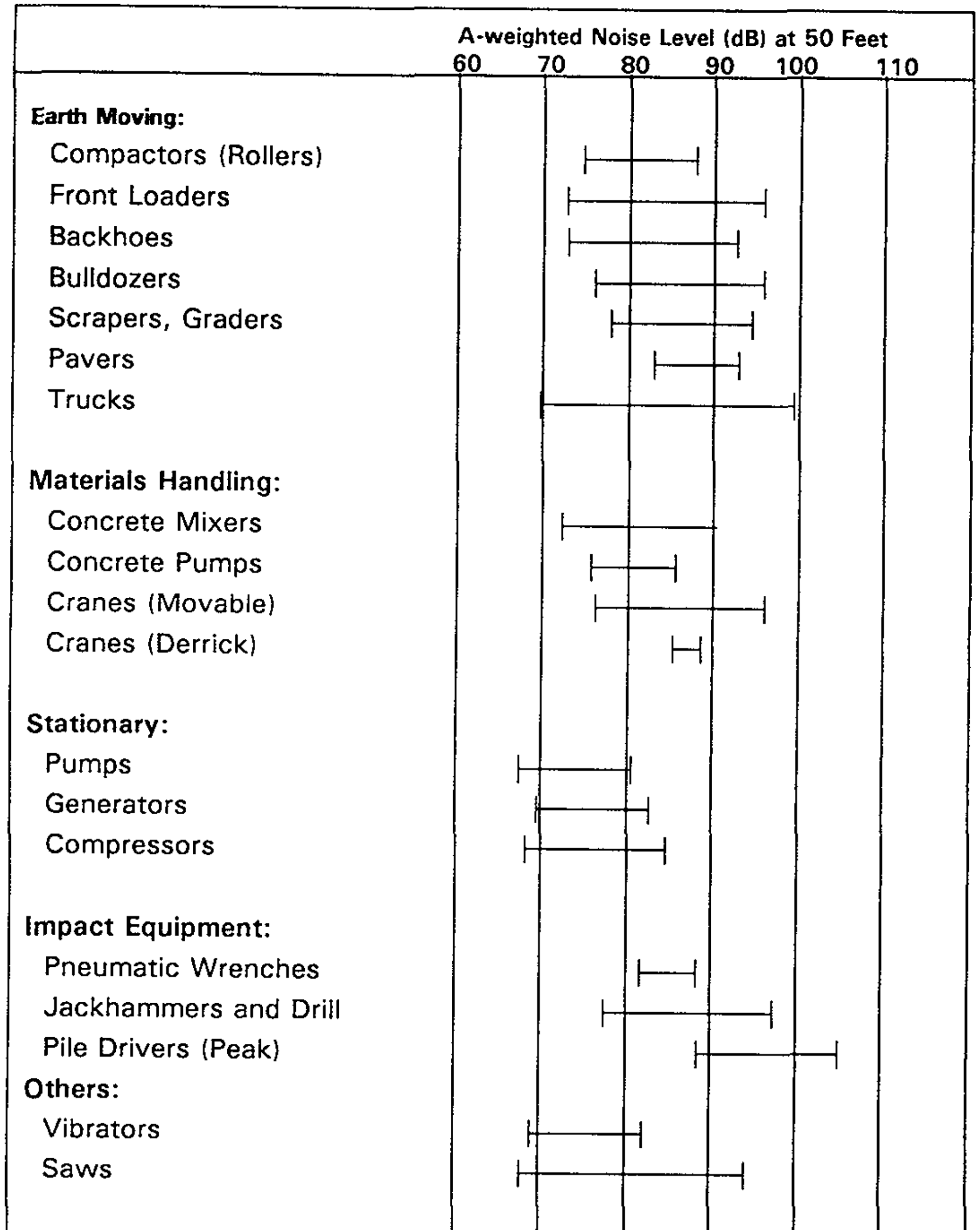
(a) Multi-family residential development on the project site is subject to the requirements of the City Noise Element and the State Building Code. A detailed acoustical analysis shall be prepared and submitted with the building plans prior to issuance of a building permit specifying the treatments which have been incorporated into the plans to provide an interior noise level of 45 dBA L_{dn} or less. Physical mitigation measures, such as forced air mechanical ventilation so that windows may be kept closed at the discretion of the building occupants, sound rated windows, and/or special building constructions may be necessary for buildings proposed adjacent to Winchester Boulevard. Forced air mechanical ventilation would be necessary along Winchester Boulevard, Redwood Avenue/Hemlock Avenue, and for units located near the southeast corner within about 100 feet of the Pacific Bell building.

(b) Commercial uses are subject to the requirements of the City Noise Element. A detailed acoustical analysis shall be prepared and submitted with the building plans prior to issuance of building permit specifying the treatments necessary to achieve an interior noise level of 45 dBA L_{dn} or less. This requirements would apply for uses proposed along Winchester Boulevard and Stevens Creek Boulevard. Typically, standard commercial building construction will provide the noise reduction necessary to achieve the interior noise limit.

Impact 3:

Traffic resulting from the proposed project, in combination with other background development in the area, and the cumulative development resulting from this project and the expansion of the Valley Fair Shopping Center, would not result in a 3 dBA increase in traffic noise on any roadway in the area. The increase in traffic noise would not be substantial and the impact would be less than significant.

The proposed redevelopment of the shopping center would generate additional vehicle trips on the roadway network. Increases in noise levels due to increases in traffic along local streets serving the project site were calculated based on traffic data supplied by the transportation consultant for this project (Barton-Aschman Associates). Potential traffic noise increases were analyzed for weekdays and Saturdays. On weekdays, project-generated traffic



Source: Handbook of Noise Control, Cyril M. Harris, 1979

CONSTRUCTION EQUIPMENT NOISE LEVEL RANGE	TABLE 4

would increase peak hour and daily average noise levels by less than 1-2 dBA along all local street segments analyzed, including Winchester Boulevard, Stevens Creek Boulevard, and Monroe Avenue. Similar increases are predicted along all street segments analyzed except along Monroe between Stevens Creek and the site where a 3 dBA increase is expected. The projected increase in noise would be imperceptible and would be below the significance threshold of 3 dBA except along Monroe on Saturdays. Project traffic would, therefore, result in a significant noise impact upon residents of Monroe Avenue.

The effect of other background and cumulative trips in the vicinity of the project on noise levels in the area were also analyzed. A worst case assessment was conducted by comparing noise levels in the future assuming approved cumulative and project trips to existing traffic noise levels. Noise levels would increase by no more than 1 dBA to 2 dBA along all of the roadway segments identified above except Monroe Avenue south of Stevens Creek Boulevard, where noise levels are predicted to increase 3 dBA. The cumulative and project impacts are the same.

Measures to Reduce Noise for Impact 3: Houses along this Monroe Avenue front onto the street and have drive access. Noise barriers are not feasible. This impact is unavoidable.

Impact 4:

During project construction, residences and businesses in the vicinity of the site would be occasionally exposed to high noise levels. This is considered a significant short-term unavoidable impact.

The proposed project would demolish existing buildings on the project site and construct new buildings and parking structures. Noise impacts resulting from demolition and construction depend on the noise generated by the various pieces of construction equipment, the timing and length of noise-generating activities, and the distance between the noise-generating construction activities and the nearby sensitive receptors. Construction activities are typically carried out in stages. During each stage of construction, there will be a different mix of construction equipment operating. Construction noise levels, therefore, vary by stage and vary within each stage depending upon the number and types of equipment operating. Typical levels are shown in Tables 4 and 5. Table 4 shows maximum noise level ranges for

Measures to Reduce Noise for Impact 2: Prepare detailed acoustical analyses specifying the treatments necessary to achieve an interior noise level of 45 dBA L_{dn} or less for residential and commercial buildings.

(a) Multi-family residential development on the project site is subject to the requirements of the City Noise Element and the State Building Code. A detailed acoustical analysis shall be prepared and submitted with the building plans prior to issuance of a building permit specifying the treatments which have been incorporated into the plans to provide an interior noise level of 45 dBA L_{dn} or less. Physical mitigation measures, such as forced air mechanical ventilation so that windows may be kept closed at the discretion of the building occupants, sound rated windows, and/or special building constructions may be necessary for buildings proposed adjacent to Winchester Boulevard. Forced air mechanical ventilation would be necessary along Winchester Boulevard, Redwood Avenue/Hemlock Avenue, and for units located near the southeast corner within about 100 feet of the Pacific Bell building.

(b) Commercial uses are subject to the requirements of the City Noise Element. A detailed acoustical analysis shall be prepared and submitted with the building plans prior to issuance of building permit specifying the treatments necessary to achieve an interior noise level of 45 dBA L_{dn} or less. This requirements would apply for uses proposed along Winchester Boulevard and Stevens Creek Boulevard. Typically, standard commercial building construction will provide the noise reduction necessary to achieve the interior noise limit.

Impact 3:

Traffic resulting from the proposed project, in combination with other background development in the area, and the cumulative development resulting from this project and the expansion of the Valley Fair Shopping Center, would not result in a 3 dBA increase in traffic noise on any roadway in the area. The increase in traffic noise would not be substantial and the impact would be less than significant.

The proposed redevelopment of the shopping center would generate additional vehicle trips on the roadway network. Increases in noise levels due to increases in traffic along local streets serving the project site were calculated based on traffic data supplied by the transportation consultant for this project (Barton-Aschman Associates). Potential traffic noise increases were analyzed for weekdays and Saturdays. On weekdays, project-generated traffic

97-036

TYPICAL RANGES OF ENERGY EQUIVALENT NOISE LEVELS, L_{eq} IN dBA, AT CONSTRUCTION SITES

	Domestic Housing		Office Building, Hotel, Hospital, School, Public Works		Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station		Public Works Roads & Highways, Sewers, and Trenches	
	I	II	I	II	I	II	I	II
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.

II - Minimum required equipment present at site.

Source: U.S.E.P.A., Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.

NOISE LEVELS BY CONSTRUCTION PHASES | **TABLE 5**

ILLINGWORTH & RODKIN, INC./Acoustical Engineers

would increase peak hour and daily average noise levels by less than 1-2 dBA along all local street segments analyzed, including Winchester Boulevard, Stevens Creek Boulevard, and Monroe Avenue. Similar increases are predicted along all street segments analyzed except along Monroe between Stevens Creek and the site where a 3 dBA increase is expected. The projected increase in noise would be imperceptible and would be below the significance threshold of 3 dBA except along Monroe on Saturdays. Project traffic would, therefore, result in a significant noise impact upon residents of Monroe Avenue.

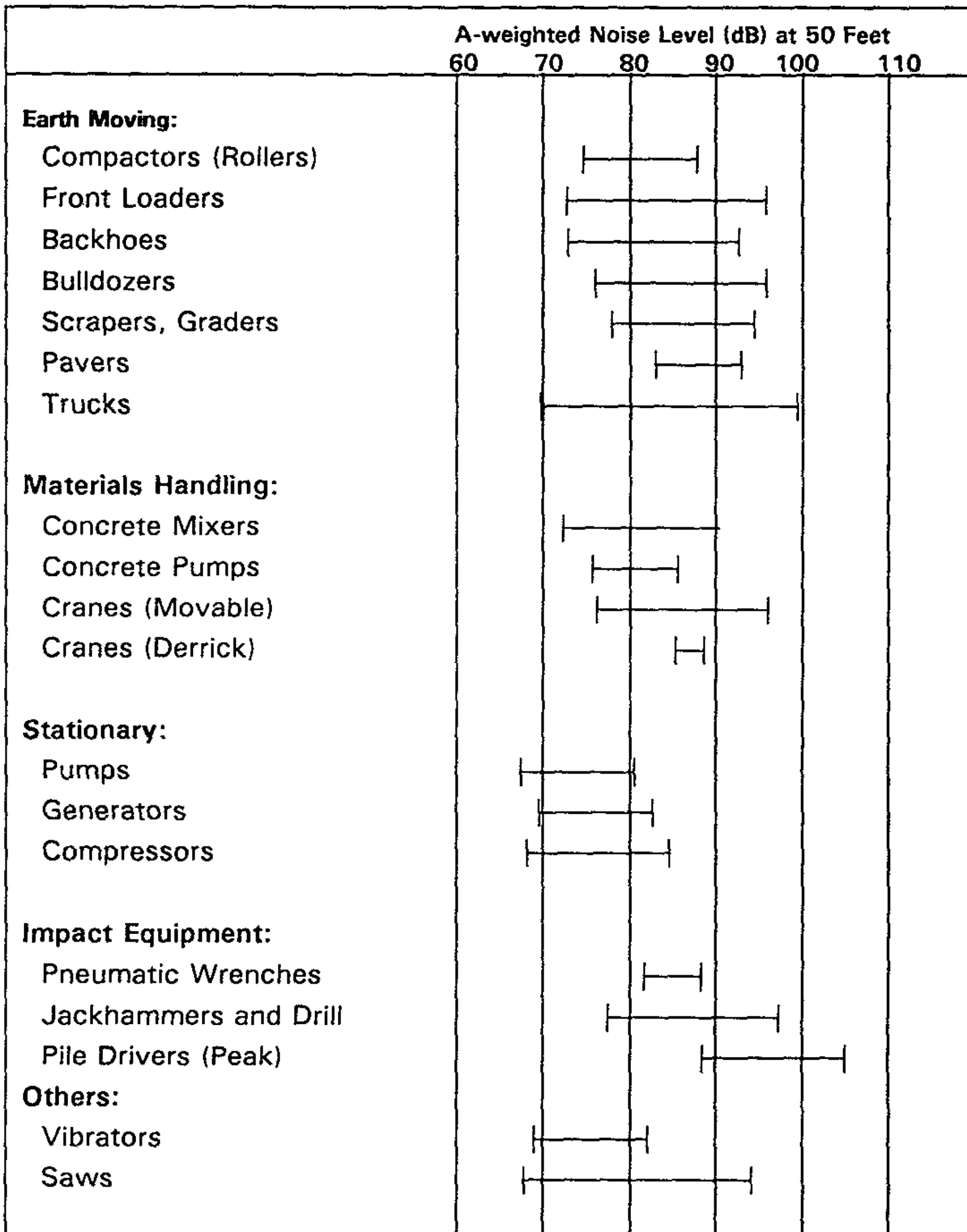
The effect of other background and cumulative trips in the vicinity of the project on noise levels in the area were also analyzed. A worst case assessment was conducted by comparing noise levels in the future assuming approved cumulative and project trips to existing traffic noise levels. Noise levels would increase by no more than 1 dBA to 2 dBA along all of the roadway segments identified above except Monroe Avenue south of Stevens Creek Boulevard, where noise levels are predicted to increase 3 dBA. The cumulative and project impacts are the same.

Measures to Reduce Noise for Impact 3: Houses along this Monroe Avenue front onto the street and have drive access. Noise barriers are not feasible. This impact is unavoidable.

Impact 4:

During project construction, residences and businesses in the vicinity of the site would be occasionally exposed to high noise levels. This is considered a significant short-term unavoidable impact.

The proposed project would demolish existing buildings on the project site and construct new buildings and parking structures. Noise impacts resulting from demolition and construction depend on the noise generated by the various pieces of construction equipment, the timing and length of noise-generating activities, and the distance between the noise-generating construction activities and the nearby sensitive receptors. Construction activities are typically carried out in stages. During each stage of construction, there will be a different mix of construction equipment operating. Construction noise levels, therefore, vary by stage and vary within each stage depending upon the number and types of equipment operating. Typical levels are shown in Tables 4 and 5. Table 4 shows maximum noise level ranges for



Source: Handbook of Noise Control, Cyril M. Harris, 1979

CONSTRUCTION EQUIPMENT NOISE LEVEL RANGE | **TABLE 4**

TYPICAL RANGES OF ENERGY EQUIVALENT NOISE LEVELS, L_{eq} IN dBA, AT CONSTRUCTION SITES

	Domestic Housing		Office Building, Hotel, Hospital, School, Public Works		Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station		Public Works Roads & Highways, Sewers, and Trenches	
	I	II	I	II	I	II	I	II
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.

II - Minimum required equipment present at site.

Source: U.S.E.P.A., Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.

NOISE LEVELS BY CONSTRUCTION PHASES | **TABLE 5**

construction equipment and Table 5 shows average noise level ranges by construction phase. Most demolition and construction noise is in the range of 80 to 90 dBA at a distance of 50 feet. The nearest existing residences and businesses to the project site are along Redwood Avenue, Hemlock Avenue and Monroe Avenue at typical setbacks of 50 to 100 feet. When construction on the site occurs near these residences and businesses, noise levels would be elevated and would interfere with speech communication and other everyday activities. Average noise levels at 100 feet from the center of the construction activity would typically range from 70 to 80 dBA during busy periods of construction. Piledriving may be required for larger buildings located in the center of the site. Maximum noise levels generated from piledriving typically reach 100 dBA at a distance of 100 feet. Such noise levels occurring near the site center would result in noise levels of 85 to 90 dBA at the nearest residences within 300 to 600 feet away. Construction noise would elevate background noise levels for residences and businesses adjacent to the site up to 15 to 25 dBA. Such large noise level increases, while generally short in duration, are significant. Noise levels would be expected to regularly exceed the daytime and nighttime construction noise significance thresholds of 60 dBA and 55 dBA, respectively. As development of the site progresses and construction activities begin to move away from nearby residences and businesses, the effects of the construction noise would be lessened. However, nearby residences and businesses would be intermittently exposed to noise levels which would be expected to be disturbing throughout the construction period.

Measures to Reduce Noise for Impact 3:

(1) Demolition and construction activities should be limited to daytime hours (7:00 am to 5:00 pm) weekday, non-holidays only.

(2) All internal combustion engines for construction equipment used on the site should be properly muffled and maintained.

(3) Unnecessary idling of internal combustion engines should be strictly prohibited.

(4) All stationary noise-generating construction equipment, such as air compressors and portable power generators, should be located as far as practical from existing residences and businesses.

APPENDIX D

BURROWING OWL STUDY

97-036

H.T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

29 October 1997

RECEIVED
NOV 1 9 1997
DAVID J. POWERS & ASSOC., INC.

David North
David Powers and Associates
Environmental Consultants and Planners
1885 The Alameda, Suite 204
San Jose, CA 95126
(408) 248-3500
FAX: 408.248.9641

RE: Burrowing Owls at the Town and Country Village property.

Dear Mr. North:

Per your request, I have summarized my information pertaining to the Burrowing Owls at the Town and Country Village property in San Jose, California. The habitat area, roughly 5 acres, represents suitable foraging habitat for Burrowing Owls, and must be considered potential nesting habitat owing to the availability of California ground squirrel burrows. On my last visit to the site on 20 October 1997, 2 Burrowing Owls were occupying buildings adjacent to the ground squirrel habitat, and a third owl may be using the property. I suspect that the owls are roosting in and on the buildings during the day, and foraging on the habitat when less human traffic is encountered. This is likely due to the recent use of the north end of the habitat for the annual pumpkin patch. I assume that after this activity ceases, the owls will return to the habitat. Prior to 20 October, I had observed owls intermittently occupying the habitat. On my initial protocol surveys of the site in June and July 1997, I saw no owls onsite, indicating that nesting during 1997 was unlikely.

I do not know the migratory status of the owls onsite. As you are aware, Burrowing Owls in the South Bay are neither completely migratory nor completely year-round residents. Thus, it cannot be determined whether the owls currently onsite will remain through the winter, or will occupy the habitat during the next nesting season. As I indicated to Phyllis O'Shea, this may be a short-duration dispersal movement only, with the owls soon vacating the property, or this may be the start of long-term occupancy.

Ultimately, it is clear that several mitigation measures will be required when the habitat is removed in the course of site development. First, pre-construction surveys must precede any ground-altering activity, to protect against "take" of any owls occupying the site. Second, the California Department of Fish and Game (CDFG) may require mitigation to offset the loss of the 5 acres of foraging and potential nesting habitat. Finally, any owls using the site will require translocation to an unaffected habitat. Translocations are potentially of 2 types: active, and passive. An active relocation will ultimately be required to safely clear the site of owls, because no acceptable habitat exists near the

97 - 036

(5) Residential neighbors adjacent to the project should be notified of the construction schedule in writing.

(6) Designate a noise disturbance coordinator, responsible for responding to complaints about construction noise. The telephone number for the disturbance coordinator should be posted at the construction site and should also be included in the notice sent to neighbors regarding the construction schedule.

Alternative Site Access

The alternative circulation plan would provide secondary project access to both Redwood Avenue and Dudley Avenue. Traffic noise level increases along Redwood Avenue, Hemlock Avenue, Baywood Avenue, and Dudley Avenue near the project site were analyzed for this access alternative. Noise levels along Redwood Avenue and Hemlock Avenue are predicted to increase 1 to 2 dBA above existing noise levels. Baywood Avenue noise levels are not predicted to change. These increases are not substantial and the impacts would be less than significant. Along Dudley Avenue, noise levels are predicted to increase at least 5 dBA and probably 7 to 8 dBA near the center of the block at homes less affected by traffic noise from Stevens Creek Boulevard and Hemlock Avenue. This increase would be considered substantial and the noise impact significant. This is a narrow residential street with homes which front onto the street. It is not feasible to erect noise barriers or implement other measures to mitigate this noise impact. The impact is considered to be significant and unavoidable.

APPENDIX E

ENVIRONMENTAL SITE ASSESSMENT

97-036

ENVIRONMENTAL SITE ASSESSMENT

TOWN AND COUNTY VILLAGE SHOPPING CENTER

SAN JOSE, CALIFORNIA

Prepared for

Federal Realty Investment Trust

January 20, 1997

Prepared by

EMCON
1921 Ringwood Avenue
San Jose, California 95131

Project 22152-001.001

Environmental Site Assessment
Town and Country Village Shopping Center
San Jose, California

The material and data in this report were prepared under the supervision and direction of the undersigned.

EMCON

Peter T. Christianson, R.E.A. 05615
Project Geologist

Mark Smolley, R.G. 4650
Project Manager

No. 4650

97-036

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CONTENTS (Continued)

TABLES AND ILLUSTRATIONS

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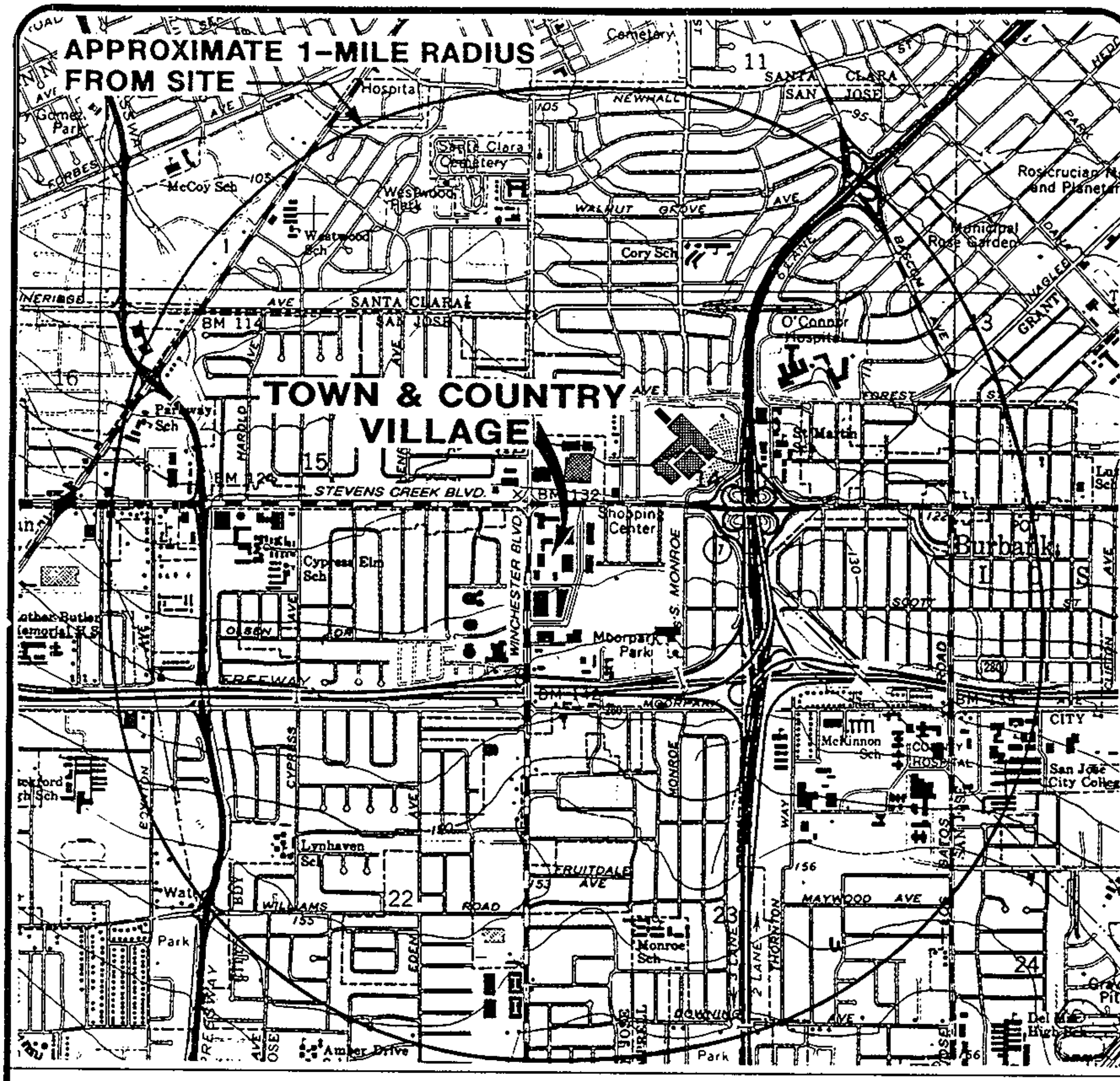
Figures



Base map from USGS 7.5' Quad. Map:
San Jose West, California. (PR 1980).

N

SCALE: 0 2000 4000 FEET

EMCON

DATE 1/7/96
DWN KMM
APP
REV
PROJECT NO.
2152-001.001

Figure 1
FEDERAL REALTY INVESTMENT TRUST
TOWN & COUNTRY VILLAGE
STEVENS CREEK BLVD. – SAN JOSE, CA
97-036 **SITE LOCATION**

EA-SANJOSE-CAD/DRAWINGS: I:\2152001\TBLOX.dwg Xrefs: <NONE>
Scale: 1 = 1.00 DimScale: 1 = 1.00 Date: 1/7/97 Time: 11:18 AM Operator: KMM

1 INTRODUCTION

This report documents the results of an environmental site assessment (ESA) conducted at the Town and County Village Shopping Center (TCVSC) at 2980 Stevens Creek Boulevard, and the adjacent Courtesy Chevrolet facility at 3030 Stevens Creek Boulevard, San Jose, California (Site, Figure 1). The ESA was conducted by EMCON on behalf of Federal Realty Investment Trust (Federal) in order to complete an environmental assessment of the Site and support Federal's application to the Department of Toxic Substances Control (DTSC) for a prospective purchaser agreement. This ESA was prepared according to guidelines presented in the Preliminary Endangerment Assessment Guidance Manual (DTSC, January 1994).

The Site has been used as a shopping center for various tenants and as an auto dealership since approximately 1960. Prior to that, the Site was used for agriculture. The following sections of this report present pertinent historical and current Site information, results of soil and groundwater sampling, and results of a risk analysis conducted in an effort to identify recognized environmental conditions, and the appropriate level of remediation (if any) for the Site. The field investigation was conducted in December 1996 and January 1997.

1.1 Scope of Work

The scope of work for this ESA included the following:

- Review reports on previous environmental investigations conducted at the Site.
- Review aerial photographs and interview person(s) in order to obtain information regarding historical operations at the Site.
- Collect soil samples from 10 hand-auger borings and three well borings
- Install three groundwater monitoring wells and collect groundwater samples from the wells.
- Analyze soil and groundwater samples for chemical compounds which may have impacted the Site based on historical background data

- Measure groundwater levels and survey the well casings to determine the groundwater flow direction and gradient

- Perform a human health and ecological screening evaluation for the Site

- Prepare this ESA report which includes findings, conclusions, and recommendations

2 SITE DESCRIPTION

The Site encompasses approximately 37.7 acres and includes the Town & Country Village Shopping Center (TCVSC), Courtesy Chevrolet, the Town and Country Tennis Club, and an adjacent vacant lot (Figure 2). The TCVSC includes 139 business suites in 10 buildings and an associated work shop and storage area. Buildings 3, 9, 10, and 21 are two story and the remaining buildings are single story. The TCVSC buildings are of wood construction. TCVSC's address is 2980 Stevens Creek Boulevard (cross Street Winchester Boulevard), San Jose, California with the various businesses designated by their respective unit numbers.

Courtesy Chevrolet is located at 3030 Stevens Creek Boulevard and includes three buildings and a three-story parking garage. The tennis club is located in the southeastern quadrant of the Site and has eight tennis courts and a two-story clubhouse. The vacant lot located on the eastern portion of the Site is covered with grassy vegetation and comprises approximately 2.4 acres. Overall, the Site is flat lying and is 95 percent covered with asphalt or buildings. The TCVSC, tennis club, and vacant lot have three assessor parcel numbers (APN) 277-33-005, 277-33-007, and 277-40-003. Courtesy Chevrolet has APN 277-33-004.

The contact persons for the Site are:

- Phillis O'Shea, Town & Country Property Manager, 408-248-8003
- Dave Spencer, Courtesy Chevrolet, Executive Manager, 408-249-3131

The current owner of the Site is:

- Metropolitan Life Insurance Company, 101 Lincoln Centre Boulevard, Suite 600, Foster City, California, 94404.

The Site is currently zoned for commercial use and planned future use remains commercial with more intense development along Stevens Creek and Winchester Boulevards.

3 BACKGROUND

The following sections discuss historical information related to the Site and surroundings, hazardous substances and waste management practices.

3.1 Historical Site Information and Surroundings

Information regarding the Site history and surrounding property uses was obtained by reviewing previous environmental assessments for the Site and aerial photographs. This information is summarized below. As part of the historical information search, EMCON visited the San Jose Public Library on November 27, 1996, in an attempt to review Sanborn Maps for the Site. No maps were available for this area.

3.1.1 Previous Environmental Assessments

Previous environmental assessments have been conducted at the Site. These reports are summarized below and are included in the references section at the end of this report. The locations of borings conducted during these previous environmental assessments are presented in Figures 2 and 3, and a summary of the previous analytical results are presented in Table 1.

3.1.1.1 Former Agricultural Area

Woodward-Clyde Consultants, July 1985. In July 1985, Woodward-Clyde Consultants (WCC), performed an environmental investigation of approximately 14 acres adjacent to the east side of the TCVSC. Only a small portion of this investigation was conducted on the Site. The environmental investigation included a visual inspection and the collection of six surficial soil samples (plus two duplicates) for the analysis of pesticides, polychlorinated biphenyl's (PCBs), and arsenic (WCC, August 13, 1985).

The visual inspection detected the presence of three spills of waste crankcase oil; however, these spills were not located on the Site. Three of the eight soil samples (TCG-1 through TCG-3) collected were from the unpaved vacant lot portion of the Site included in this study (WCC, August 13, 1985).

The sum of the detected concentrations of organochlorine pesticides (DDT, DDE, and DDD) for soil samples TCG-1 through TCG-3, ranged from 2.8 to 6.86 parts per million (ppm) (Table 1). Also detected were trace concentrations of organophosphate pesticides, acid and phenolic pesticides, and carbamate and urea pesticides (DEF, ethion, dinoseb (DNBP), 2,4-D, 2,4,5-TP, chloropham, and methiocarb). Arsenic was detected at concentrations ranging from 59 to 85 ppm (WCC, August 13, 1985).

AllWest, August & December 1992. In August 1992, AllWest completed an environmental review of the Site for Metropolitan Life Insurance Company (Metropolitan). AllWest concluded the Site had previously been used for agriculture, most likely orchards. AllWest recommended that Metropolitan resample for the chemicals detected in the WCC investigation (AllWest, August 2, 1993).

In December 1992, AllWest conducted a soil investigation by collecting fourteen soil (TCSS-1 through TCSS-14) samples from 10 shallow (1 to 1.5 feet below the ground surface) borings on the approximate 14-acre undeveloped parcel of land. The samples were analyzed for organochlorine, organophosphate, and carbamate and urea pesticides. Seven of the fourteen samples (TCSS-1 through TCSS-7) were located on site while the remaining samples were located off site to the east. Organochlorine pesticides were detected in all seven samples at concentrations ranging from 2.0 ppm to 15.4 ppm. Arsenic was also present in the samples and ranged from 0.11 to 0.44 ppm. Organophosphate and carbamate and urea pesticides were not detected. AllWest concluded that DDT and DDE were present in soil at elevated concentrations in two areas on the Site. The vertical extent of impact was approximately 1.5 feet and the horizontal extent was not delineated (AllWest, August 2, 1993).

AllWest, June 1993. In June 1993, AllWest collected 23 (SS-1 through SS-23) additional soil samples to delineate the two areas of high pesticide impact which were located in the unpaved portion of the Site. Pesticides were present in all 23 samples ranging from 0.03 to 5.19 ppm (AllWest, August 2, 1993).

Innovative & Creative Environmental Solutions, September and October 1995. In September and October 1995, Innovative & Creative Environmental Solutions (ICES) conducted remedial activities for soil impacted with pesticides at the vacant lot adjacent to the eastern side of the Site (not on site). The remedial activities included excavating and disposing of approximately 18 cubic yards of soil having pesticide concentrations exceeding 3 ppm. Additionally, approximately 30,000 cubic yards of pesticide-impacted soil was mixed with clean soil to produce concentrations in the blended soils below 1 ppm (ICES, October 26, 1995).

3.1.1.2 Courtesy Chevrolet

AllWest, March 1994. In March 1994, AllWest witnessed the removal and performed confirmation soil sampling beneath four USTs located at the Courtesy Chevrolet facility in the northwest corner of the Site. The USTs ranged in size from 500 to 4,000 gallons and stored gasoline, bulk oil, and waste oil. A total of eleven confirmation soil samples were obtained from the UST excavation. The nine samples (T-3-E, T-3-W, T-4-E, T-4-W, SW-north, SW-south, SW-east, SW-west) collected from the western side of the UST excavation confirmed no petroleum hydrocarbon impact. Due to elevated concentrations of petroleum hydrocarbons in the eastern half of the excavation, the eastern half was overexcavated and an additional five confirmation soil samples (T-1-E2, T-1-W2, T-2-C2, SW-E2, SW-S2) were collected. AllWest concluded that overexcavation removed the majority of the impacted soil and reduced petroleum hydrocarbon concentrations in the soil from 2,800 ppm to 61 ppm. However, impacted soil was still present in the southeastern quadrant of the UST zone and in the northern and eastern sidewalls. Due to an adjacent masonry wall and the limitations of the excavation equipment, additional over-excavation in these areas was considered impractical (AllWest, June 29, 1994).

AllWest, May 1994. In May 1994, AllWest conducted an environmental audit of the Courtesy Chevrolet facility. AllWest's findings included the presence of 10 underground hydraulic lifts, 7 aboveground hydraulic/mechanical lifts, two metal aboveground storage tanks for temporarily containing waste oil, one metal AST for temporarily containing waste coolant, and an oil-water separator/clarifier. AllWest concluded the primary environmental concern at the site is an accidental release of waste motor oil or coolant (AllWest, June 14, 1994).

AllWest, November 1994. In November 1994, AllWest conducted a subsurface investigation within and adjacent to the former UST zone. The investigation involved the drilling and sampling of four borings (SB-1 through SB-4) to a maximum depth of 60 feet below the ground surface (bgs). The soil samples were analyzed for TPHG and benzene, toluene, ethylbenzene, and xylenes (BTEX). All analytes were below detection limits (AllWest, November 28, 1994).

Santa Clara Valley Water District, November 1996. In November 1996, the Santa Clara Valley Water District (SCVWD) informed Metropolitan Life Insurance that no further action would be required for the former USTs at the Courtesy Chevrolet facility (SCVWD, November 18, 1996).

3.1.1.3 Former Dry Cleaners

AllWest, March 1995. In March 1995, AllWest conducted a subsurface investigation at the former dry cleaning facility located in the southeastern portion of the property in unit #906 of Building 9. The investigation included vapor and soil sampling from two geoprobe boreholes. The vapor samples were collected from a depth of four feet bgs and soil samples were collected from depths of five and ten feet bgs within each boring. The samples were analyzed for VOCs. PCE was detected in both vapor and all four soil samples. In the soil samples, PCE ranged from 0.018 to 0.042 ppm. The horizontal or vertical extent of the PCE was not delineated (AllWest, March 27, 1995).

3.1.1.4 Town and Country Village Shopping Center

AllWest, August 1996. In August 1996, AllWest performed an environmental assessment of the Site which included a site inspection, review of aerial photographs, interviews, review of historical information and documents. This scope of work is essentially the same as conducted for a typical Phase I site assessment. Based on the assessment, AllWest recommended the continued in-place management of pesticide containing soils in the vacant lot portion of the Site, and the continued pursuit of a case closure letter for the former USTs at the Courtesy Chevrolet facility. No other recognized environmental conditions were identified, and no further environmental investigations were recommended (AllWest, September 12, 1996).

3.1.2 Historical Aerial Photograph Review

Four historical aerial photographs were purchased from Air Flight Services (AFS), Santa Clara, California for enlargement and review. These oldest photograph dates back approximately 35 years (September 12, 1961, July 27, 1972, June 28, 1979, and July 2, 1985). The photographs show the Site and adjacent off-site properties. The 1979 and 1985 photographs are stereo pairs.

A photograph dated August 20, 1957, was reviewed at AFS and showed the entire Site property under cultivation for agriculture. No farm buildings or production well heads were observed in the photograph. The 1957 photograph and photographs from 1950 and 1939 were similar, and were not purchased for enlargement.

September 12, 1961 Photograph (#4749; approximate scale 1"=210'). This photograph shows Courtesy Chevrolet (except for the 3-story parking garage) and most of the TCVSC buildings constructed except for Buildings 9 and 21, the Ocean Harbor Restaurant, and the tennis club. The parking lots are generally covered with asphalt and full of cars. The asphalt adjacent to Buildings 6 and 8 and an area southeast of Building 3 appears darker than the other asphalted areas and may be newly installed. No asphalt is present on the east side of Buildings 6 and 10 and the land is undeveloped over to South Monroe Street. The storage building on the east side of the parcel has not been constructed but a storage area is present and appears to contain stacked lumber or railroad ties. No asphalt surface in the storage area is evident.

The area on the western central portion of the block (known as Lands of Guarantee Savings and Loan Association and Lands of First National Mortgage Company), which is not part of the TCVSC, appears to be under construction. The area around the buildings appears unpaved.

Stevens Creek Boulevard is located along the northern boundary of the TCVSC. To the east is residential property and undeveloped land. Orchards and residential property border the TCVSC to the south and residential property is present across Winchester Boulevard to the west. No environmental concerns are visible in this photograph.

July 27, 1972 Photograph (#SC-61; approximate scale 1"=230'). In this photograph, the Courtesy Chevrolet parking ramp, Building 9, Building 21, and the Ocean Harbor Restaurant have been constructed. The two buildings on the western central portion of the block, which are not part of the TCVSC, have been constructed. The asphalt parking lot east of Buildings 6 and 9 has been installed and appears as it does today. One-half of the present-day storage building has been constructed and the storage yard appears full of stacked materials. No asphalt surface is evident in the storage yard. The eastern half of the TCVSC is undeveloped over to South Monroe Street.

The off-site properties appear the same as in the previous photograph except for a new building located south of TCVSC Building 9 and the new Pacific Bell building adjacent to the southeast corner of the Site. No environmental concerns are visible in this photograph.

June 28, 1979 Photograph (#11435; approximate scale 1"=170'). In this photograph, the tennis courts have been constructed and an addition has been built onto the east side of the storage building. The storage yard appears full of stacked lumber, but it is not apparent whether the yard is paved. Discolored soil on the eastern undeveloped portion of the TCVSC indicates a road trending northeast.

To the north across Stevens Creek Boulevard is Valley Faire Shopping Center with the parking lots full of cars. The off-site property to the east and south appear the same as the previous photograph. The off-site properties to the west are not visible. No environmental concerns are visible in this photograph.

July 2, 1985 (#8-10; approximate scale 1"=180'). This photograph appears the same as the previous one with no environmental concerns visible.

Summary. The TCVSC has been used for commercial businesses since approximately 1960. Current tenants include retail, restaurant, entertainment, and service operations. Prior to approximately 1960, the Site was used for agriculture.

Operations at the Site which present environmental concerns include the previous agricultural usage, Courtesy Chevrolet, and a former dry cleaners. Previous environmental assessments for these operations are summarized in Section 3.3.

The surrounding properties were generally developed in the 1960's, at the same time as the TCVSC. The surrounding properties are zoned for commercial or residential uses. To the north of the Site is Valley Faire Shopping Center across Stevens Creek Boulevard.

Residential housing borders the Site to the northeast and property to the east is currently under development for single family housing. To the southeast and south are office buildings. To the west is the Winchester Mystery House, Century Twenty-One Movie Theaters, a gasoline service station, and several restaurants.

3.2 Hazardous Substance/Waste Management Information

In order to collect information regarding hazardous substances and waste management practices at the Site, EMCON reconnoitered the outside areas of the Site, inspected several of the tenant spaces, and interviewed an employee knowledgeable about the history of the Site. This information is summarized below.

3.2.1 Outside Site Reconnaissance

On December 11, 1996, Messrs. Peter Christianson and Tom Cooper of EMCON performed a reconnaissance of the outside portions of the Site. Mr. Rick Pestana, Operations Manager for TCVSC, accompanied EMCON personnel on a portion of the reconnaissance and answered questions related to the Site. Findings from the reconnaissance include the following:

- Tallow dumpsters were present behind several of the restaurants for the collection of waste grease. The Ocean Harbor Restaurant had a underground vault which Mr. Pestana believed to be a grease trap to restrict grease from entering the sewer.

- Outside housekeeping was generally good around the buildings and in the dumpster areas; however, trash and plant cuttings had been dumped in an area between the Courtesy Chevrolet parking garage and the property to the west.

- Several hundred feet of asphalt patching was observed along an underground sewer line on the south side of Building 3. Mr. Pestana said excavation along the sewer line was recently conducted in order to connect the new housing project, east of the Site, to the sewer trunk line along Winchester Boulevard.

- Asphalt around the TCVSC was in good condition in the well traveled areas (main thoroughfares), but was heavily cracked in some of the other areas such as parking lots and alley ways. No staining other than small oil stains from parked cars were visible.

- Wooden sheds located behind the buildings are used to house electrical meters, transformers, water conditioners and heaters, and some maintenance supplies for the TCVSC maintenance staff. EMCON requested that several of the sheds be opened for inspection. The sheds had concrete floors and floor drains were observed in some of the sheds. Tenants have access to some of the sheds for storage. Paint cans were found in one of the sheds.

- Approximately 27 transformers, which service the TCVSC, are present in the wooden sheds behind the buildings. The transformers are owned by Pacific Gas & Electric (PG&E) and are reportedly 30 plus years old. Verbal information from PG&E indicates polychlorinated biphenyls (PCBs) have been removed from all PG&E transformers. The wooden sheds containing the transformers were locked by PG&E and no direct observations were possible during the site reconnaissance. Two of the 27 transformers are on telephone poles on the southern property line behind Building 10. No staining was observed on the ground beneath the transformers.

- The work shop on the east side of Building 3 is divided into three areas. One area is used for the storage of weed wackers and small quantities of gasoline (less than 5-gallons), the second area does not have a roof and contains four transformers (PG&E owned), the third area is the largest and is a general maintenance area. Spare parts, hardware, and some small quantities of cleaning solutions were observed in this area. No stains or cracks were observed on the concrete floor of the work shop at the time of the reconnaissance.

- Rectangular steel vault covers (approximately 2 feet by 3 feet) were observed at regular intervals adjacent to the buildings. Mr. Pestana said these vaults housed telephone and electrical utilities for the various buildings. EMCON was not able to access and inspect the interiors of the vaults.

- A depression in the soil was observed on the vacant lot on the eastern portion of the Site, just north of the tennis club. The depression appears to be an old excavation and is approximately 2-feet deep and approximately 300 feet long by 40 feet wide. One pile of soil (approximately 1 cubic yard) appeared to have been dumped on the southern end of the excavation. No staining was observed on the soil pile and no odors were noticed. The unpaved vacant lot and excavation were covered with grasses. No staining or stressed vegetation was observed.

- Imported soil was observed on the eastern half of the unpaved vacant lot. The soil was spread out to a thickness of approximately six inches. The source of the imported soil is not known; however, the soil did not appear stained, and no odors were evident.

- The asphalt-surfaced Site storage area contained two small sheds and a larger storage building. The smaller storage sheds were filled with paints contained in variously sized cans. The larger storage building contained lumber, vacuums, and rolls of asphalt roofing paper. On the eastern side of the storage building, EMCON observed three empty compressed gas cylinders, seven 55-gallon drums of which four were open and full of unknown liquids, and four, 5-gallon buckets which were open and contained black, oily liquids. Also present were three, 55-gallon drums full of soil cuttings from a previous soil investigation. The drums were labeled "B-1" and dated October 1995. No staining was observed on the asphalt in this area.

- Under the stairs in the central portion of Building 3 is a storage area for janitorial supplies and cleaning agents. Restrooms are located adjacent to this storage area, on the east side. No environmental concerns were observed in these areas.

3.2.2 Tenant Inspections

On January 8, 1997, EMCON inspected seven of the tenants at the Site. These tenants were picked for inspection because their operations appeared representative of their respective building or because they appeared to be the most likely to present environmental concerns. The building locations are presented in Figure 2.

Former Dry Cleaners, Building 9, Unit #906. The dry cleaner is no longer in operation and the building unit is currently used for storage (mostly Christmas decorations used by the TCVSC property manager). Since boxes are covering approximately 60 percent of the floor space, many floor areas could not be checked for staining. Staining was observed on the floor in the southeastern corner of the unit where the former dry cleaning machine used to be located. Miscellaneous pipes were observed throughout the ceiling of the unit, much of which was wrapped with potentially asbestos-containing insulation. A closet in the back of the unit contained some partially full cans (less than 1 gallon capacity) of paint, motor oil, gear oil, and paint thinner. An empty 1-gallon gasoline can was observed in one of the two restrooms. A Bay Area Air Quality Management District (BAAQMD) permit to operate for the dry cleaner was still visible on the wall. The aerial photographs were reviewed to determine if a dumpster area could be identified for the dry cleaners. None was found.

Playland, Building 10, Unit #1015. Playland occupies approximately 20,000 square feet, and contains a bumper car area, pinball and video arcade machines, a snack bar, an office, and several party rooms. A janitorial closet contained some general cleaning compound containers and a technicians room contained miscellaneous arcade machine parts and a small oil lubrication can. No environmental concern areas were observed.

AMC Town and Country Theaters, Building 9, Unit #915. This unit contained one theater, an office, a snackbar, an employee room, and several closets. Supplies for general cleaning were observed in one of the closets. No environmental concern areas were observed.

Western Mountaineering, Building 8, Unit #840. This unit sells outdoor recreational sports equipment. Some solvents are stored on site for ski and kayak repair. Also present were cans of white gas for camp stoves and oil finishes and Kevlar resins for boats. All containers were less than one gallon and are either sold as products or the contents are used prior to disposal. No environmental concern areas were observed.

Town and Country Dry Cleaners, Building 6, Unit #645. No dry cleaning takes place in this unit. All clothes are shipped to an off-site location for dry cleaning. Within the unit were two presses for ironing clothes. Steam was provided to the presses by an electric boiler. Also observed were two, 1-quart jugs for paint, a 1-gallon container of Odor Away, and a 1-quart can of spot remover. No environmental concern areas were observed.

The Cobblers Bench, Building 6, Unit #626. This unit is used for shoe repair and provides shoe polish for sale. When entering the shop, a strong chemical odor was present. In the front portion of the shop was the shoe repair area with two buffing machines and operators. In the middle of tne shop along the southern wall was a small fume hood (1 foot by 2 feet) surrounded with shelves containing leather dyes, paints, deglazing fluids, and acetone. The containers were approximately 8 ounces to 1 gallon in volume and are apparently used until the contents are gone. Small stains (1 to 2 inches) were observed on the floor around the fume hood area but most of the floor was covered with carpet. The concrete floor exposed around tne fume hood appeared sound with no cracks observed. In the back of the shop were seven, 1-gallon cans of Super Solvent along with storage for spare soles. Also observed were two, 1-gallon cans of rubber cement. No environmental concerns to the subsurface were observed.

Town and Country Tennis Club. The tennis club consists of eight courts and a 2-story tennis club. In front of the clubhouse and in a storage shed in the rear of the clubhouse were approximately ten, 5-gallon plastic buckets of paint for the courts. Also observed were approximately five, 1-gallon cans of paint and a can of paint thinner. No environmental concern areas were observed.

Courtesy Chevrolet. As stated previously, the Courtesy Chevrolet facility includes three buildings and a 3-story garage. Both automobile sales and repair are conducted at this location. Sales, offices, spare parts, and a concession stand are located in the front building along Stevens Creek Boulevard. Automobile maintenance, repair, and detailing are located in the other buildings which are divided into approximately thirty service bays. The lower level of the garage is used for servicing autos and for parts storage. The upper two levels are used for storage of new cars and employee parking.

Wastes generated at Courtesy Chevrolet include waste oil, oil filters, waste engine coolant, waste storage batteries, rags and wipes. Wastes are reportedly removed and disposed of by licensed vendors. Several USTs were removed from the property in 1994. Information regarding the removal and additional assessment information is presented in Section 3.1.1.

Based on the inspection of Courtesy Chevrolet, several environmental concern areas were identified and include the following:

- **Service Bay Drain Line.** Approximately 950 feet of grated drain line, open to the surface, is located in front of the service bays. The drain is concrete lined and reportedly flows to the storm drain. This drain collects all storm water run-off from the asphalted parking areas and collects all water and fluids which drain from the service bays. During the inspection, the interior of the drain line looked black and oily.

- **Oil Water Separator.** An oil-water separator is present in front of the car wash. This separator collects water from the car wash and possibly water from the drain line prior to the connection with the storm drain. The separator is underground and constructed of concrete.

- **Hydraulic Lifts.** Approximately ten hydraulic lifts are present within the service bays. Some of these lifts have been taken out of service but associated components (hydraulic tanks, piping, vaults, etc.) still exist. During the inspection, the vaults and piping appeared very oily.

- **Waste Coolant and Waste Oil Tanks.** Two aboveground storage tanks (ASTs), one for waste coolant and one for waste oil, were observed during the inspection. The ASTs are placed on concrete floors within the service bays. Staining around the ASTs indicated that some spillage had occurred.

- **Oil Tanks Enclosure.** An enclosure on the southern side of the office building contains three oil ASTs and an air compressor. The concrete floor near the air compressor was stained with an oily residue. Near the ASTs, oily water approximately 1-inch deep, covered the concrete floor.

- **Service Bay.** One of the service bays on the western side of the facility was constructed with a concrete floor approximately four feet lower than the surrounding bays. The concrete floor in this depressed area was stained black from oil and a floor drain was present indicating the potential for fluids to accumulate in the area.

3.2.3 Interviews

On January 9, 1997, Paul Ross was contacted regarding historical environmental concerns regarding the Site. Mr. Ross has worked at several of the businesses at the TCVSC including Orion Security, E & R Janitorial, and Chimney Man. Mr. Ross has worked at the Site since 1971. Mr. Ross said he was unaware of any illegal dumping of liquids or solids, USTs or ASTs, drum storage areas, odors, former wells, or stained areas outside of the building premises. He said some pooled rain water accumulated in front of the AMC Movie theater and that fueling and maintenance of the Orion Security cars was performed at off-site service stations. Mr. Ross stated the most likely place for the storage or dumping of liquids would be in the Site storage area on the eastern side of the property.

Mr. Ross said the TCVSC buildings and some Site retaining walls were built with railroad ties which contained creosote. Storage of the ties occurred in the storage area on the eastern portion of the Site during construction of some of the buildings. Mr. Ross believed the buildings contained piping with lead solder.

3.2.4 Summary

Hazardous materials are stored in some of the tenant spaces including paints, motor oil, gear oil, solvents, thinners, varnishes, resins, dyes, deglazing fluids, gasoline, and janitorial cleaning agents. The materials are stored in small quantities of not larger than 5-gallons. Only small stains were observed on floors of some of the tenants.

Several drums and 5-gallon buckets of unknown liquids, empty compressed gas cylinders, and drums of soil cuttings were observed in the Site storage area. Some storage sheds in the rear of the buildings were used by tenants and may have stored hazardous materials or wastes. Limited dumping of soil was observed on the eastern, unpaved vacant lot.

Restaurants at TCVSC have grease bins at the rear of their facilities for the disposal of waste grease. Dumpsters are positioned around the TCVSC for the tenants use. The dumpster material is disposed of as Class III municipal waste.

Approximately 27 transformers are present on the Site which are used to regulate electricity to the Site buildings. The transformers are 30 plus years old and are owned by PG&E who has reportedly removed PCBs from all of their transformers. The transformer storage areas were not accessible during the site reconnaissance.

Courtesy Chevrolet is the only tenant at the Site which appears to generate and dispose of California hazardous wastes. These include waste oil, oil filters, waste engine coolant, used automobile batteries, and rags and wipes. The waste coolant and waste oil are temporarily stored on site in above-ground storage tanks, the oil filters are crushed and placed in drums, and the used batteries are stored on a pallet under an overhanging roof.

These materials are picked up at periodic intervals and are recycled or disposed of by licensed facilities. Several environmental concern areas were identified during the inspection that may require further assessment.

Known leaks at the Site have occurred from the former USTs at the Courtesy Chevrolet facility and the former dry cleaning operation in unit 906. In addition, agricultural operations have impacted the Site.

4 RECOGNIZED ENVIRONMENTAL CONDITIONS

This section summarizes the available information concerning recognized environmental conditions at the subject site. Recognized environmental conditions are defined in ASTM E 1527 - 94, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*[1].

PEA guidance states that this section of a PEA report should:

- list known or potential sources of contamination,
- document spills or releases,
- identify contaminants of concern,
- identify primary human and environmental resources of concern,
- describe the exposure pathways.

4.1 Known or Potential Sources of Contamination

Historical and current activities that constitute known or potential sources of contamination include:

- Agriculture

  Agricultural operations at the Site were discontinued around 1960. Agricultural operations can widely distribute chlorinated pesticides, lead arsenate, and other agricultural chemicals, across a property.

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[1] The term *Recognized Environmental Condition* means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

- Automotive service

  An automobile dealer, Courtesy Chevrolet, occupies the northwest corner of the Site. The dealership performs major service on vehicles, stores hazardous substances and petroleum products related to vehicle service, and has a clarifier (oil-water separator) for surface runoff.

- Dry cleaning

  Formerly, a dry cleaning establishment occupied one of the tenant spaces in the shopping center. Dry cleaners utilize hazardous substances and petroleum products.

- Storage and maintenance

  A small workshop is located on-site, used by shopping center maintenance personnel; small quantities of hazardous substances and petroleum products are stored in the workshop.

4.2 Spills or Releases

Based on a review of historical information, there are no documented events of spills or releases. A number of environmental investigations have been conducted at the Site as follow up to owner-commissioned environmental site assessments, and in conjunction with the closure of underground storage tanks at the automobile dealership. The results of these investigations indicate that "spills or releases" have occurred at the Site. Evidence includes:

- Agricultural chemicals detected in soil samples site-wide,
- PCE detected in soil samples at the former dry cleaner,
- Lead in soil at levels above background, detected at one location.

4.3 Contaminants of Concern

An initial set of contaminants of concern was developed from previous environmental investigations:

- Organochlorine pesticides (DDT, DDD, DDE)
- Arsenic

- PCE
- Petroleum hydrocarbons

The results of this investigation detected additional contaminants:

- Lead
- Petroleum hydrocarbons (diesel and heavy oil, only)

4.4 Primary Human and Environmental Resources of Concern

The entire Site is currently under commercial use, or undeveloped. Potential human receptors are (1) employees of the businesses located on-site and (2) customers. No habitats for ecological receptors are present across the paved and developed portion of the Site. The undeveloped area is a highly disturbed area (mainly due to past grading) dominated by weedy species and ground squirrels. Risks to environmental resources are expected to be minimal at this site.

4.5 Exposure Pathways

Human Receptors. The primary routes are inhalation of dust or volatiles, ingestion of soil, and dermal contact with soil. Potential exposure pathways for human receptors are described in Section 7.1.2.

Environmental Resources. No viable undisturbed habitats or special status species are present. The observed species are opportunistic and highly tolerant of human disturbance. Based on these observations, the absence of sensitive receptors indicates an incomplete exposure pathway. This is discussed further in Section 8.3.

5 ENVIRONMENTAL SETTING

5.1 Soil Pathways

The site and surrounding area are relatively flat and lie at an elevation of approximately 130 feet above mean sea level (Figure 1). Soil beneath the site consists of unconsolidated sediments (clays, sands, and gravels) to at least 75 bgs. The geologic logs for the groundwater monitoring wells at the Site are included in Appendix B.

Impacted soil at the Site includes subsurface soils near the underground storage tanks (USTs) at Courtesy Chevrolet in the northeastern part of the Site, soil beneath a building previously occupied by a dry cleaner in the southeastern part of the Site, and surface and subsurface soil in a vacant lot in the eastern part of the Site. Impacted soil in the northeastern part of the Site is limited to total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX). The USTs have been removed and most contaminated soil was excavated and removed (AllWest, 1996). Impacted soil in the southeastern part of the site is limited to tetrachloroethene (PCE) beneath a currently unoccupied building. Contaminated soil in the vacant lot includes pesticides (DDD, DDE, DDT, and historical presence of some organophosphate insecticides).

The total area of the site is about 37.7 acres, of which 2.4 acres is the unpaved vacant lot. Chemicals in soil are only available for possible direct contact and transport via dusts from the vacant lot. All other contaminated soils are covered by asphalt, concrete, or buildings. Because volatile organic chemicals are present in these covered areas, chemicals may volatilize up through the cover and be blown downwind. The nearest sensitive population, represented by an elementary school, is approximately one-half mile northeast of the site.

5.2 Water Pathways

Groundwater is encountered at a depth of approximately 60 feet bgs. The majority of the Site is covered by asphalt, concrete, or buildings, which act as a barrier to the percolation of surface waters.

5.2.1 Groundwater Pathways

Groundwater is approximately 60 feet bgs as measured in January 1997. Only TPH as diesel fuel (TPHD) and heavy oil were detected in groundwater; the toxic and volatile components of these mixtures (i.e., BTEX) were not detected in groundwater. The shallow aquifer in this area is not used for drinking water purposes. Because persons are not expected to directly contact groundwater and no volatile toxic constituents were detected, no exposure pathways are complete for groundwater. Because no toxic chemicals have been detected in groundwater, groundwater does not appear to be acting as a transport mechanism for chemicals beneath the site.

5.2.2 Surface Water Pathways

The nearest surface water body is Los Gatos Creek, located approximately 2 miles southeast of the site. Based on the distance to surface water bodies and the lack of toxic constituents detected in groundwater, no complete surface water exposure pathways are identified.

The site receives about 15 inches of rain annually. The majority of the site is covered with asphalt, concrete, or buildings. Therefore, surface water runoff that has the potential to come in contact with site chemicals is expected to be very limited at this site.

5.3 Air Pathways

Air sampling was not performed as part of this PEA. The prevailing wind direction is from the west. Residences are located about 500 feet downwind and exposure by blowing dust or volatile emissions may represent a complete exposure pathway. The inhalation of dusts and volatile emissions are discussed further in Section 7.2.

6 SAMPLING ACTIVITIES AND RESULTS

This section describes the soil and groundwater sampling activities and provides a discussion of the results. The sampling was conducted in December 1996 and January 1997.

6.1 Summary of Activities

This section discusses the sampling rationale, procedures for hand augering and soil sampling, monitoring well installation, groundwater sampling, surveying, and describes the laboratory analyses performed on the samples. Before field activities, EMCON obtained well installation permits (Appendix A) and prepared a site-specific health and safety plan. In addition, EMCON contracted with a private utility locator and notified underground services alert (USA) to clear the drilling locations.

6.1.1 Sampling Rationale

During the field investigation, EMCON performed soil and groundwater sampling to address the extent of subsurface impact, if any, at the following areas:

- Eastern unpaved portion of the Site used for previous agricultural operations where EMCON hand-augered and collected soil samples from borings EB-7 through EB-10.

- Former USTs area at Courtesy Chevrolet where EMCON collected soil and groundwater samples from well MW-1.

- Former dry cleaning operation in unit #906 where EMCON collected soil samples borings EB-1 and EB-2 and collected soil and groundwater samples from well MW-3.

- Site storage area where EMCON collected soil samples from boring EB-6 and collected soil and groundwater samples from well MW-2.

In addition to the areas described above, EMCON collected soil samples from borings EB-3 through EB-5 from various portions of the Site to determine the presence of pesticides from previous agricultural operations.

The hand-auger borings were placed in areas with the greatest potential for surficial impact. Likewise, the monitoring wells were located downgradient of areas with recognized environmental conditions with the potential for impacting groundwater. Analytical methods were chosen to detect known or potential sources of impact based on historical information and data collected during EMCON's Site reconnaissance and tenant inspections.

Potential sources of environmental impact identified during the inspection at Courtesy Chevrolet include the drain lines, an oil water separator, hydraulic lifts, waste coolant and waste oil ASTs, an oil AST enclosure, and a service bay with a sunken floor and floor staining. These potential sources of impact were not addressed at this time because Courtesy Chevrolet is still in operation and use of the property is not expected to change in the near future. These issues will be addressed when the lease expires at Courtesy Chevrolet.

6.1.2 Hand Augering and Soil Sampling

On December 17, 18, and 19 1996, EMCON collected soil samples from 10 borings, EB-1 though EB-10 (Figure 2). The borings wer drilled to depths between 3 and 3.5 feet bgs using a manually operated, 3-inch diame... hand auger. Soil samples were collected in brass tubes at depths of 1 to 1.5 feet and 3 to 3.5 feet bgs using a sampling shoe and a sliding hammer. The brass tubes were covered at each end with Teflon® squares and capped with plastic end caps prior to transport to the laboratory. Borings EB-8 and EB-9 were drilled where fill material was brought in and spread on the eastern half of the vacant lot. To allow for the additional fill material which was approximately 6 inches in depth, samples from these borings were collected at depths of approximately 1.5 to 2 feet and 3.5 to 4 feet bgs. Upon completion of sampling, the hand-auger borings were backfilled to the surface with soil cuttings. In concrete or asphalt paved areas, the boreholes were capped with Portland cement.

The hand-auger and sampling shoe were washed in liquinox and double rinsed in water to prevent cross contamination between the boreholes. The decontamination water was temporarily stored on site in 55-gallon drums.

6.1.3 Monitoring Well Installation

On December 18, 19, and 20, 1996, EMCON drilled three borings (MW-1 through MW-3) ranging in depth from 71.5 to 75 feet bgs for the installation of monitoring wells (Figure 2).

The borings were drilled using hollow-stem auger drilling equipment using 8-inch diameter augers. The borings were sampled for laboratory analysis and lithologic description at approximate 5-foot depth intervals using a modified California split-spoon sampler and a standard penetrometer. The borings were completed as groundwater monitoring wells by installing 2-inch diameter PVC well casing and screen. The exploratory boring logs and well construction details are included in Appendix B.

A photoionization detector (PID) was used to perform field headspace readings for volatile compounds on soil samples from well boring MW-1. No volatile compounds were measured in any of the soil samples from the MW-1 boring, as indicated by the PID readings recorded on the boring log.

Drilling and sampling equipment was steam-cleaned prior to each use. Drill cuttings and decontamination water was temporarily stored on site in 55-gallon drums.

6.1.4 Groundwater Sampling

On December 20 and 31, 1996, EMCON developed and purged the wells by surging and bailing approximately 20 gallons from each. Groundwater samples were collected from each well using a Teflon bailer. Purging and sampling equipment was steam-cleaned between wells to prevent cross contamination. The purge and decontamination water was temporarily stored on site in 55-gallon drums. On January 7, 1997, depth to groundwater was measured in each well to determine the groundwater gradient. Well development field data sheets from the groundwater sampling and measuring events are presented in Appendix C.

6.1.5 Surveying

On January 3, 1997, the elevations of the well casings and adjacent ground surface were surveyed. The benchmark used was City of San Jose #641-B (129.50 feet above mean sea level). The survey elevation data is presented Table 2.

6.1.6 Laboratory Analyses

Tables 3 and 4 present a list of samples analyzed during the recent investigation, including the sample depth and analytical parameters. The following describes the analytical methods utilized for the various samples.

The soil samples from hand-auger borings EB-1 and EB-2 were analyzed for chlorinated volatile organic compounds (VOCs) using U.S. Environmental Protection Agency (USEPA) method 8010. Soil samples from hand-auger borings EB-3 through EB-10, well boring MW-2, and the shallow sample from well boring MW-3 were analyzed for pesticides using USEPA method 8080, and lead and arsenic using USEPA method 6010 and 7060. The samples from hand-auger boring EB-6 were additionally analyzed for total petroleum hydrocarbons as gasoline (TPHG) using USEPA method 8015; benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl-tert butyl ether (MTBE) using USEPA method 8020; total petroleum hydrocarbons as diesel (TPHD) using USEPA method 8015; and high-boiling point hydrocarbons (HBHCs) using USEPA method 8015. The deeper soil sample from well boring MW-3, collected at 58.5 to 60 feet bgs, was analyzed for VOCs. Soil samples from boring MW-1 were analyzed for TPHG, BTEX, TPHD, and MTBE.

Some soil samples were further characterized by analyzing for soluble levels of metals by the waste extraction test (WET) outlined in California Code of Regulations, Title 22. These samples and the results of the WET analyses are shown on Table 3.

The groundwater samples from the wells were analyzed for TPHG, BTEX, TPHD, pesticides, and VOCs. The sample from MW-1 was additionally analyzed for MTBE. Laboratory analytical results and chain-of-custody documentation for the soil samples are presented in Appendix D and groundwater samples are included in Appendix E.

6.2 Discussion of Results

This section presents the subsurface conditions as recorded in the field by EMCON and discusses the results of the soil and groundwater analyses.

6.2.1 Subsurface Conditions

Soil observed during drilling consisted of interbedded units of clay, silt, sand, and gravel as shown on the boring logs presented in Appendix B. Groundwater was encountered in the coarser grained sands and gravels at a depth of approximately 60 feet bgs. The groundwater flows toward the northwest at an approximate gradient of 0.002 foot per foot (ft/ft). Groundwater elevation data is presented in Table 2 and the groundwater contours and flow direction are presented in Figure 4.

6.2.2 Soil Sample Analytical Results

To characterize soil conditions underlying the site, 26 soil samples were analyzed from 13 soil and well borings. A summary of the soil analytical results from this investigation is presented in Table 3 and Figure 2. Results from previous investigation are presented in Table 1 and Figure 3.

Based on the laboratory analysis, TPHG, BTEX, MTBE, TPHD, and HBHCs were not detected in the soil samples collected by EMCON. However, VOCs, pesticides, arsenic, and lead were detected consistent with previous investigations. These analytes are the result of the former dry cleaning and agricultural operations.

Former Dry Cleaning Operation

Low concentrations of PCE were detected in all four soil samples collected from borings EB-1 and EB-2, within the former dry cleaners. The concentrations ranged from 0.07 to 0.31 mg/kg, and were consistent with the concentrations detected in the soil samples collected in the March 1995 investigation by AllWest. No other VOCs were detected.

Former Agricultural Operations

Pesticides were detected in soil samples from six of the 10 borings analyzed. The pesticide compounds detected included 4,4'-DDE, 4,4'-DDD, and 4-4'-DDT. Individual sample results for total pesticides ranged from 0.03 mg/kg (EB-7 at 1 foot) to 10.6 mg/kg (EB-9 at 1.5 feet). Samples with total pesticide concentrations exceeding 1 mg/kg were detected in borings EB-5, EB-8, EB-9, and EB-10. These borings, except boring B-5, are located on the unpaved vacant lot on the eastern side of the Site. Boring B-5 is located nearby, on the southeastern edge of the property. These pesticide concentrations are consistent with concentrations detected during previous investigations which ranged from 0.03 to 15.4 mg/kg.

Arsenic and lead were detected in six of the ten samples analyzed. The arsenic concentrations ranged from 25 to 860 mg/kg and the lead concentrations ranged from 6 tc 1,500 mg/kg. The highest concentrations for both arsenic (860 mg/kg) and lead (1,500 mg/kg) were detected in the sample from boring EB-5 at 3 feet bgs. This sample exceeded the total threshold limit concentrations (TTLC) for arsenic (500 mg/kg) and lead (1,000 mg/kg) which classifies this sample as hazardous waste if it is excavated and removed from the Site.

Those samples which exceeded 10 times the soluble threshold limit concentration (STLC) for arsenic (5 mg/kg) or lead (5 mg/kg) were also analyzed by the WET to determine the amount of soluble arsenic or lead. Only sample EB-9 at 1.5 feet, which had a concentration of 5.5 mg/kg for lead, exceeded the STLC for arsenic or lead.

6.2.3 Groundwater Impact

Groundwater samples were collected from wells MW-1, MW-2, and MW-3 during this investigation. A summary of the analytical parameters the samples were tested for and the results are presented in Table 3 and Figure 3.

Based on the laboratory analysis, TPHG, BTEX, MTBE, pesticides, and VOCs were not detected in the groundwater samples. TPHD was detected at low concentrations in the groundwater sample from MW-2 (200 ug/L), and low concentrations of heavy oil were detected in the groundwater samples from MW-2 (670 ug/L) and MW-3 (190 ug/L). Although the TPHD detected in MW-2 did not match the typical diesel fingerprint, it is possible the TPHD represents a highly weathered diesel. The source of the low concentrations of diesel and heavy oil in wells MW-2 and MW-3 is not known.

7 HUMAN HEALTH SCREENING EVALUATION

This section focuses on estimating the potential threat to public health posed by recognized environmental conditions at the Site. The purpose of the human health screening evaluation (HHSE) is to assist in assessing the need for and extent of site remediation to protect human health. The PEA guidance provides generic, non-site-specific estimates of exposure intended to be a health-conservative preliminary evaluation of potential risk and hazard.

Consistent with the PEA guidance, the HHSE is divided into the following four components:

- Exposure pathways and media of concern
- Exposure concentrations and chemicals
- Toxicity values
- Risk characterization summary.

In the first component, complete and potentially significant exposure pathways by which receptors could contact chemicals are identified, and the environmental media associated with these pathways (e.g., soil) are identified. For this site, this involves identifying pathways by which future on-site residents may be exposed to chemicals originating in soil.

In the second component, the chemicals present in media that are to be evaluated in the HHSE are identified, and exposure concentrations are estimated. For this site, this includes detected pesticides, arsenic, lead, BTEX, and PCE. Some exposure pathways directly use detected soil concentrations (e.g., direct contact with soil) while other pathways are based on models using detected soil concentrations (e.g., inhalation of volatile chemicals in air).

The third component, toxicity assessment, discusses the sources and values to be used to quantify the toxicity associated with different exposure routes (e.g., ingestion and inhalation). For this site, all evaluated chemicals have toxicity values available from either Cal-EPA or USEPA.

The final component compares the estimated exposure levels with toxicity values to provide an estimate of cancer risk and noncancer hazards from detected chemicals. Cancer risks and noncancer hazard quotients (HQs) are compared with target risks and HQs to identify if estimated risks and hazards are above or below target levels. If chemical concentrations are above target risk levels, mitigation measures may be required. For industrial/commercial sites, cancer risks as high as 1×10^{-5} may be acceptable to DTSC. For residential sites, cancer risks of 1×10^{-6} are considered acceptable by DTSC. This site is currently industrial/commercial, but a portion of the site may be used for residences in the future.

7.1 Exposure Pathways and Media of Concern

This section summarizes the receptors and potential exposure routes and pathways quantitatively evaluated in the HHSE. The USEPA describes exposure pathways in terms of four components (USEPA 1989):

- A source and mechanism of chemical release
- A retention or transport medium (or media)
- A point of potential contact by a receptor
- An exposure route at the exposure point.

All four of these components must be present for a potential exposure pathway to be considered complete and for exposure to occur. These components are discussed below.

7.1.1 Conceptual Site Model

Based on known historical site use, the source of pesticides and metals at the site is shallow soil. For VOCs, the source is subsurface soils beneath cover or buildings. Three possible release mechanisms are present for the chemicals detected in soil:

- wind erosion and/or invasive soil activities generating airborne dusts (relevant for pesticides and metals)
- volatilization of chemicals into ambient air (relevant for VOCs)
- leaching of chemicals to groundwater (relevant to all chemicals).

Potential secondary sources by which exposure could occur include fruits and vegetables grown in on site gardens in the future followed by subsequent ingestion. Because of the low water solubilities of the evaluated chemicals, uptake into fruits and vegetables likely represents only a minor pathway and is not quantified herein. Even though organochloride pesticides are known to biomagnify, this occurs primarily through ingestion of animals rather than plants. Based on the low detected pesticide concentrations and experience with other sites, the plant uptake pathways are expected to represent an insignificant degree of exposure. Therefore, these pathways are not evaluated in the HHSE.

7.1.2 Pathways

Pathways relevant to the conceptual site model discussed above include:

- Inhalation of dusts
- Inhalation of volatiles
- Ingestion of soil
- Dermal contact with soil
- Domestic use of groundwater.

Organochloride pesticides have low volatilities, but sorb strongly to soil. Inhalation of dusts is likely to represent essentially all exposure through the inhalation route. Therefore, inhalation of dusts is quantified herein but inhalation of volatiles is not. Metals are not volatile; therefore inhalation exposures are quantified only for dusts. The VOCs (BTEX and PCE) have high volatilities and sorb poorly to soil. Therefore, inhalation of volatiles is likely to represent essentially all exposure through the inhalation route. For the VOCs, inhalation of volatiles is quantified herein but inhalation of dusts is not.

Ingestion of and dermal contact with soil are both quantified herein for exposure to pesticides and metals. VOCs in soil are not available for direct contact because they are present beneath pavement or buildings. Therefore, these pathways are not relevant for VOCs. However, to be conservative and consistent with PEA guidance, exposure to VOCs via these pathways is quantified. Because no toxic components have been detected in groundwater, exposures and risks from possible domestic use of groundwater are not quantified. This pathway is further discussed in Section 7.2.2 below.

No surface water is present on or near the site, so no pathways involving surface water are evaluated in this HHSE.

7.1.3 Receptors

Based on proposed future land use, receptors possibly exposed to the detected chemicals include future on site residents. As stated by California (1994), the PEA evaluation is intended to "...*quantify the potential residential lifetime risk and hazard from site conditions for a defined set of exposure pathways*". Because other receptors typically have lower exposures than those estimated for residents, no other receptors are quantitatively evaluated in this HHSE.

7.2 Exposure Concentrations and Chemicals

Chemicals quantitatively evaluated in the HHSE include all detected pesticides and VOCs. For pesticides, exposure concentrations were used for the following pathways:

- Ingestion of soil by on-site future residents
- Dermal contact with soil by on-site future residents
- Inhalation of dusts by on-site future residents.

For VOCs, exposure concentrations were used for the following pathways:

- Ingestion of soil by on-site future residents
- Dermal contact with soil by on-site future residents
- Outdoor inhalation of volatiles by on-site future residents.

Exposure concentrations and methods used to calculate them are discussed below.

7.2.1 Soil

As prescribed in the PEA guidance, the maximum detected concentrations were used in the HHSE to represent the highest potential exposure for possible residential receptors. Even though maximum detected concentrations were found in different locations for different chemicals, simultaneous exposure to the maximum concentration of all chemicals was assumed for this HHSE. As shown on Table 3, the maximum organochloride pesticide concentrations were found in sample EB-9 at 1.5 feet bgs (for DDD and DDE), and sample EB-8 at 3.5 feet bgs for DDT. The maximum detected concentrations at these locations were 1.1 milligrams per kilogram (mg/kg) for DDD, 7.5 mg/kg for DDE, and 4.9 mg/kg for DDT.

Other pesticides were detected in 1985 by Woodward-Clyde, as reported by Allwest (1993). These detected pesticides included the following:

- DEF
- ethion
- trithion
- dinoseb
- 2,4-D
- 2,4,5-trichloropropane
- methiocarb
- chloropropham.

All detected concentrations for these pesticides were equal to or less than 1 mg/kg except for chloropropham, which had a maximum detected concentration of 22 mg/kg. These pesticides do not persist as long as organochloride pesticides such as DDT. In general, these other pesticides have environmental soil half-lives less than one year (Verschueren 1983). Since these concentrations were detected 12 years ago, they are not expected to be currently present at concentrations above the detection limit. However, chloropropham was conservatively included in this HHSE because it was detected at the highest concentration of these other pesticides (22 mg/kg) and may still be present near its detection limit.

For VOCs, the maximum detected concentrations of BTEX remaining in subsurface soil at Courtesy Chevrolet following UST removal were used as exposure concentrations for soil contact and for volatilization modeling. The maximum concentrations of 0.084, 0.1, 0.16, and 0.37 mg/kg for BTEX, respectively, were detected in overexcavation sample T1-W2 at approximately 10 feet bgs in 1994 (AllWest 1994). For PCE, the maximum detected soil concentration of 0.31 mg/kg at location EB-1 at 3 feet bgs was used.

For arsenic and lead, both total and waste extraction test (WET) data are available. Both of these metals sorb to soil and also naturally occur in soil. Only a portion of these metals are bioavailable due to their form in the soil and their physical-chemical properties. The WET data represents the soluble concentrations of these metals at a pH similar to that of stomach acid. Therefore, the WET data represent the most appropriate source concentrations to estimate exposures and doses to human receptors. For arsenic, WET analyses were conducted on 13 soil samples. All WET results were non-detect at a detection limit of 0.5 mg/kg. The maximum total arsenic concentration of these 13 samples was 470 mg/kg. If one conservatively assumes that the WET result for this sample is at the detection limit, this indicates that the ratio between WET and total arsenic levels is 0.001 (0.5/470). The maximum total arsenic concentration detected was 860 mg/kg. This sample was detected at location EB-5 at 3 feet bgs, in the southern end of the site beneath pavement. Although no WET analysis was conducted on this sample, a WET result can be estimated using the conservative ratio calculated above. The WET value resulting from this ratio is 0.9 mg/kg. This maximum estimated WET value is used in this HHSE to represent a bioavailable concentration for exposure. It should be noted that all other detected arsenic concentrations were more than 10 times less than this maximum value, indicating that soluble levels of arsenic should be less than 0.09 mg/kg across the site.

For lead, the maximum total concentration of 1,500 was also detected at location EB-5 at 3 feet bgs. Although a WET test was not performed for this sample, total and WET data were analyzed for six detected lead samples. For the four samples where both results were above detection limits, the average ratio between WET and total concentrations was 0.0275. All individual ratios for a given sample location were within a factor of two, indicating that ratios could be extrapolated to other sample results. Multiplying the maximum total lead concentration of 1,500 mg/kg by this ratio of 0.0275 corresponds to a WET result of 41 mg/kg. This concentration is used in the HHSE for lead.

7.2.1.1 Soil Ingestion and Dermal Contact with Soil

For ingestion of and dermal contact with soil, the detected concentrations were used directly as exposure concentrations. These measured concentrations were combined with intake assumptions provided in PEA guidance to quantify exposures via these pathways. Intake assumptions for soil ingestion and dermal contact were combined with the soil concentrations using the relevant portions of the equation shown in Figure 5, Appendix B of the PEA guidance to estimate doses for each of the evaluated chemicals, as shown on Tables 5 and 6 for ingestion and dermal contact, respectively. These tables also show the actual equations used in the calculations. Different dermal absorption fractions were used for VOCs, organochloride pesticides, and arsenic as provided in PEA guidance and shown on Table 6.

7.2.1.2 Inhalation of Dusts

For inhalation of dusts originating in soil, the detected concentrations in soil were multiplied by 0.05 mg/m^3, the National Ambient Air Quality Standard for the annual average respirable portion (PM_{10}) of suspended particulate matter, and then converted to units of kg/m^3, following PEA guidance, to estimate air concentrations for exposure. Resulting air concentrations are shown on Table 7, along with intake assumptions and exposure equations provided in the PEA guidance manual. Resulting daily doses from inhalation of dust exposure are also shown on this table.

7.2.1.3 Inhalation of Volatiles

For inhalation of volatile chemicals originating in soil, the detected concentrations in soil were input into a simple, infinite source model, following PEA guidance, to estimate air emission rates at the soil surface. The model used is presented in PEA guidance and is illustrated in Figure 2.5 of the PEA guidance manual. The calculated emission rates are then divided by 99 following PEA guidance to convert the emission rates to ambient air concentrations in the breathing zone above a theoretical residential lot in units of mg/m^3. Resulting air concentrations are shown on Table 8, along with intake assumptions and exposure equations provided in the PEA guidance manual. Resulting daily doses from inhalation of vapors also shown on this table.

7.2.2 Groundwater

As previously discussed, groundwater is not used as a drinking water aquifer. Because none of the detected soil chemicals have been detected in groundwater and no toxic components of the detected TPH mixtures were found in groundwater, no complete exposure pathways are indicated for groundwater.

7.3 Toxicity Values

Consistent with PEA guidance, cancer potency values for the detected pesticides were obtained from the Office of Environmental Health Hazard Assessment if available (OEHHA, 1994). For the evaluated chemicals that are considered potentially carcinogenic, these cancer potency values, or slope factors (SFs), are 0.34 $mg/kg/day^{-1}$ for DDE and DDT, 0.24 $mg/kg/day^{-1}$ for DDD, 0.10 $mg/kg/day^{-1}$ for benzene. The SFs are the same for both oral and inhalation exposure routes for these chemicals. For arsenic and PCE, SFs are different for oral and inhalation exposure routes. For arsenic, respective SFs are 1.5 and 15 $mg/kg/day^{-1}$ and for PCE, respective SFs are 0.051 and 0.021 $mg/kg/day^{-1}$. Ethylbenzene, toluene, xylenes, chloropropham, and lead are not considered carcinogenic and only reference doses are used for these chemicals (except for lead as discussed below).

For noncancer effects, chronic reference doses (RfDs) were obtained from the USEPA Integrated Risk Information System (IRIS) online database (USEPA, 1996), consistent with PEA guidelines. The chronic oral RfD available for DDT (0.0005 mg/kg/day) was also used to assess the noncancer effects of DDD and DDE because these two chemicals have similar structures to DDT but do not have available RfDs. This oral value was used for oral, dermal, and inhalation exposure routes consistent with PEA guidance. For ethylbenzene, oral and inhalation chronic reference doses are 0.1 and 0.29 mg/kg/day, respectively. For toluene, oral and inhalation chronic reference doses are 0.2 and 0.11 mg/kg/day, respectively. For xylenes, oral and inhalation chronic reference doses are 2 and 0.2 mg/kg/day, respectively. The same RfD is used for all exposure routes for arsenic and chloropropham. These values are 0.0003 and 0.2 for arsenic and chloropropham, respectively.

Lead is evaluated differently from other chemicals. For screening purposes, PEA guidance uses a concentration of 130 mg/kg in soil below which exposures "constitute an acceptable human health risk" (California 1994). This value was obtained by the Office of Scientific Affairs using the spreadsheet model LEADSPREAD and conservative, screening level assumptions. Therefore, rather than estimating exposures to lead, site concentrations are directly compared with this screening value.

Toxicity values are presented for each pathway on Tables 5, 6, and 7.

7.4 Risk Characterization

This section presents the estimated risks from future on site residential exposure to the detected chemicals for the pathways discussed in Section 7.2. Noncancer hazards are discussed first, followed by cancer risks.

7.4.1 Noncancer Risk Characterization

For noncancer effects, a hazard quotient (HQ) is used to evaluate hazards. The HQ is calculated by dividing the estimated daily dose by the RfD. If this quotient is greater than 1, it indicates the presence of contamination which may pose a significant threat to human health under the evaluated conditions (California 1994). If this is less than 1, no further action is required to adequately protect human health from noncancer effects.

Noncancer effects were evaluated for DDD, DDE, DDT, chloropropham, arsenic, toluene, ethylbenzene, and xylenes. For soil ingestion, HQs ranged from 1.0 x 10^{-6} for toluene exposure by adults to 0.83 for arsenic exposure by children. For dermal contact with soil, HQs ranged from 1.0 x 10^{-6} for toluene exposure by adults to 0.19 for DDE exposure by children (Table 9). All values are less than the regulatory-based threshold level of 1. Summing HQs for each chemical across both routes of exposure provides a hazard index (HI), and provides a conservative evaluation of possible additive impacts from chemicals. The highest HI estimated for soil ingestion is 0.38 for children, which is below 1 (Table 9).

For the air pathways, HQ values ranged from 6.1 x 10^{-6} for toluene to 4.8 x 10^{-4} for DDE (Table 9). The sum of HQs for the dust and volatilization pathways are 0.00096 and

The total HIs across all pathways are 0.57 and 0.075 for children and adult receptors, respectively, which are both below the threshold level of 1. These results indicate that noncancer effects are not of concern under the conditions evaluated in this HHSE.

7.4.2 Cancer Risk Characterization

Cancer effects are evaluated by multiplying the average daily doses estimated in the exposure assessment by the slope factor to calculate a cancer risk. As stated by California (1994), a risk estimation greater than 10^{-6} indicates "...the presence of contamination which may pose a significant threat to human health". Cancer risks were evaluated for DDD, DDE, DDT, arsenic, benzene, and PCE.

For direct soil ingestion, cancer risks ranged from 1.3×10^{-8} for benzene to 4×10^{-6} for DDE (Table 9). In addition to the estimated cancer risk from DDE exposure, the soil ingestion cancer risk estimated for DDT (3×10^{-6}) and arsenic (2×10^{-6}) slightly exceed the target level of 1×10^{-6} (Table 9). The sum of cancer risks for soil ingestion is 9.1×10^{-6}; 44 percent of this risk is due to DDE, 29 percent is due to DDT, and 23 percent is due to arsenic (Table 9).

For dermal contact with soil, cancer risks ranged from 1.6×10^{-8} for benzene to 2.4×10^{-6} for DDE (Table 9). In addition to the estimated cancer risk from arsenic exposure, the soil dermal contact cancer risk estimated for DDT (1.6×10^{-6}) slightly exceeds the target level of 1×10^{-6} (Table 9). The sum of cancer risks for dermal contact with soil is 5.0×10^{-6}; 48 percent of this risk is due to DDE and 31 percent is from DDT (Table 9).

For the air pathways, cancer risks ranged from 2.0×10^{-9} for DDD to 1×10^{-7} for arsenic (Table 9). The sum of the estimated cancer risks from inhalation of volatiles (e.g., HI) is below the 1×10^{-6} threshold value used by DTSC.

These results indicate that exposure to the maximum detected DDE and DDT concentrations may pose excess cancer risks above the acceptable regulatory risk level. In addition, cumulative expcsure to arsenic across all pathways of 3×10^{-6} exceeded the 1×10^{-6} threshold (Table 9). All other detected arsenic concentrations were at least ten times lower the maximum value used, indicating that site-wide exposure to arsenic should result in exposures below threshold risk levels. Exposure to DDE and DDT are within the acceptable screening risk value range of 1×10^{-5} and 1×10^{-6}, indicating that they represent borderline risks based on this conservative screening risk evaluation.

7.5 Uncertainties

Risk estimates are values that have uncertainties associated with them. These uncertainties, which arise at every step of a risk assessment, are evaluated to provide an indication of the relative degree of uncertainty associated with a risk estimate. A detailed qualitative discussion of the uncertainties associated with the development of the risk estimates for the site is presented in Appendix F.

7.6 Conclusions

Noncancer effects were estimated to be below levels of potential concern for all chemicals across all pathways and receptors. For cancer effects, exposure to DDE and DDT at their maximum detected concentrations via soil ingestion and dermal contact with soil exceed the target 1×10^{-6} cancer risk. However, these exceedances were all less than 1×10^{-5}. Cumulative exposure to the maximum detected soil arsenic concentration also slightly exceeds the target 1×10^{-6} cancer risk level. All other exposures were less than levels of concern.

8 ECOLOGICAL SCREENING EVALUATION

This section describes the ecological community at and near the site and qualitatively evaluates the potential for biota to be exposed to chemicals originating in site soil.

8.1 Ecological Site Characterization

On January 6, 1997 the vacant lot at the site was surveyed to develop an inventory of plant animal species present or likely to be present at the site. Evidence was gathered by direct observation of the species visible and by noting the presence of signs of other species such as the remains of plants from a previous growing season, burrows, tracks, and scat. No species of special concern were noted in the survey. Based on the developed nature of the site, no other site areas were vegetated and therefore only the vacant lot may provide a habitat for ecological receptors.

8.1.1 Plants

The lot was completely vegetated except for a strip on its eastern quarter that was separated from the rest of the site by a wooden rail fence. This area appeared to be highly disturbed, as evidenced by the presence of tracks from heavy construction equipment. The spaces along the margins of this area, however, appeared to be relatively undisturbed, and supported vegetation similar to that of the rest of the lot. The absence of plant growth in the highly disturbed area is probably the result of the physical disturbance as well as the resulting compaction of the soil.

The site is strongly ruderal (i.e., disturbed) in nature, and supports a lush growth of weedy plants made up entirely of annual species. Grasses (primarily wild oats [*Avena* sp.] and rye grass [*Lolium* sp.]) dominate the site. A variety of herbaceous annuals were also observed. The herbs consisted of cheese weed (*Malva* sp.), cranesbill (*Erodium* sp) wild mustard (*Brassica* sp.), pigweed (*Chenopodium* sp.), and the occasional thistle (*Cirsium* sp.), dandelion (*Bellis* sp.) and miner's lettuce (*Montia* sp.).

8.1.2 Animals

Consistent with treeless ruderal habitats in the Bay Area, the lot is dominated by ground squirrels (*Citellus* sp.), which were observed throughout the vegetated portion of the site. No squirrels or their burrows were observed in the bare areas on the eastern part of the site. Burrows, probably made by smaller rodents such as field mice or voles, were also noted. No sign of other animals were observed, although it is possible that reptiles such as lizards or snakes may occupy this lot.

Although no birds appear to nest at the lot, probably as a result of the absence of suitable nesting sites, the site may serve as a source of food for birds of prey. The contribution to the diet of such birds, however, is likely to be very small considering the small size of this site relative to the hunting area for birds of prey.

The lot is not likely to contain many animals other than those mentioned above because of its small size and the fact that it is surrounded by areas that have been or are being developed for commercial or residential use.

Therefore, the only habitat at the site should be considered a highly disturbed habitat strongly influenced by human industrial activities.

8.2 Biological Characterization

Because the only habitat currently present on site is a highly disturbed open field, no viable, undisturbed ecological communities are present on or near the site. No sensitive habitats are present near the site, including wetlands or riparian areas.

As recommended by PEA guidance, a search of the California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDB) was conducted for the west San Jose US Geological Survey quadrangle to identify if any special status species have been reported in the vicinity of the site. Special status species include California species of special concern, state and federally listed rare, threatened, or endangered species, or species which are proposed or recommended for state or federal listing.

Results of the search indicated that four observations of special status species have been reported in the western San Jose quadrangle:

- burrowing owl (Athene cunicularia) at Karina Court and North First Street in 1992

- burrowing owl 0.2 miles northeast of the intersection of Airport Parkway and Guadalupe Parkway, east of San Jose International Airport, in 1993

97-036

- hairless popcorn-flower (Plagiobothrys glaber) in Santa Clara, reported occurrence in 1892

- metcalf canyon jewelflower (Streptanthus albidus ssp. albidus) four miles south of San Jose near Canoas Creek, reported occurrence in 1938.

All four of these locations are further than 2 miles from the site. Therefore, no special status species have been observed in the vicinity of the site.

8.3 Pathway Assessment

As discussed in Section 7.1, each of four components of an exposure pathway needs to be present for a pathway to be potentially complete. Because no viable undisturbed ecological habitats or special status species currently reside at or near the site, one of the four components required for a complete exposure pathway is not present for species other than the opportunistic, tolerant species currently on the site. The observed species in the vacant lot have a high tolerance for human disturbance; their presence at the lot indicates that plants and animals have become established at the site in spite of the minor chemical contamination. Therefore, it should be expected that the currently present species are not at undue risk from chemical exposure. As previously discussed, although the site may serve as a source of food for birds of prey, the contribution to the diet of such birds is likely to be very small and should not present an undue risk for predatory birds.

8.4 Qualitative Summary

Because of the nature and physical status of the site, only a highly disturbed habitat dominated by weedy species and ground squirrels is present on site; this habitat occupies less than ten percent of the site area. No habitats for ecological receptors are present across the rest of this paved and developed site. No special status species have been reported to be present within two miles of the site. Based on this qualitative assessment, risks to biota are expected to be minimal at the site.

9 COMMUNITY PROFILE

The community surrounding the Site is zoned for commercial and residential uses. Commercial developments are present to the north, south, and west of the Site. Residential housing borders the Site to the northeast and the property to the east is currently under development for single family housing. The nearest school, Saint Martins, is approximately 0.5 mile northeast of the Site.

The property that is east of the Site, currently being developed for single-family housing, was purchased by a property developer in the mid-1990s. The developer of the residential units obtained a Negative Declaration under the California Environmental Quality Act (CEQA) issued by the San Jose Department of City Planning prior to developing the property. In the past, the residential property had been used for agricultural purposes. Previous investigations detected pesticides in soils similar to those detected in the soil at the unpaved vacant lot on the TCVSC Site. The Negative Declaration found no significant impact on the environment from the project and no protests or comments were received from the public concerning environmental conditions at the residential site.

10 CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusions

Several areas at the Site have recognized environmental conditions that represent past releases of chemical compounds. These compounds are found primarily in shallow soils and include pesticides, arsenic, lead, PCE, and petroleum hydrocarbons. The pesticides are from past agricultural use at the Site. Arsenic and lead are also likely the result of past agricultural use. The PCE is from a former dry cleaner and the petroleum hydrocarbons are from former USTs at Courtesy Chevrolet. The compounds found in the soil are not detected in groundwater at the Site. However, groundwater collected at the Site shows low concentrations of heavy oil or diesel, but the groundwater does not contain any toxic compounds.

The inspection and the interviews at the Site indicated that small quantities of chemicals are stored and used by various tenants. The inspections and interviews did not indicate that further investigations are necessary in these areas, which include the Storage Area and Workshop. However, during the inspection several open drums and buckets which contained liquids and three drums containing soils, were found in the Site storage area. These drums and buckets should be removed.

Under continued commercial use, the risk assessment demonstrates that the compounds found at the Site do not pose a threat to public health or the environment above the risk-based levels. The health risks of the chemical compounds found at the Site were evaluated for residential exposure. Under a residential scenario, the potential exposure to pesticides (specifically DDE and DDT) and arsenic exceed the target cancer risk for these compounds. The other compounds, specifically PCE, lead, and petroleum hydrocarbons, do not exceed the target cancer risk level.

The Site inspection and interviews at the Site indicated several recognized environmental conditions at Courtesy Chevrolet, which were not sampled during this investigation. It is EMCON's understanding that these areas will be investigated by Courtesy Chevrolet when their lease expires on the property.

10.2 Recommendations

As previously stated, the recognized environmental conditions found at the site do not pose a significant threat to the public health or the environment, provided the use of the Site does not change. However, if the use of the site changes and residential development is considered at the Site, we recommend further investigation of the following recognized environmental conditions.

- The soils containing pesticide residues found in the vacant lot require remediation prior to residential development. Remedial alternatives should be considered in conjunction with any proposed development plan and the alternatives should be designed to limit exposure to pesticide soils. The remedial alternatives may incorporate excavation or capping the site.

- The extent of lead-impacted soil in the southern portion of the site should be defined and the soil remediated, if the asphalt in this area is to be removed and the soils are exposed during future construction. The remediation alternatives should be designed to remove any soils above established regulatory criteria.

- The recognized environmental conditions at Courtesy Chevrolet should be investigated to determine whether any soil impacts have occurred in this area.

- The drums and buckets of liquid and the drums of soil in the Site storage area should be identified and appropriately contained or disposed.

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LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Table 1

Summary of Soil Analytical Results From Previous Investigations
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Units: mg/kg

Borehole Designation	Sample Depth (ft.)	Date Sampled	TPHG	B	T	E	X	TPHD	Total Chlorinated Pesticides	PCE*	Arsenic	Lead
AGRICULTURAL AREA BORINGS												
TCG-1	0.5	07/23/85	NA	NA	NA	NA	NA	NA	5.88	NA	60	NA
TCG-2	0.5	07/23/85	NA	NA	NA	NA	NA	NA	2.80	NA	59	NA
TCG-3	0.5	07/23/85	NA	NA	NA	NA	NA	NA	6.86	NA	85	NA
TCSS-1	1.0	12/21/92	NA	NA	NA	NA	NA	NA	11.7	NA	0.35	NA
TCSS-2	1.5	12/21/92	NA	NA	NA	NA	NA	NA	4.7	NA	0.11	NA
TCSS-3	1-1.5	12/21/92	NA	NA	NA	NA	NA	NA	4.3	NA	0.25	NA
TCSS-4	1-1.5	12/21/92	NA	NA	NA	NA	NA	NA	5.2	NA	0.44	NA
TCSS-5	1-1.5	12/21/92	NA	NA	NA	NA	NA	NA	15.4	NA	0.20	NA
TCSS-6	1-1.5	12/21/92	NA	NA	NA	NA	NA	NA	2.0	NA	0.13	NA
TCSS-7	1-1.5	12/21/92	NA	NA	NA	NA	NA	NA	3.1	NA	0.19	NA
SS-1	2-2.5	06/10/93	NA	NA	NA	NA	NA	NA	4.50	NA	NA	NA
SS-2	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	4.65	NA	NA	NA
SS-3	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	0.22	NA	NA	NA
SS-4	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	3.64	NA	NA	NA
SS-5	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	5.19	NA	NA	NA
SS-6	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	1.89	NA	NA	NA
SS-7	1-1.5	06/10/93	NA	NA	NA	NA	NA	NA	3.79	NA	NA	NA
SS-8	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	2.57	NA	NA	NA

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Table 1

Summary of Soil Analytical Results From Previous Investigations
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Units: mg/kg

Borehole Designation	Sample Depth (ft.)	Date Sampled	TPHG	B	T	E	X	TPHD	Total Chlorinated Pesticides	PCE*	Arsenic	Lead
SS-9	1-1.5	06/10/93	NA	NA	NA	NA	NA	NA	2.29	NA	NA	NA
SS-10	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	1.55	NA	NA	NA
SS-11	1-1.5	06/10/93	NA	NA	NA	NA	NA	NA	1.69	NA	NA	NA
SS-12	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	4.60	NA	NA	NA
SS-13	1-1.5	06/10/93	NA	NA	NA	NA	NA	NA	1.70	NA	NA	NA
SS-14	2-2.5	06/10/93	NA	NA	NA	NA	NA	NA	0.06	NA	NA	NA
SS-15	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	3.91	NA	NA	NA
SS-16	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	1.11	NA	NA	NA
SS-17	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	2.84	NA	NA	NA
SS-18	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	3.02	NA	NA	NA
SS-19	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	3.34	NA	NA	NA
SS-20	0.5-1	06/10/93	NA	NA	NA	NA	NA	NA	1.46	NA	NA	NA
SS-21	1-1.5	06/10/93	NA	NA	NA	NA	NA	NA	0.37	NA	NA	NA
SS-22	1-1.5	06/10/93	NA	NA	NA	NA	NA	NA	0.05	NA	NA	NA
SS-23	1-1.5	06/10/93	NA	NA	NA	NA	NA	NA	0.03	NA	NA	NA
COURTESY CHEVROLET												
UST EXCAVATION CONFIRMATION SAMPLES												
T-3-E	11	03/30/94	NA	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	3.7
T-3-W	11	03/30/94	NA	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	5

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Table 1

Summary of Soil Analytical Results From Previous Investigations
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Units: mg/kg

Borehole Designation	Sample Depth (ft.)	Date Sampled	TPHG	B	T	E	X	TPHD	Total Chlorinated Pesticides	PCE*	Arsenic	Lead
T-4-E	11	03/30/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
T-4-W	11	03/30/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
SW-north	8	03/30/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
SW-south	8	03/30/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
SW-east	8	03/30/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
SW-west	8	03/30/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
T-1-E2	16	04/01/93	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	13
T-1-W2	16	04/01/93	61	0.084	0.16	0.1	0.37	NA	NA	NA	NA	9.1
T-2-C2**	16	04/01/93	2.3	<0.005	0.022	0.019	0.077	<1.0	NA	<0.005	NA	9.8
SW-E2	16	04/01/93	1.4	<0.005	0.018	0.017	0.059	NA	NA	NA	NA	14
SW-S2	16	04/01/93	17	<0.005	0.019	0.034	0.16	NA	NA	NA	NA	91
UST BORINGS												
SB-1	11-12.5	11/08/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
	13.5-15	11/08/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
	38.5-40	11/08/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
SB-2	13.5-15	11/08/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
	18.5-20	11/08/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
	38.5-40	11/08/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
SB-3	18.5-20	11/09/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
	38.5-40	11/09/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA

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Table 1

Summary of Soil Analytical Results From Previous Investigations
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Units: mg/kg

Borehole Designation	Sample Depth (ft.)	Date Sampled	TPHG	B	T	E	X	TPHD	Total Chlorinated Pesticides	PCE*	Arsenic	Lead
SB-4	8.5-10	11/09/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
	13.5-15	11/09/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
	33.5-35	11/09/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
	53.5-55	11/09/94	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
	58.5-60	11/09/94	<1.0	<0.C05	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
FORMER DRY CLEANERS												
B-1	5	03/08/95	NA	NA	NA	NA	NA	NA	NA	0.031	NA	NA
	10	03/08/95	NA	NA	NA	NA	NA	NA	NA	0.018	NA	NA
B-2	5	03/08/95	NA	NA	NA	NA	NA	NA	NA	0.035	NA	NA
	10	03/08/95	NA	NA	NA	NA	NA	NA	NA	0.042	NA	NA
MWT-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TPHG Total petroleum hydrocarbons as gasoline
B Benzene
T Toluene
E Ethylbenzene
X Xylenes
TPHD Total petroleum hydrocarbons as diesel
PCE Tetrachloroethene

(1) NA = not analyzed or available
(2) ND = not detected above method reporting limits in the certified laboratory reports.
(3) * = All other VOCs by EPA method 8010 below method reporting limits.
(4) ** = Sample contained 20 mg/kg oil and grease. Sample tested for semi-volatile organics. All analytes below the method reporting limits.

Table 2

Groundwater Elevation Data
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Well Designation	Well Casing Elevation (ft/MSL)	Date Measured	Depth to Water (ft)	Water Level Elevation (ft/MSL)
MW-1	129.89	1/8/97	57.43	72.46
MW-2	132.70	1/8/97	58.71	73.99
MW-3	136.59	1/8/97	61.31	75.28

Notes:
1. Benchmark = City of San Jose #641-B, elevation of 129.50 MSL
2. MSL = mean sea level

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Table 3

Summary of Soil Analytical Results
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Units: mg/kg

Borehole Designation	Sample Depth (ft.)	Date Sampled	TPHG	B	T	E	X	MTBE	TPHD	HBHCs	Total Chlorinated Pesticides	PCE*	Arsenic	Arsenic WET	Lead	Lead WET
SOIL BORINGS																
EB-1	1	12/17/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.12	NA	NA	NA	NA
	3	12/17/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31	NA	NA	NA	NA
EB-2	1	12/17/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.07	NA	NA	NA	NA
	3	12/17/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA
EB-3	1	12/17/96	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	73	<0.5	10	NA
	3	12/17/96	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	53	<0.5	10	NA
EB-4	1	12/17/96	NA	NA	NA	NA	NA	NA	NA	NA	0.24	NA	78	<0.5	12	NA
	3	12/17/96	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	46	NA	8	NA
EB-5	1	12/17/96	NA	NA	NA	NA	NA	NA	NA	NA	0.58	NA	60	<0.5	34	NA
	3	12/19/96	NA	NA	NA	NA	NA	NA	NA	NA	1.8	NA	860	NA	1,500	NA
EB-6	1	12/17/96	<1	<0.005	<0.005	<0.005	<0.005	<0.05	<1	ND	ND	<0.05	78	<0.5	11	NA
	3	12/17/96	<1	<0.005	<0.005	<0.005	<0.005	<0.05	<1	ND	ND	<0.05	34	NA	9	NA
EB-7	1	12/18/96	NA	NA	NA	NA	NA	NA	NA	NA	0.03	NA	59	<0.5	12	NA
	3	12/18/96	NA	NA	NA	NA	NA	NA	NA	NA	0.07	NA	53	<0.5	11	NA
EB-8	1.5	12/18/96	NA	NA	NA	NA	NA	NA	NA	NA	3.42	NA	82	<0.5	91	2.4
	3.5	12/18/96	NA	NA	NA	NA	NA	NA	NA	NA	10.4	NA	75	<0.5	110	2.2
EB-9	1.5	12/19/96	NA	NA	NA	NA	NA	NA	NA	NA	10.6	NA	90	<2	130	5.5
	3.5	12/19/96	NA	NA	NA	NA	NA	NA	NA	NA	0.63	NA	63	<0.5	24	0.5
EB-10	1	12/19/96	NA	NA	NA	NA	NA	NA	NA	NA	3.8	NA	110	NA	220	NA
	3	12/19/96	NA	NA	NA	NA	NA	NA	NA	NA	0.04	NA	61	NA	15	NA
WELL BORINGS																
MW-1	19.5	12/20/96	<1	<0.005	<0.005	<0.005	<0.005	<0.05	<1	NA	NA	NA	NA	NA	NA	NA
	30	12/20/96	<1	<0.005	<0.005	<0.005	<0.005	<0.05	<1	NA	NA	NA	NA	NA	NA	NA

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Table 3

Summary of Soil Analytical Results
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Units: mg/kg

Borehole Designation	Sample Depth (ft.)	Date Sampled	TPHG	B	T	E	X	MTBE	TPHD	HBHCs	Total Chlorinated Pesticides	PCE*	Arsenic	Arsenic WET	Lead	Lead WET
MW-2	1	12/19/96	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	470	<0.5	91	<0.5
	3	12/19/96	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	400	<0.5	96	<0.5
MW-3	3.5-5	12/18/96	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	25	NA	6	NA
	58.5-60	12/18/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA

TPHG	Total petroleum hydrocarbons as gasoline
B	Benzene
T	Toluene
E	Ethylbenzene
X	Xylenes
MTBE	Methyl-tert-butyl ether
TPHD	Total petroleum hydrocarbons as diesel
HBHCs	High-boiling-point hydrocarbons
PCE	Tetrachloroethene
WET	Waste Extraction Test

(1) NA = not analyzed or available
(2) ND = not detected above method reporting limits in the certified laboratory reports.
(3) * = All other VOCs by EPA method 8010 belc·v method reporting limits.
(4) ** = Sample contained 20 mg/kg oil and grease. Sample tested for semi-volatile organic compounds. All analytes below the method reporting limits.

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Table 4

Summary of Groundwater Analytical Results
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Units: ug/L

Well Designation	Date Sampled	TPHG	B	T	E	X	MTBE	TPHD	Heavy Oil	Total Pesticides	Total VOCs
MW-1	12/31/96	<50	<0.5	<0.5	<0.5	<0.5	<3	<50	ND	ND	ND
MW-2	12/20/96	<50	<0.5	<0.5	<0.5	<0.5	NA	200	670	ND	ND
MW-3	12/20/96	<50	<0.5	<0.5	<0.5	<0.5	NA	<50	190	ND	ND

TPHG	Total petroleum hydrocarbons as gasoline
B	Benzene
T	Toluene
E	Ethylbenzene
X	Xylenes
MTBE	Methyl-tert-butyl ether
TPHD	Total petroleum hydrocarbons as diesel
Total VOCs	Total volatile organic compounds

(1) NA = not analyzed or available
(2) ND = not detected above method reporting limits in the certified laboratory reports.

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Table 5

Estimation of Soil Ingestion Dose
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Parameter	Symbol	Units	Note	DDD	DDE	DDT	Chloropropham	Arsenic	Benzene	Ethylbenzene	Toluene	Xylenes	PCE
Soil Chemical Concentration	Cs	mg/kg		1.1	7.5	4.9	22	0.9	0.084	0.1	0.16	0.37	0.31
Exposure frequency	EF	day/year	1	350	350	350	350	350	350	350	350	350	350
Exposure duration - kids	EDk	years	1	6	6	6	6	6	6	6	6	6	6
Exposure duration - adults	EDa	years	1	24	24	24	24	24	24	24	24	24	24
Soil ingestion rate - kids	SIRk	mg/day	1	200	200	200	200	200	200	200	200	200	200
Soil ingestion rate - adults	SIRa	mg/day	1	100	100	100	100	100	100	100	100	100	100
Conversion factor	CF2	kg/mg	1	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Body weight - kids	BWk	kg	1	15	15	15	15	15	15	15	15	15	15
Body weight - adults	BWa	kg	1	70	70	70	70	70	70	70	70	70	70
Averaging time (noncarcinogens) - kids	ATnk	days	2	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190
Averaging time (noncarcinogens) - adults	ATna	days	3	8760	8760	8760	8760	8760	8760	8760	8760	8760	8760
Averaging time (carcinogens)	ATc	days	4	25550	25550	25550	25550	25550	25550	25550	25550	25550	25550
Daily Dose - Cancer - Kids	LADDk	mg/kg/day	5	1.21E-06	8.22E-06	5.37E-06	2.41E-05	9.86E-07	9.21E-08	1.10E-07	1.75E-07	4.05E-07	3.40E-07
Daily Dose - Cancer - Adults	LADDa	mg/kg/day	6	5.17E-07	3.52E-06	2.30E-06	1.03E-05	4.23E-07	3.95E-08	4.70E-08	7.51E-08	1.74E-07	1.46E-07
Daily Dose - Cancer - Kid/Adult	LADDka	mg/kg/day	7	1.72E-06	1.17E-05	7.67E-06	3.44E-05	1.41E-06	1.32E-07	1.57E-07	2.50E-07	5.79E-07	4.85E-07
Slope Factor	SF	$(mg/kg/day)^{-1}$	8	0.24	0.34	0.34	NA	1.5	0.1	NA	NA	NA	0.051
Cancer Risk - Kid/Adult	CR	Unitless	9	4.13E-07	3.99E-06	2.61E-06	NA	2.11E-06	1.32E-08	NA	NA	NA	2.48E-08
Daily Dose - Noncancer - Kids	ADDk	mg/kg/day	10	1.41E-05	9.59E-05	6.26E-05	2.81E-04	1.15E-05	1.07E-06	1.28E-06	2.05E-06	4.73E-06	3.96E-06
Daily Dose - Noncancer - Adults	ADDa	mg/kg/day	11	1.51E-06	1.03E-05	6.71E-06	3.01E-05	1.23E-06	1.15E-07	1.37E-07	2.19E-07	5.07E-07	4.25E-07
Reference Dose	RfD	mg/kg/day	12	5.00E-04	5.00E-04	5.00E-04	2.00E-01	3.00E-04	NA	1.00E-01	2.00E-01	2.00E+00	1.00E-02
Hazard Quotient - Kids	HQk	Unitless	13	2.81E-02	1.92E-01	1.25E-01	1.41E-03	3.84E-02	NA	1.28E-05	1.02E-05	2.37E-06	..96E-04
Hazard Quotient - Adults	HQa	Unitless	14	3.01E-03	2.05E-02	1.34E-02	1.51E-04	4.11E-03	NA	1.37E-06	1.10E-06	2.53E-07	4.25E-05

1 From: California (1994)
2 EDk * 365 days/yr
3 EDa * 365 days/yr
4 70 year lifetime * 365 days/yr
5 (Cs * SIRk * CF2 * EF * EDk)/(BWk * ATc)
6 (Cs * SIRa * CF2 * EF * EDa)/(BWa * ATc)
7 LADDk + LADDa
8 Slope factors from OEHHA (1994)
9 CR = LADDka * SF
10 (Cs * EF * EDk * SIRk * CF2/BWk * ATnk)
11 (Cs * EF * EDa * SIRa * CF2/BWa * ATna)
12 Chronic reference dose for DDT from USEPA (1996). Toxicity of DDD and DDE assumed to be equal to that for DDT.
13 ADDk/RfD
14 ADDa/RfD

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Table 6

Estimation of Dermal Dose
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Parameter	Symbol	Units	Note	DDD	DDE	DDT	Chloropropham	Arsenic	Benzene	Ethylbenzene	Toluene	Xylenes	PCE
Soil Chemical Concentration	Cs	mg/kg		1.1	7.5	4.9	22	0.9	0.084	0.1	0.16	0.37	0.31
Dermal Absorption Factor	DAF	Unitless	1	0.05	0.05	0.05	0.25	0.03	0.1	0.1	0.1	0.1	0.1
Soil Adherence Factor	SAF	mg/cm^2-day	1	1	1	1	1	1	1	1	1	1	1
Exposed Skin Area - Kids	ESk	cm^2	1	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Exposed Skin Area - Adults	ESa	cm^2	1	5800	5800	5800	5800	5800	5800	5800	5800	5800	5800
Unit Conversion Factor	CFI	kg/mg		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Body Weight - Kids	BWk	kg	1	15	15	15	15	15	15	15	15	15	15
Body Weight - Adults	BWa	kg	1	70	70	70	70	70	70	70	70	70	70
Exposure Frequency - Kids	EFk	days/yr	1	350	350	350	350	350	350	350	350	350	350
Exposure Frequency - Adults	EFa	days/yr	1	100	100	100	100	100	100	100	100	100	100
Exposure Duration - Kids	EDk	yr	1	6	6	6	6	6	6	6	6	6	6
Exposure Duration - Adults	EDa	yr	1	24	24	24	24	24	24	24	24	24	24
Year Length	Y	day/yr	1	365	365	365	365	365	365	365	365	365	365
Lifetime	LT	years	1	70	70	70	70	70	70	70	70	70	70
Daily Dose - Cancer - Kids	LADDk	mg/kg/day	2	6.03E-07	4.11E-06	2.68E-06	6.03E-05	2.96E-07	9.21E-08	1.10E-07	1.75E-07	4.05E-07	3.40E-07
Daily Dose - Cancer - Adults	LADDa	mg/kg/day	3	4.28E-07	2.92E-06	1.91E-06	4.28E-05	2.10E-07	6.54E-08	7.78E-08	1.25E-07	2.88E-07	2.41E-07
Daily Dose - Cancer - Kid/Adult	LADDka	mg/kg/day	4	1.03E-06	7.03E-06	4.59E-06	1.03E-04	5.06E-07	1.57E-07	1.87E-07	3.00E-07	6.93E-07	5.81E-07
Slope Factor	SF	$(mg/kg/day)^{-1}$	5	0.24	0.34	0.34	NA	1.5	0.1	NA	NA	NA	0.051
Cancer Risk - Kid/Adult	CR	Unitless	6	2.47E-07	2.39E-06	1.56E-06	NA	7.59E-07	1.57E-08	NA	NA	NA	2.96E-08
Daily Dose - Noncancer - Kids	ADDk	mg/kg/day	7	7.03E-06	4.79E-05	3.13E-05	7.03E-04	3.45E-06	1.07E-06	1.28E-06	2.05E-06	4.73E-06	3.96E-06
Daily Dose - Noncancer - Adults	ADDa	mg/kg/day	8	1.25E-06	8.51E-06	5.56E-06	1.25E-04	6.13E-07	1.91E-07	2.27E-07	3.63E-07	8.40E-07	7.04E-07
Reference Dose	RfD	mg/kg/day	9	5.00E-04	5.00E-04	5.00E-04	2.00E-01	3.00E-04	NA	1.00E-01	2.00E-01	2.00E+00	1.00E-02
Hazard Quotient - Kids	HQk	Unitless	10	1.41E-02	9.59E-02	6.26E-02	3.52E-03	1.15E-02	NA	1.28E-05	1.02E-05	2.37E-06	3.96E-04
Hazard Quotient - Adults	HQa	Unitless	11	2.50E-03	1.70E-02	1.11E-02	6.24E-04	2.04E-03	NA	2.27E-06	1.82E-06	4.20E-07	7.04E-05

1 From: California (1994)
2 (DAF * Cs * SAF * CFI * ESk * EFk * EDk)/(BWk * LT * Y)
3 (DAF * Cs * SAF * CFI * ESa * EFa * EDa)/(BWa * LT * Y)
4 LADDk + LADDa
5 Slope factors from OEHHA (1994)
6 CR = LADDka * SF
7 (DAF * Cs * SAF * CFI * ESk * EFk * EDk)/(BWk * EDk * Y)
8 (DAF * Cs * SAF * CFI * ESa * EFa * EDa)/(BWa * EDa * Y)
9 Chronic reference dose for DDT from USEPA (1996). Toxicity of DDD and DDE assumed to be equal to that for DDT.
10 ADDk/RfD
11 ADDa/RfD

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Table 7

Estimation of Inhalation of Dust Dose
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Parameter	Symbol	Units	Note	DDD	DDE	DDT	Chloropropham	Arsenic
Respirable particulates	RP	mg/m^3	14	0.05	0.05	0.05	0.05	0.05
Conversion factor	CF2	kg/mg	1	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Soil chemical conc.	Cs	mg/kg		1.1	7.5	4.9	22	0.9
Air concentration	Ca	mg/m^3	15	5.50E-08	3.75E-07	2.45E-07	1.10E-06	4.50E-08
Exposure frequency	EF	day/year	1	350	350	350	350	350
Exposure duration - kids	EDk	years	1	6	6	6	6	6
Exposure duration - adults	EDa	years	1	24	24	24	24	24
Inhalation rate - kids	IRk	m^3/day	1	10	10	10	10	10
Inhalation rate - adults	IRa	m^3/day	1	20	20	20	20	20
Body weight - kids	BWk	kg	1	15	15	15	15	15
Body weight - adults	BWa	kg	1	70	70	70	70	70
Averaging time (noncarcinogens) - kids	ATnk	days	2	2190	2190	2190	2190	2190
Averaging time (noncarcinogens) - adults	ATna	days	3	8760	8760	8760	8760	8760
Averaging time (carcinogens)	ATc	days	1	25550	25550	25550	25550	25550
Daily Dose - Cancer - Kids	LADDk	mg/kg/day	4	3.01E-09	2.05E-08	1.34E-08	6.03E-08	2.47E-09
Daily Dose - Cancer - Adults	LADDa	mg/kg/day	5	5.17E-09	3.52E-08	2.30E-08	1.03E-07	4.23E-09
Daily Dose - Cancer - Kid/Adult	LADDka	mg/kg/day	6	8.18E-09	5.58E-08	3.64E-08	1.64E-07	6.69E-09
Slope Factor	SF	$(mg/kg/day)^{-1}$	7	0.24	0.34	0.34	NA	15
Cancer Risk - Kid/Adult	CR	Unitless	8	1.96E-09	1.90E-08	1.24E-08	NA	1.00E-07
Daily Dose - Noncancer - Kids	ADDk	mg/kg/day	9	3.52E-08	2.40E-07	1.57E-07	7.03E-07	2.88E-08
Daily Dose - Noncancer - Adults	ADDa	mg/kg/day	10	1.51E-08	1.03E-07	6.71E-08	3.01E-07	1.23E-08
Reference Dose	RfD	mg/kg/day	11	5.00E-04	5.00E-04	5.00E-04	2.00E-01	3.00E-04
Hazard Quotient - Kids	HQk	Unitless	12	7.03E-05	4.79E-04	3.13E-04	3.52E-06	9.59E-05
Hazard Quotient - Adults	HQa	Unitless	13	3.01E-05	2.05E-04	1.34E-04	1.51E-06	4.11E-05

[1] From: California (1994)
[2] EDk * 365 days/yr
[3] EDa * 365 days/yr
[4] (Ca * IRk * EF * EDk) /(BWk * ATc)
[5] (Ca * IRa * EF * EDa)/(BWa * ATc)
[6] LADDk + LADDa
[7] Slope factors from OEHHA (1994)
[8] CR = LADDka * SF
[9] (Ca * IRk * EF * EDk)/(BWk * ATnk)
[10] (Ca * IRa * EF * EDa)/(BWa * ATna)
[11] Chronic reference dose for DDT from USEPA (1996). Toxicity of DDD and DDE assumed to be equal to that for DDT.
[12] ADDk/RfD
[13] ADDa/RfD
[14] RP = National Ambient Air Quality Standard for PM_{10} (California, 1994)
[15] Ca = Cs * RP * CF2 (California, 1994)

97 - 036

J:\towncty\PEASCRN.XLS dust inhalation dose

1/16/97 1:48 PM

Table 8

Estimation of Volatile Inhalation Dose
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Parameter	Symbol	Units	Note	Benzene	Ethylbenzene	Toluene	Xylenes	PCE
Air diffusion coefficient	Di	cm2/sec	1	0.088	0.075	0.078	0.087	0.072
Henry's Law constant	Hc	atm-m3/mol	1	5.43E-03	8.44E-03	5.94E-03	5.30E-03	1.49E-02
Organic soil-water partition coefficient	Koc	L/kg	1	65	220	257	240	661
Fraction of organic carbon in soil	foc	Unitless	1	0.02	0.02	0.02	0.02	0.02
Soil chemical concentration	Cl	mg/kg		0.084	0.1	0.16	0.37	0.31
VOC emission rate numerator	Ei1	NA	1	4.94E-06	2.30E-06	2.31E-06	5.69E-06	4.03E-06
VOC emission rate denominator	Ei2	NA	1	1.34E-02	8.43E-03	6.69E-03	6.91E-03	6.35E-03
Total VOC emission rate	Ei	mg/sec	14	3.69E-04	2.73E-04	3.45E-04	8.23E-04	6.34E-04
Box model default divisor	BM	unitless	1	99	99	99	99	99
Conversion factor	CF2	kg/mg	1	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Air concentration	Ca	mg/m^3	15	3.73E-06	2.76E-06	3.48E-06	8.32E-06	6.40E-06
Exposure frequency	EF	day/year	1	350	350	350	350	350
Exposure duration - kids	EDk	years	1	6	6	6	6	6
Exposure duration - adults	EDa	years	1	24	24	24	24	24
Inhalation rate - kids	IRk	m^3/day	1	10	10	10	10	10
Inhalation rate - adults	IRa	m^3/day	1	20	20	20	20	20
Body weight - kids	BWk	kg	1	15	15	15	15	15
Body weight - adults	BWa	kg	1	70	70	70	70	70
Averaging time (noncarcinogens) - kids	ATnk	days	2	2190	2190	2190	2190	2190
Averaging time (noncarcinogens) - adults	ATna	days	3	8760	8760	8760	8760	8760
Averaging time (carcinogens)	ATc	days	1	25550	25550	25550	25550	25550
Daily Dose - Cancer - Kids	LADDk	mg/kg/day	4	2.04E-07	1.51E-07	1.91E-07	4.56E-07	3.51E-07
Daily Dose - Cancer - Adults	LADDa	mg/kg/day	5	3.50E-07	2.59E-07	3.27E-07	7.81E-07	6.02E-07
Daily Dose - Cancer - Kid/Adult	LADDka	mg/kg/day	6	5.54E-07	4.10E-07	5.18E-07	1.24E-06	9.53E-07
Slope Factor	SF	(mg/kg/day)$^{-1}$	7	0.1	NA	NA	NA	0.021
Cancer Risk - Kid/Adult	CR	Unitless	8	5.54E-08	NA	NA	NA	2.00E-08
Daily Dose - Noncancer - Kids	ADDk	mg/kg/day	9	2.38E-06	1.76E-06	2.23E-06	5.32E-06	4.09E-06
Daily Dose - Noncancer - Adults	ADDa	mg/kg/day	10	1.02E-06	7.56E-07	9.55E-07	2.28E-06	1.75E-06
Reference Dose	RfD	mg/kg/day	11	NA	2.90E-01	1.10E-01	2.00E-01	1.00E-02
Hazard Quotient - Kids	HQk	Unitless	12	NA	6.08E-06	2.02E-05	2.66E-05	4.09E-04
Hazard Quotient - Adults	HQa	Unitless	13	NA	2.61E-06	8.68E-06	1.14E-05	1.75E-04

[1] From California (1994)
[2] EDk * 365 days/yr
[3] EDa * 365 days/yr
[4] (Ca * IRk * EF * EDk) /(BWk * ATc)
[5] (Ca * IRa * EF * EDa)/(BWa * ATc)
[6] LADDk + LADDa
[7] Slope factors from OEHHA (1994)
[8] CR = LADDka * SF
[9] (Ca * IRk * EF * EDk)/(BWk * ATnk)
[10] (Ca * IRa * EF * EDa)/(BWa * ATna)
[11] Chronic reference dose for DDT from USEPA (1996). Toxicity of DDD and DDE assumed to be equal to that for DDT.
[12] ADDk/RfD
[13] ADDa/RfD
[14] Ei = Ei1/Ei2 (California, 1994)
[15] Ca = Ei/BM (California, 1994)

97-036

Santa Clara Valley Water District

5750 Almaden Expressway, San Jose, CA 95118 (408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (04-22-92) (DP 4-901)

TO BE COMPLETED BY DISTRICT

District Permit No.: 96W00899	Date Issued: 12-4-96	Well Registration No:
Geologic Setting: 1	Expiration Date: 6-4-97	Driller's Log No: 526499

TO BE COMPLETED BY OWNER AND DRILLER

Property Owner: FEDERAL REALTY INVESTMENT TRUST	Well Owner (if different):	Drilling Co: EXPLORATION GEOSERVICES
Address: 1626 E. JEFFERSON ST.	Address of Well Site: 3030 STEVENS CREEK BLVD.	Driller's Contractors License Number (C-57 Req'd): #C57-484288
City, State, Zip: 20852-4041 ROCKVILLE MARYLAND	City, State, Zip: SAN JOSE, CA	Address: 1535 INDUSTRIAL AVE.
Telephone No: 310-998-8100	Telephone No: NA	City, State, Zip: SAN JOSE, CA 95112
Assessor's Parcel No. of Well site: Book 277 Page 33 Parcel 004	Owner's/Consultant's Well No: MW-1	Telephone No: 408-280-6822

Estimated depth of completed well: ☐ Less than 50 ft. ☒ 50 to 300 ft. ☐ Over 300 ft.

Purpose of Well: ☐ Domestic ☐ Municipal/Industrial ☐ Agricultural ☒ *Monitoring ☐ Cathodic Protection

*Monitoring wells are those constructed for the purpose of obtaining repetitive water level measurements and/or repetitive air samples for analysis. This includes wells constructed for general exploration and investigation purposes as well as those to be constructed in conformance with the Hazardous Materials Storage Permit Ordinance for site-specific groundwater monitoring of existing underground hazardous materials storage tanks.

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Purpose of Monitoring Well: ☐ To comply with City or County Hazardous Materials Storage Permit Ordinance ☒ Exploration studies

☐ Other (specify): ☐ Extraction/Recovery

NAME OF BUSINESS AT WELL SITE: COURTESY CHEVROLET

If proposed well is to meet compliance with a Hazardous Materials Storage Permit Ordinance has the City or County been contacted? ☐ Yes ☐ No

Type of monitoring device: ☒ Groundwater ☐ Vadose

Type of extraction device ☐ Groundwater ☐ Vadose

Monitoring well use: ☐ Depth ☒ Quality ☐ Chloride

Vadose device installation: ☐ Vapor ☐ Interface ☐ Suction Lysimeter

Consultant's Name (Company): EMCON

Address: 1921 RINGWOOD AVE.

City, State, Zip: SAN JOSE, CA 95131

Telephone No.: 408-453-7300

Signature of Responsible Professional

(No substitution of signature will be accepted)

RG 4462

Registration No. Civil Engineer OR Certificate No. Engineering Geologist

TOPOGRAPHIC FEATURES

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☐ On public property ☒ On private property ☐ On SCVWD property

Within 50 ft of the top of a creek bank ☐ Yes ☒ No

Within 50 ft. of any existing well ☐ Yes ☒ No

Within 50 ft. of a sanitary sewer ☐ Yes ☒ No

Within 150 ft of a cesspool or seepage pit ☐ Yes ☒ No

Within 100 ft. of a pit privy, septic tank, leachfield ☐ Yes ☒ No

Other wells exist on this property ☐ Yes ☒ No

Status: ☐ Active ☐ Inactive ☐ Abandoned

CERTIFICATION BY WELL OWNER/AGENT AND DRILLER/AGENT:

I certify that the information given above is correct to the best of my knowledge. I certify that the well will be constructed in compliance with the conditions of this permit, the Santa Clara Valley Water District's Ordinance 90-1 and, if applicable, the Hazardous Materials Storage Permit Ordinance of the County or City, as appropriate. It is my responsibility as the well owner to notify this District of any changes in the purpose of this well from that which is indicated on this application form.

Peter Cent... (EMCON) 12/26/96

Signature of Well Owner/Agent Date

Peter Cent... (EMCON) 11/26/96

Signature of Driller/Agent Date

MONITORING WELL PLAN APPROVAL

City/County:

Approved by: 97-036

Date:

IMPORTANT: A minimum 24-hour notice must be given to SCVWD Well Inspection Dept. prior to installing the annular seal. Call (408) 927-0710 Ext. 660. For weekends, holidays, after hours call (408) 395-8121 or (408) 927-0714.

Santa Clara Valley Water District

5750 Almaden Expressway, San Jose, CA 95118 (408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (04-22-92) (DP 4-901)

TO BE COMPLETED BY DISTRICT

District Permit No.: 96W00900	Date Issued: 12-4-96	Well Registration No.:
Geologic Setting: 1	Expiration Date: 6-4-97	Driller's Log No.: 526500

TO BE COMPLETED BY OWNER AND DRILLER

Property Owner: FEDERAL REALTY INVESTMENT TRUST	Well Owner (if different):	Drilling Co: EXPLORATION GEOSERVICES
Address: 1626 E. JEFFERSON ST.	Address of Well Site: 3030 STEVENS CREEK BLVD.	Driller's Contractors License Number (C-57 Req'd): #C57-484288
City, State, Zip: 20852-4041 ROCKVILLE, MARYLAND	City, State, Zip: SAN JOSE, CA	Address: 1535 INDUSTRIAL AVE.
Telephone No: 310-998-8100	Telephone No: NA	City, State, Zip: SAN JOSE, CA 95112
Assessor's Parcel No. of Well site: Book 277 Page 33 Parcel 004	Owner's/Consultant's Well No: MW-2	Telephone No: 408-280-6822

Estimated depth of completed well: ☐ Less than 50 ft. ☒ 50 to 300 ft. ☐ Over 300 ft.

Purpose of Well: ☐ Domestic ☐ Municipal/Industrial ☐ Agricultural ☒ *Monitoring ☐ Cathodic Protection

*Monitoring wells are those constructed for the purpose of obtaining repetitive water level measurements and/or repetitive air samples for analysis. This includes wells constructed for general exploration and investigation purposes as well as those to be constructed in conformance with the Hazardous Materials Storage Permit Ordinance for site-specific groundwater monitoring of existing underground hazardous materials storage tanks.

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Purpose of Monitoring Well: ☐ To comply with City or County Hazardous Materials Storage Permit Ordinance ☒ Exploration studies ☐ Other (specify): ☐ Extraction/Recovery

NAME OF BUSINESS AT WELL SITE: VACANT LOT

If proposed well is to meet compliance with a Hazardous Materials Storage Permit Ordinance has the City or County been contacted? ☐ Yes ☐ No

Type of monitoring device: ☒ Groundwater ☐ Vadose

Type of extraction device ☐ Groundwater ☐ Vadose

Monitoring well use: ☐ Depth ☒ Quality ☐ Chloride

Vadose device installation: ☐ Vapor ☐ Interface ☐ Suction Lysimeter

Consultant's Name (Company): EMCON

Address: 1921 RINGWOOD AVE.

City, State, Zip: SAN JOSE, CA 95131

Telephone No.: 408-453-7300

Signature of Responsible Professional
(No substitution of signature will be accepted)

RG 4462

Registration No. Civil Engineer OR Certificate No. Engineering Geologist

TOPOGRAPHIC FEATURES

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☐ On public property ☒ On private property ☐ On SCVWD property

Within 50 ft of the top of a creek bank ☐ Yes ☒ No		Within 50 ft. of any existing well ☐ Yes ☒ No
Within 50 ft. of a sanitary sewer ☐ Yes ☒ No		Within 150 ft of a cesspool or seepage pit ☐ Yes ☒ No
Within 100 ft. of a pit privy, septic tank, leachfield ☐ Yes ☒ No		Other wells exist on this property ☐ Yes ☒ No
		Status: ☐ Active ☐ Inactive ☐ Abandoned

CERTIFICATION BY WELL OWNER/AGENT AND DRILLER/AGENT:

I certify that the information given above is correct to the best of my knowledge. I certify that the well will be constructed in compliance with the conditions of this permit, the Santa Clara Valley Water District's Ordinance 90-1 and, if applicable, the Hazardous Materials Storage Permit Ordinance of the County or City, as appropriate. It is my responsibility as the well owner to notify this District of any changes in the purpose of this well from that which is indicated on this application form.

(EMCON) 11/26/96
Signature of Well Owner/Agent Date

EMCON 11/26/96
Signature of Driller/Agent Date

MONITORING WELL PLAN APPROVAL
City/County:
Approved by: 97-036
Date:

IMPORTANT: A minimum 24-hour notice must be given to SCVWD Well Inspection Dept. prior to installing the annular seal. Call (408) 927-0710 Ext. 660. For weekends, holidays, after hours call (408) 395-8121 or (408) 927-0714.

Santa Clara Valley Water District

5750 Almaden Expressway, San Jose, CA 95118 (408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (04-22-92) (DP 4-901)

TO BE COMPLETED BY DISTRICT

District Permit No.: 96W00901	Date Issued: 12-4-96	Well Registration No:
Geologic Setting: 1	Expiration Date: 6-4-97	Driller's Log No: 526501

TO BE COMPLETED BY OWNER AND DRILLER

Property Owner: FEDERAL REALTY INVESTMENT TRUST	Well Owner (if different):	Drilling Co: EXPLORATION GEOSERVICES
Address: 1626 E. JEFFERSON ST.	Address of Well Site: 3030 STEVENS CREEK BLVD.	Driller's Contractors License Number (C-57 Req'd): #C57-484288
City, State, Zip: 20852-4041 ROCKVILLE MARYLAND	City, State, Zip: SAN JOSE, CA	Address: 1535 INDUSTRIAL AVE.
Telephone No: 310-998-8100	Telephone No: NA	City, State, Zip: SAN JOSE, CA 95112
Assessor's Parcel No. of Well site: Book 277 Page 33 Parcel 004	Owner's/Consultant's Well No: MW-3	Telephone No: 408-280-6822

Estimated depth of completed well: ☐ Less than 50 ft. ☒ 50 to 300 ft. ☐ Over 300 ft.

Purpose of Well: ☐ Domestic ☐ Municipal/Industrial ☐ Agricultural ☒ *Monitoring ☐ Cathodic Protection

*Monitoring wells are those constructed for the purpose of obtaining repetitive water level measurements and/or repetitive air samples for analysis. This includes wells constructed for general exploration and investigation purposes as well as those to be constructed in conformance with the Hazardous Materials Storage Permit Ordinance for site-specific groundwater monitoring of existing underground hazardous materials storage tanks.

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Purpose of Monitoring Well: ☐ To comply with City or County Hazardous Materials Storage Permit Ordinance ☒ Exploration studies

☐ Other (specify): ______ ☐ Extraction/Recovery

NAME OF BUSINESS AT WELL SITE: HOBEES RESTAURANT

If proposed well is to meet compliance with a Hazardous Materials Storage Permit Ordinance has the City or County been contacted? ☐ Yes ☐ No

Type of monitoring device: ☒ Groundwater ☐ Vadose

Type of extraction device ☐ Groundwater ☐ Vadose

Monitoring well use: ☐ Depth ☒ Quality ☐ Chloride

Vadose device installation: ☐ Vapor ☐ Interface ☐ Suction Lysimeter

Consultant's Name (Company): EMCON

Address: 1921 RINGWOOD AVE.

City, State, Zip: SAN JOSE, CA 95131

Telephone No.: 408-453-7300

Signature of Responsible Professional
(No substitution of signature will be accepted)

RG 4462

Registration No. Civil Engineer OR Certificate No. Engineering Geologist

TOPOGRAPHIC FEATURES

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☐ On public property ☒ On private property ☐ On SCVWD property

Within 50 ft of the top of a creek bank	☐ Yes	☒ No	Within 50 ft. of any existing well	☐ Yes	☒ No
Within 50 ft. of a sanitary sewer	☐ Yes	☒ No	Within 150 ft of a cesspool or seepage pit	☐ Yes	☒ No
Within 100 ft. of a pit privy, septic tank, leachfield	☐ Yes	☒ No	Other wells exist on this property	☐ Yes	☒ No

Status: ☐ Active ☐ Inactive ☐ Abandoned

CERTIFICATION BY WELL OWNER/AGENT AND DRILLER/AGENT:

I certify that the information given above is correct to the best of my knowledge. I certify that the well will be constructed in compliance with the conditions of this permit, the Santa Clara Valley Water District's Ordinance 90-1 and, if applicable, the Hazardous Materials Storage Permit Ordinance of the County or City, as appropriate. It is my responsibility as the well owner to notify this District of any changes in the purpose of this well from that which is indicated on this application form.

(EMCON) 11/26/96

Signature of Well Owner/Agent — Date

(EMCON) 11/26/96

Signature of Driller/Agent — Date

MONITORING WELL PLAN APPROVAL

City/County:

Approved by: 97-036

Date:

IMPORTANT: A minimum 24-hour notice must be given to SCVWD Well Inspection Dept. prior to installing the annular seal. Call (408) 927-0710 Ext. 660. For weekends, holidays, after hours call (408) 395-8121 or (408) 927-0714.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**
BORING NO.: **MW-1**
PROJECT NAME: **Federal Realty Investment Trust**
PAGE: **1 of 4**
BY: **R. Davis**
DATE: **12/20/96**
SURFACE ELEVATION: **130.33 ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT/AGGREGATE BASE.	
							SILTY GRAVEL (GM), roadbase.	
							SILT (ML), very dark grayish brown (10YR, 3/2); 95-100% low-plasticity fines; trace to 5% fine sand; stiff; damp; no odor.	
							@3.0': light olive brown (2.5Y, 5/4)	
				5				
1.5/1.5	0.0	5 6 18					SILTY SAND (SM), light olive brown (2.5YR, 5/4); 40-45% low-plasticity fines; 50% fine to coase sand, (F:M:C=3:1:1); 5-10% fine gravel; medium dense; damp; no odor.	
1.4/1.5	0.0	22 29 33		10			SANDY GRAVEL (GW), olive brown (2.5YR, 4/4); trace to 5% fines; 35-40% fine to coarse sand, (F:M:C=1:1:1); 60-65% fine to coarse gravel, (F:C=1:1); very dense; damp.	
1.3/1.5	0.0	7 4 4		15			SILTY SAND (SM), as above at 5.5-8.0'; damp; no product odor.	
1.5/1.5	0.0	5 6 6		20			SILTY CLAY (CL), dark yellowish brown (10YR, 4/4); 5-10% fine sand; 90-95% low- to medium-plasticity fines; stiff; damp to moist; no odor.	

REMARKS
Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

PROJECT NAME: **Federal Realty Investment Trust**

BY: **R. Davis** DATE: **12/20/96**

BORING NO.: **MW-1**

SURFACE ELEVATION: **130.33 ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							SILTY CLAY (CL), continued.	
1.5/1.5	0.0	4 4 6		25			@23.5': 5-10% fine to coarse sand; orange and grayish mottling; no odor.	
1.5/1.5	0.0	5 6 9		30			@28.5': thin (1/4") sandy silt to silty sand (ML-SM) lenses; damp.	
1.5/1.5	0.0	8 10 25		35			SILTY SAND (SM), dark yellowish brown (10YR, 4/4); 15-25% low-plasticity fines; 75-85% fine sand; iron-oxide staining common; medium dense; damp; no odor.	
				40			SANDY GRAVEL (GW), olive brown (2.5Y, 4/4); 5-15% low-plasticity fines; 35% fine to coarse sand, (F:M:C=1:1:1); 50-60% fine to coarse gravel, (F:C=1:1); dense to very dense; damp; no odor.	

REMARKS

Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 22152-001.001

PROJECT NAME: **Federal Realty Investment Trust**

BY: **R. Davis**

DATE: **12/20/96**

BORING NO.: **MW-1**

PAGE: 3 of 4

SURFACE ELEVATION: **130.33 ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	DESCRIPTION
1.5/1.5	0.0	30 31 16			SANDY GRAVEL (GW), continued.
1.5/1.5	0.0	16 18 19		45	SILTY SAND (SM), light olive brown (2.5Y, 5/4); 15-25% non-plastic fines; 75-85% fine sand; iron-oxide stained; dense; damp; no odor.
1.5/1.5	0.0	6 8 12		50	CLAYEY SILT (ML), mottled grayish brown and light olive brown (2.5Y, 5/2 and 5/4); trace to 5% fine sand; 95-100% low- to medium-plasticity fines; stiff; damp; no odor.
1.5/1.5	0.0	30 40 45	▼ 1/8/97 ▽ 12/20/96	55 60	SANDY GRAVEL (GW), olive brown (2.5Y, 4/4); trace to 5% fines; 40-45% fine to coarse sand, (F:M:C=1:1:1); 50% fine to coarse gravel, (F:C=1:1); very dense; damp; no odor.

REMARKS

Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **MW-1**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **4 of 4**

BY: **R. Davis**

DATE: **12/20/98**

SURFACE ELEVATION: **130.33 ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
1.5/1.5	0.0	20 13 14					GRAVEL (GW), continued. @60.0': wet; no odor.	
1.5/1.5	0.0	8 9 10		65			SILTY SAND (SM) and SANDY SILT (ML)-interbedded, 50/50. SILTY SAND (SM): as above at 43-48'; wet. SANDY SILT (ML): light olive brown (2.5Y, 5/4); 15-25% fine sand; 75-85% low-plasticity fines; stiff; damp; no odor. CLAY (CL), dark greenish gray (1 GLEY, 3/1); 95-100% medium-plasticity fines; trace to 5% fine sand; very stiff; moist; no odor. SILTY SAND (SM), dark greenish gray (1 GLEY, 3/1); 15-25% fines; 75-85% fine to medium sand; medium dense; wet.	
1.5/1.5	0.0	17 22 30		70			SAND (SP), dark greenish gray (1 GLEY, 3/1); 0-5% fines; 95-100% fine sand; very dense; wet; no odor. BORING TERMINATED AT 71.5 FEET.	
				75				
				80				

EMCON

REMARKS

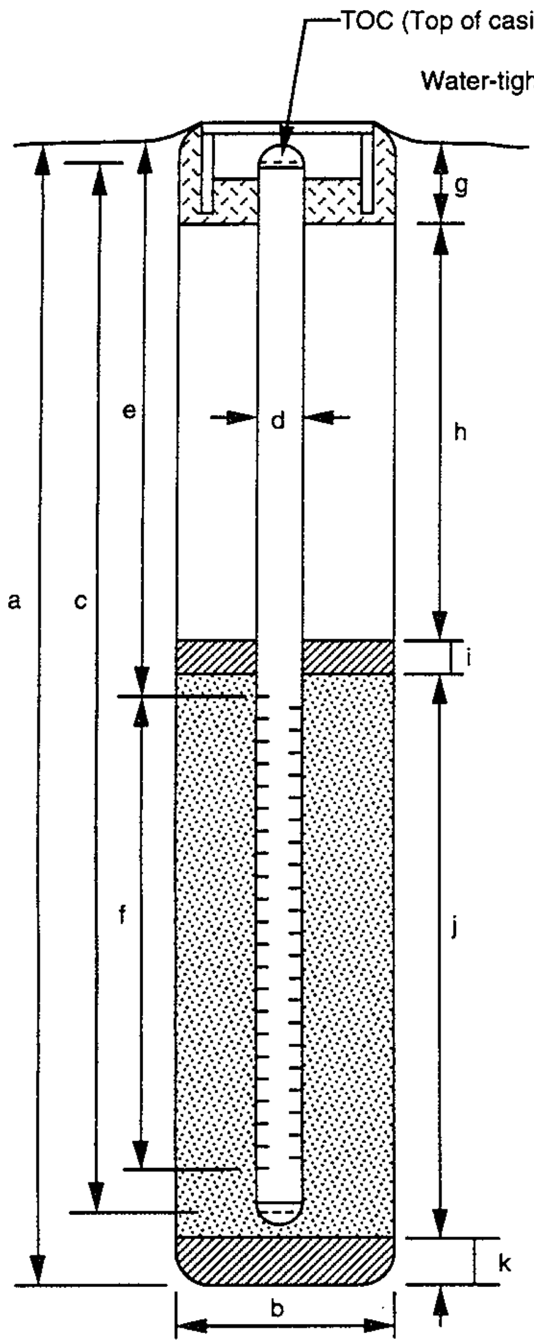
Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

97-036

WELL DETAILS

EMCON
ASSOCIATES

PROJECT NUMBER	22152-001.001	BORING / WELL NO.	MW-1
PROJECT NAME	Federal Realty Investment Trust	TOP OF CASING ELEV.	129.89
LOCATION	Town & Country Village Shopping Center	GROUND SURFACE ELEV.	130.33
WELL PERMIT NO.	96W00899	DATUM	M.S.L.
		INSTALLATION DATE	12-20-96



EXPLORATORY BORING

a. Total depth 71.5 ft.

b. Diameter 8.0 in.

Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. Total casing length 71.5 ft.

Material Schedule 40 PVC

d. Diameter 2.0 in.

e. Depth to top perforations 56.0 ft.

f. Perforated length 15.0 ft.

Perforated interval from 56 to 71 ft.

Perforation type Machine Slotted

Perforation size 0.010 inch

g. Surface seal 1.0 ft.

Material Concrete

h. Backfill 50.0 ft.

Material Cement Slurry

i. Seal 2.0 ft.

Material Bentonite Pellets

j. Gravel pack 18.0 ft.

Gravel pack interval from 53.0 to 71.0 ft.

Material 2/12 Sand

k. Bottom seal/fill NA ft.

Material NA

97-036

Form prepared by P. Christianson

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **MW-2**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **1 of 4**

BY: **P. Christianson**

DATE: **12/19/96**

SURFACE ELEVATION: **133.00 ft.**

RECOVERY (ft/ft)	POCKET PENETROMETER (tsf)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT/AGGREGATE BASE.	
1.5/1.5		3 3 4					SILTY SAND (SM), dark brown (10YR, 3/3); 20% low-plasticity fines; 70% fine to medium sand, (F:M=2:1); 5% fine gravel; loose; moist.	
1.5/1.5		8 5 10					GRAVELLY SAND (SW), dark grayish brown (10YR, 4/2); 5% low-plasticity fines; 50% fine to coarse sand, (F:M:C=2:1:1); 45% fine to coarse gravel; medium dense; moist.	
				5				
							SANDY CLAY (CL), dark brown (10YR, 3/3); 70% medium-plasticity fines; 30% fine sand; trace fine gravel; stiff; moist.	
				10				
1.5/1.5	2.0	3 4 5					GRAVELLY SAND (SW), brown (10YR, 4/3); 5% low-plasticity fines; 70% fine to coarse sand, (F:M:C=3:1:1); 25% fine gravel; loose; moist.	
							SILTY SAND (SM), dark grayish brown (10YR, 4/2); 35% low-plasticity fines; 60% fine sand; 5% fine gravel; medium dense; moist.	
				15				
1.5/1.5		4 5 6						
				20				

EMCON

REMARKS

Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

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LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **MW-2**

PROJECT NAME: **Federal Realty Investment Trust**

BY: **P. Christianson** DATE: **12/19/96**

SURFACE ELEVATION: **133.00 ft.**

RECOVERY (ft/ft)	POCKET PENETROMETER (tsf)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
1.5/1.5		5 11 18					SILTY SAND (SM), continued. @20.0': increasing gravel. GRAVELLY SAND (SW), dark grayish brown (10YR, 4/2); 10% low-plasticity fines; 60% fine to coarse sand, (F:M:C=2:1:1); 30% fine gravel; medium dense; moist.	
							SANDY CLAY (CL), dark grayish brown (10YR, 4/2); 75% medium-plasticit, 'ines; 25% fine sand; stiff; moist.	
1.5/1.5	1.75	5 6 9		25				
1.5/1.5	2.25	5 6 10		30			@30.0': 70% medium-plasticity fines; 20% fine to coarse sand, (F:M:C=2:1:1); 10% fine to coarse gravel; stiff; moist.	
							GRAVELLY SAND (SW), dark grayish brown (10YR, 4/2); trace low-plasticity fines; 60% fine to coarse sand, (F:M:C=1:1:1); 40% fine to coarse gravel, subangular to subrounded; dense; moist.	
1.5/1.5		14 20 25		35				
				40				

EMCON

REMARKS

Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001** BORING NO.: **MW-2**

PROJECT NAME: **Federal Realty Investment Trust**

BY: **P. Christianson** DATE: **12/19/96** SURFACE ELEVATION: **133.00 ft.**

RECOVERY (ft/ft)	POCKET PENETRO-METER (tsf)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
1.0/1.5		25 50					GRAVELLY SAND (SW), continued.	
1.5/1.5		15 19 24		45			GRAVELLY SAND (SW), dark grayish brown (10YR, 4/2); 80% fine to coarse sand, (F:M:C=4:2:1); 20% fine to coarse gravel; dense; moist.	
1.5/1.5		26 28 20		50			@50.0': 60% fine to coarse sand, (F:M:C=1:1:1); 40% fine to coarse gravel; dense; moist.	
							SILTY SAND (SM), dark grayish brown (2.5Y, 4/2); 25% low-plasticity fines; 75% fine to medium sand, (F:M=4:1); dense; moist to wet on end of sample.	
1.5/1.5		13 17 19		55				
			▼ 1/8/97				SANDY GRAVEL (GW), description on following page.	
				60				

REMARKS

Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

EMCON

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LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**
BORING NO.: **MW-2**
PROJECT NAME: **Federal Realty Investment Trust**
PAGE: **4 of 4**
BY: **P. Christianson**
DATE: **12/18/96**
SURFACE ELEVATION: **133.00 ft.**

RECOVERY (ft/ft)	POCKET PENETRO-METER (tsf)	PENETRA-TION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
		36					SANDY GRAVEL (GW), dark yellowish brown (10YR, 4/4); 35% fine to coarse sand, (F:M:C=2:1:1); 65% fine to coarse gravel; very dense; damp to moist.	
		40	▽ 12/19/96					
1.0/1.5		36						
				65			@65.0': dense; wet.	
		10						
		12						
1.0/1.5		22						
							GRAVELLY SAND (SW), dark gray (10YR, 4/1); 80% fine to coarse sand, (F:M:C=3:2:1); 20% fine to coarse gravel; very dense; wet.	
				70			BORING TERMINATED AT 70.0 FEET.	
		25						
		30						
1.5/1.5		40					BORING SAMPLED TO 71.5 FEET.	
				75				
				80				

REMARKS
Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

EMCON

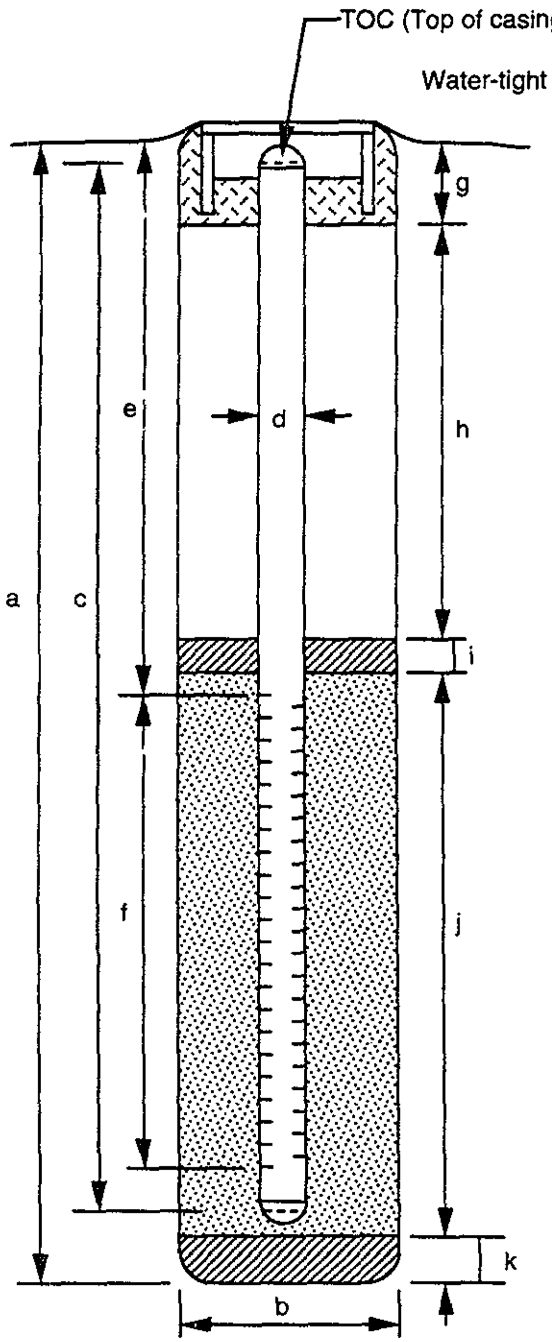
97-036

WELL DETAILS

EMCON ASSOCIATES

PROJECT NUMBER 22152-001.001
PROJECT NAME Federal Realty Investment Trust
LOCATION Town & Country Village Shopping Center
WELL PERMIT NO. 96W00900

BORING / WELL NO. MW-2
TOP OF CASING ELEV. 132.70
GROUND SURFACE ELEV. 133.00
DATUM M.S.L.
INSTALLATION DATE 12-19-96



EXPLORATORY BORING

a. Total depth 70.0 ft.
b. Diameter 8.0 in.
Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. Total casing length 70.0 ft.
Material Schedule 40 PVC
d. Diameter 2.0 in.
e. Depth to top perforations 50.0 ft.
f. Perforated length 20.0 ft.
Perforated interval from 50 to 70 ft.
Perforation type Machine Slotted
Perforation size 0.010 inch
g. Surface seal 1.0 ft.
Material Concrete
h. Backfill 45.0 ft.
Material Cement Slurry
i. Seal 2.0 ft.
Material Bentonite Pellets
j. Gravel pack 22.0 ft.
Gravel pack interval from 48.0 to 70.0 ft.
Material 2/12 Sand
k. Bottom seal/fill NA ft.
Material NA

97-036

Form prepared by P. Christianson

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

PROJECT NAME: **Federal Realty Investment Trust**

BY: **P. Christianson** DATE: **12/18/96**

BORING NO.: **MW-3**

PAGE: **1 of 4**

SURFACE ELEVATION: **136.91 ft.**

RECOVERY (ft/ft)	POCKET PENETROMETER (tsf)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT/AGGREGATE BASE.	
							GRAVELLY SAND (SW), very dark grayish brown (10YR, 3/2); trace low-plasticity fines; 60% fine to coarse sand, (F:M:C=3:2:2); 40% fine to coarse gravel, (F:C=1:1); medium dense; moist.	
1.5/1.5	2.0	4 5 7		5			SANDY CLAY (CL), dark brown (10YR, 3/3); 55% medium-plasticity fines; 25% fine to coarse sand; 20% fine to coarse gravel; stiff; moist.	
							SANDY GRAVEL (GW), dark yellowish brown (10YR, 4/4); 10% medium-plasticity fines; 30% fine to coarse sand; 60% fine to coarse gravel; dense; moist.	
1.5/1.5		10 14 18		10				
							GRAVELLY SAND (SP), very dark gray (7.5YR, 3/1); 10% low-plasticity fines; 60% fine to coarse sand, (F:M:C=4:3:2); 30% fine to coarse gravel; medium dense; moist.	
1.5/1.5		15 14 13		15				
0.5/1.5		8 6 7		20				

REMARKS

Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**
BORING NO.: **MW-3**
PROJECT NAME: **Federal Realty Investment Trust**
PAGE: **2 of 4**
BY: **P. Christianson**
DATE: **12/18/96**
SURFACE ELEVATION: **136.91 ft.**

RECOVERY (ft/ft)	POCKET PENETROMETER (tsf)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							GRAVELLY SAND (SP), continued.	
							SANDY SILT (ML), dark yellowish brown (10YR, 3/4); 75% low-plasticity fines; 25% fine sand; trace fine gravel; stiff; moist.	
1.5/1.5	1.5	5 6 7		25				
							SILTY SAND (SM), dark yellowish brown (10YR, 3/4); 25% low-plasticity fines; 70% fine to medium grained sand, (F:M=4:1); 5% fine gravel; medium dense; moist.	
1.5/1.5		6 8 11		30				
							GRAVELLY SAND (SP), dark yellowish brown (10YR, 3/4); 15% low-plasticity fines; 65% fine to coarse sand, (F:M:C=4:1:1); 20% fine to coarse gravel; medium dense; moist.	
1.5/1.5		6 8 11		35				
							SANDY GRAVEL (GW), dark grayish brown (10YR, 4/2); 5% non-plastic fines; 35% fine to coarse sand, (F:M:C=2:1:1); 60% fine to coarse gravel; very dense; wet.	
0.8/1.5		30 50		40				

REMARKS
Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001** BORING NO.: **MW-3**

PROJECT NAME: **Federal Realty Investment Trust** PAGE: **3 of 4**

BY: **P. Christianson** DATE: **12/18/96** SURFACE ELEVATION: **136.91 ft.**

RECOVERY (ft/ft)	POCKET PENETROMETER (tsf)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							SANDY GRAVEL (GW), continued.	
1.0/1.5		28 50		45				
1.5/1.5		30 32 30		50			@49.0': dark yellowish brown (10YR, 3/4); 5% low-plasticity fines; 35% fine to coarse sand, (F:M:C=2:1:1); 60% fine to coarse gravel; very dense; wet.	
1.5/1.5	2.0	7 8 11		55			SANDY SILT (ML), olive brown (2.5Y, 4/3) mottled with gray (2.5Y, 5/1); 80% low-plasticity fines; 20% fine grained sand; very stiff; moist.	
1.5/1.5		38 40 50		60			SANDY GRAVEL (GW), description on following page.	

REMARKS

Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001** BORING NO.: **MW-3**

PROJECT NAME: **Federal Realty Investment Trust** PAGE: **4 of 4**

BY: **P. Christianson** DATE: **12/18/96** SURFACE ELEVATION: **136.91 ft.**

RECOVERY (ft/ft)	POCKET PENETRO-METER (tsf)	PENETRA-TION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
			▼ 1/8/97				SANDY GRAVEL (GW), olive brown (2.5Y, 4/3); 5% low-plasticity fines; 40% fine to coarse sand, (F:M:C=2:1:1); 55% fine to coarse gravel; very dense; moist.	
			▽ 12/18/96				@63.5': wet.	
1.5/1.5		28 40 50		65				
1.5/1.5		22 29 50		70				
1.5/1.5		5 8 9		75			SILTY SAND (SM), dark yellowish brown (10YR, 4/4); 25% low-plasticity fines; 75% fine sand; medium dense; damp to wet.	
							BORING TERMINATED AT 75.0 FEET.	
				80				

REMARKS

Boring drilled with 8" diameter hollow-stem auger. Samples were taken with a 2" diameter modified California split spoon sampler and a standard penetrometer. Boring converted to a 2" diameter polyvinyl chloride (PVC) groundwater monitoring well. See explanation sheet for definitions of symbols used in well detail and sample columns of this log

EMCON

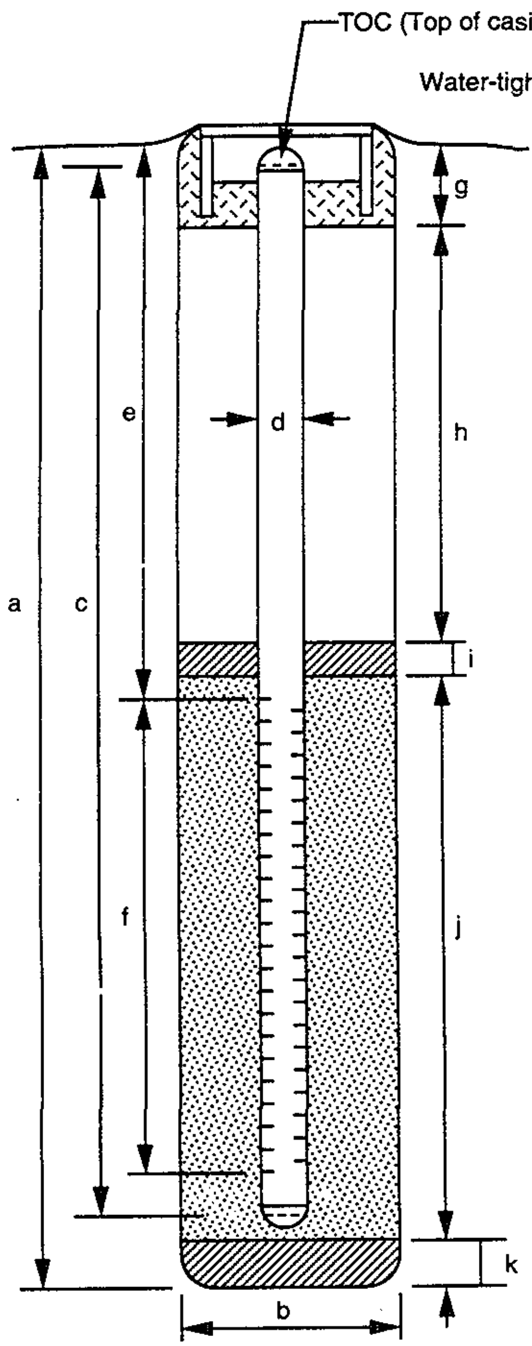
97-036

WELL DETAILS

EMCON ASSOCIATES

PROJECT NUMBER 22152-001.001
PROJECT NAME Federal Realty Investment Trust
LOCATION Town & Country Village Shopping Center
WELL PERMIT NO. 96W00901

BORING / WELL NO. MW-3
TOP OF CASING ELEV. 136.59
GROUND SURFACE ELEV. 136.91
DATUM M.S.L.
INSTALLATION DATE 12-18-96



EXPLORATORY BORING

a. Total depth 75.0 ft.

b. Diameter 8.0 in.

Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. Total casing length 75.0 ft.

Material Schedule 40 PVC

d. Diameter 2.0 in.

e. Depth to top perforations 60.0 ft.

f. Perforated length 15.0 ft.

Perforated interval from 60 to 75 ft.

Perforation type Machine Slotted

Perforation size 0.010 inch

g. Surface seal 1.0 ft.

Material Concrete

h. Backfill 55.0 ft.

Material Cement Slurry

i. Seal 2.0 ft.

Material Bentonite Pellets

j. Gravel pack 17.0 ft.

Gravel pack interval from 58.0 to 75.0 ft.

Material 2/12 Sand

k. Bottom seal/fill NA ft.

Material NA

97-036

Form prepared by R. Davis

WELL DEVELOPMENT FIELD DATA SHEET

EMCON ASSOCIATES

Project Number: 22152-001-001
Client: Federal Realty
Location: SAN JOSE, CA

Performed By: J. Williams
Date: 12-31-96
Well ID: MW-1

Casing Diameter: ___ 2 inch ___ 3 inch ___ 4 inch ___ 4.5 inch ___ 6 inch Other___

Depth to Water (feet): Start 58.58 End 62.59

Well Total Depth (feet): Start 70.5 End 70.5

One Casing Volume at Start (gal): 1.94 Total Volume Purged (gal): 20

DEVELOPMENT METHOD

___ Centrifugal Pump ___ Bailer (Teflon ®) ✓ Surge Block (Swab) Other___

✓ Submersible Pump ✓ Bailer (PVC) ___ Pneumatic Displacement Pump

FIELD INSTRUMENTS

✓ pH, EC, Temp. Meter ✓ NTU Meter ✓ Imhoff Cone ✓ Colorimeter Other___

Purge Water Disposal Method: DRUMED ON SITE.

Date	Time	Cumulative Discharge (gal)	Temp. (° F)	E.C. @ 25° C (µmho/cm)	pH (Stnd)	Turbidity Visual (Heavy, Moderate, Light, Trace)	Turbidity NTU (Scale = 0 to 200)	Color Visual (Clear, Cloudy, Yellow, Brown)	Color Cobalt (Scale = 0 to 100)	Odor	Settleable Solids (%)
12-31-96	1112	5	66.9	1076	6.93	HEAVY	TOO	BROWN	TOO	Low	30-60
↓	1123	10	67.3	1059	7.07	↓	↓	↓	↓	↓	10-15
↓	1128	15	68.3	1142	7.00	↓	↓	↓	↓	↓	0-5
↓	1134	20	69.1	1140	7.01	↓	↓	↓	↓	↓	0-2

WELL INTEGRITY: GOOD LOCK #: 3616

REMARKS:
Sampled WELL After Development

97-036

SIGNATURE: [signature]

Page 1 of 3

Rev. 1, 4/90

WELL DEVELOPMENT FIELD DATA SHEET

EMCON ASSOCIATES

Project Number: 22152-001.001 Performed By: M. Gallegos

Client: Federal Realty Investment Date: 12-20-96

Location: San Jose, CA Well ID: MW-2

Casing Diameter: X 2 inch ___ 3 inch ___ 4 inch ___ 4.5 inch ___ 6 inch Other___

Depth to Water (feet): Start 61.92 End 61.93

Well Total Depth (feet): Start 69.52 End 69.55

One Casing Volume at Start (gal): 1.24 4.96 Total Volume Purged (gal): 20.0 gal

DEVELOPMENT METHOD

X ~~Centrifugal Pump~~ ___ Bailer (Teflon ®) X Surge Block (Swab) Other___

X Submersible Pump X Bailer (PVC) ___ Pneumatic Displacement Pump ___

FIELD INSTRUMENTS

X pH, EC, Temp. Meter X NTU Meter X Imhoff Cone X Colorimeter Other___

Purge Water Disposal Method: Drummed on site

Date	Time	Cumulative Discharge (gal)	Temp. (° F)	E.C. @ 25° C (µmho/cm)	pH (Stnd)	Turbidity Visual (Heavy, Moderate, Light, Trace)	Turbidity NTU (Scale = 0 to 200)	Color Visual (Clear, Cloudy, Yellow, Brown...)	Color Cobalt (Scale = 0 to 100)	Odor	Settleable Solids (%)
12/20/96	0909	5.0	59.4	1038	6.42	Heavy	>200	BRN	>100	none	50%
	0917	10.0	60.4	1051	6.81						2%
	0919	15.0	61.8	1040	6.78						1%
	0922	20.0	62.5	1060	6.81	mod	74.1		65/70		0%

WELL INTEGRITY: GOOD LOCK #: 3900

REMARKS: *Swabbed well 20 prior to purging
sampled well after purging.

97-036

SIGNATURE: [signature]

Page 2 of 3

Rev. 1, 4/90

WELL DEVELOPMENT FIELD DATA SHEET

EMCON ASSOCIATES

Project Number: 22152-001.00/ Performed By: M. Galkgus

Client: Federal Realty Investment Date: 12-20-96

Location: San Jose, CA Well ID: MW-3

Casing Diameter: X 2 inch ___ 3 inch ___ 4 inch ___ 4.5 inch ___ 6 inch Other___

Depth to Water (feet): Start 64.22 End 64.20

Well Total Depth (feet): Start 74.28 End 74.48

One Casing Volume at Start (gal): 1.64 6.56 Total Volume Purged (gal): 20.0

DEVELOPMENT METHOD

___ Centrifugal Pump ___ Bailer (Teflon ®) X Surge Block (Swab) Other___

X Submersible Pump X Bailer (PVC) ___ Pneumatic Displacement Pump ___

FIELD INSTRUMENTS

X pH, EC, Temp. Meter X NTU Meter X Imhoff Cone X Colorimeter Other___

Purge Water Disposal Method: Drummed on site.

Date	Time	Cumulative Discharge (gal)	Temp. (° F)	E.C. @ 25° C (µmho/cm)	pH (Stnd)	Turbidity Visual (Heavy, Moderate, Light, Trace)	Turbidity NTU (Scale = 0 to 200)	Color Visual (Clear, Cloudy, Yellow, Brown...)	Color Cobalt (Scale = 0 to 100)	Odor	Settleable Solids (%)
12/20/96	1108	50	63.3	1074	7.00	Heavy	>200	BRown	>100	none	60%
↓	1117	10.0	64.0	1010	6.83	↓	↓	↓	↓	↓	10%
↓	1120	15.0	65.1	1014	6.85	↓	↓	↓	↓	↓	1%
↓	1123	20.0	65.3	1013	6.88	mod	393	↓	45-50	↓	0%

WELL INTEGRITY: Good LOCK #: ~~3900~~ 3616

REMARKS: Swabbed well for 20 min prior to purging.
Sanded well after purging

97 036

SIGNATURE: M. Galkgus Page ~~2~~ 3 of ~~2~~ 3

Rev. 1, 4/90

FIELD REPORT
WATER LEVEL / FLOATING PRODUCT
SURVEY

EMCON ASSOCIATES
1921 Ringwood Avenue
San Jose, California 95131
(408) 453-7300

PROJECT NO: 22152-01.01 LOCATION: TOWN + COUNTRY DATE: 01/08/97

CLIENT: SAMPLER: PETE CHRIST/ANBON DAY OF WEEK:

WELL ID	TOTAL DEPTH (Feet)	FIRST DTW (Feet)	SECOND DTW (Feet)	DEPTH TO FLOATING PRODUCT (Feet)	FLOATING PRODUCT THICKNESS (Feet)	COMMENTS
MW-1		57.43	57.43	—	—	
MW-2		58.71	58.71	—	—	
MW-3		61.31	61.31	—	—	

97-036

DTW = Depth to Water

APPENDIX D

LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION FOR SOIL SAMPLES

97-036

Columbia Analytical Services INC.

December 27, 1996

Service Request No.: S9602247

Mr. Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

RE: Town & Country/22152-001.001

Dear Mr. Smolley:

The following pages contain analytical results for sample(s) received by the laboratory on December 19, 1996. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytical Report below confirms that pages 2 through 11, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Cristina V. Rayburn

Steven L. Green
Project Chemist

97-036

2059 Junction Avenue ▪ San Jose, California 95131 ▪ Telephone 408/428-1280 ▪ Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	L9605071
Project:	Town & Country/#22152-001.001	**Date Collected:**	12/18/96
Sample Matrix:	Soil	**Date Received:**	12/19/96
		Date Extracted:	12/24/96

Organochlorine Pesticides
EPA Methods 3550/8080
Units: mg/Kg (ppm)

	Sample Name:	**EB-8 @ 3.5'**
	Lab Code:	L9605071-001*
	Date Analyzed:	12/27/96
Analyte	**MRL**	
Alpha-BHC	0.01	<0.5
Gamma-BHC (Lindane)	0.01	<0.5
Beta-BHC	0.04	<2
Heptachlor	0.01	<0.5
Delta-BHC	0.01	<0.5
Aldrin	0.02	<1
Heptachlor Epoxide	0.01	<0.5
Endosulfan I	0.1	<5
4,4'-DDE	0.01	4.5
Dieldrin	0.01	<0.5
Endrin	0.05	<2.5
4,4'-DDD	0.01	1.0
Endosulfan II	0.01	<0.5
4,4'-DDT	0.02	4.9
Endrin Aldehyde	1.0	<50
Endosulfan Sulfate	0.5	<25
Methoxychlor	0.5	<25
Toxaphene	0.1	<5
Chlordane	0.1	<5

* MRL is elevated because of matrix interferences and because the sample required diluting.

3S44/120594

97 - 036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	L9605071
Project:	Town & Country/#22152-001.001	**Date Collected:**	12/19/96
Sample Matrix:	Soil	**Date Received:**	12/19/96
		Date Extracted:	12/24/96

Organochlorine Pesticides
EPA Methods 3550/8080
Units: mg/Kg (ppm)

		Sample Name:	**EB-9 @ 1.5'**	**EB-9 @ 3.5'**	**EB-10 @ 1'**
		Lab Code:	L9605071-002*	L9605071-003	L9605071-004
		Date Analyzed:	12/27/96	12/26/96	12/26/96
Analyte	**MRL**				
Alpha-BHC	0.01		<0.5	ND	ND
Gamma-BHC (Lindane)	0.01		<0.5	ND	ND
Beta-BHC	0.04		<2	ND	ND
Heptachlor	0.01		<0.5	ND	ND
Delta-BHC	0.01		<0.5	ND	ND
Aldrin	0.02		<1	ND	ND
Heptachlor Epoxide	0.01		<0.5	ND	ND
Endosulfan I	0.1		<5	ND	ND
4,4'-DDE	0.01		7.5	0.54	2.8
Dieldrin	0.01		<0.5	ND	ND
Endrin	0.05		<2.5	ND	ND
4,4'-DDD	0.01		1.1	0.04	0.42
Endosulfan II	0.01		<0.5	ND	ND
4,4'-DDT	0.02		2.0	0.05	0.58
Endrin Aldehyde	1.0		<50	ND	ND
Endosulfan Sulfate	0.5		<25	ND	ND
Methoxychlor	0.5		<25	ND	ND
Toxaphene	0.1		<5	ND	ND
Chlordane	0.1		<5	ND	ND

* MRL is elevated because of matrix interferences and because the sample required diluting.

3S44/120594

97-036

COLUMBI ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON
Project:	Town & Country/#22152-001.001
Sample Matrix:	Soil

Service Request:	L9605071
Date Collected:	12/19/96
Date Received:	12/19/96
Date Extracted:	12/24/96

Organochlorine Pesticides
EPA Methods 3550/8080
Units: mg/Kg (ppm)

		Sample Name:	**EB-10 @ 3'**	**MW2 @ 1'**	**MW-2 @ 3'**
		Lab Code:	L9605071-005	L9605071-006	L9605071-007
		Date Analyzed:	12/26/96	12/26/96	12/26/96
Analyte	**MRL**				
Alpha-BHC	0.01		ND	ND	ND
Gamma-BHC (Lindane)	0.01		ND	ND	ND
Beta-BHC	0.04		ND	ND	ND
Heptachlor	0.01		ND	ND	ND
Delta-BHC	0.01		ND	ND	ND
Aldrin	0.02		ND	ND	ND
Heptachlor Epoxide	0.01		ND	ND	ND
Endosulfan I	0.1		ND	ND	ND
4,4'-DDE	0.01		0.04	ND	ND
Dieldrin	0.01		ND	ND	ND
Endrin	0.05		ND	ND	ND
4,4'-DDD	0.01		ND	ND	ND
Endosulfan II	0.01		ND	ND	ND
4,4'-DDT	0.02		ND	ND	ND
Endrin Aldehyde	1.0		ND	ND	ND
Endosulfan Sulfate	0.5		ND	ND	ND
Methoxychlor	0.5		ND	ND	ND
Toxaphene	0.1		ND	ND	ND
Chlordane	0.1		ND	ND	ND

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	L9605071
Project:	Town & Country/#22152-001.001	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	12/24/96

Organochlorine Pesticides
EPA Methods 3550/8080
Units: mg/Kg (ppm)

		Sample Name:	**Method Blank**
		Lab Code:	L961224-MB
		Date Analyzed:	12/26/96
Analyte	**MRL**		
Alpha-BHC	0.01		ND
Gamma-BHC (Lindane)	0.01		ND
Beta-BHC	0.04		ND
Heptachlor	0.01		ND
Delta-BHC	0.01		ND
Aldrin	0.02		ND
Heptachlor Epoxide	0.01		ND
Endosulfan I	0.1		ND
4,4'-DDE	0.01		ND
Dieldrin	0.01		ND
Endrin	0.05		ND
4,4'-DDD	0.01		ND
Endosulfan II	0.01		ND
4,4'-DDT	0.02		ND
Endrin Aldehyde	1.0		ND
Endosulfan Sulfate	0.5		ND
Methoxychlor	0.5		ND
Toxaphene	0.1		ND
Chlordane	0.1		ND

97-036

3S44/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/22152-001.001
Sample Matrix: Soil

Service Request: S9602247
Date Collected: 12/19/96
Date Received: 12/19/96
Date Digested: 12/21/96

Metals
Units: mg/Kg (ppm)

		Sample Name:	**EB-8 @ 3.5'**	**EB-9 @ 1.5'**	**EB-9 @ 3.5'**
		Lab Code:	S9602247-001	S9602247-002	S9602247-003
		Date Analyzed:	12/22/96	12/22/96	12/22/96
Analyte	**EPA Method**	**MRL**			
Arsenic	3050BM/7060	5	75	90	63
Lead	3050BM/6010A	5	110	130	24

3S22EPA/120594

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602247
Project:	Town & Country/22152-001.001	**Date Collected:**	12/19/96
Sample Matrix:	Soil	**Date Received:**	12/19/96
		Date Digested:	12/21/96

Metals
Units: mg/Kg (ppm)

		Sample Name:	**EB-10 @ 1'**	**EB-10 @ 3'**	**MW-2 @ 1'**
		Lab Code:	S9602247-004	S9602247-005	S9602247-006
		Date Analyzed:	12/22/96	12/22/96	12/22/96
Analyte	**EPA Method**	**MRL**			
Arsenic	3050BM/7060	5	110	61	470
Lead	3050BM/6010A	5	220	15	91

97-036

3S22EPA/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/22152-001.001
Sample Matrix: Soil

Service Request: S9602247
Date Collected: 12/19/96
Date Received: 12/19/96
Date Digested: 12/21/96

Metals
Units: mg/Kg (ppm)

		Sample Name:	**MW-2 @ 3'**	**Method Blank**
		Lab Code:	S9602247-007	S9602247-MB1
		Date Analyzed:	12/22/96	12/22/96
Analyte	**EPA Method**	**MRL**		
Arsenic	3050BM/7060	5	400	ND
Lead	3050BM/6010A	5	96	ND

3S22EPA/120594

97-036

APPENDIX A

97-036

Columbia Analytical Services inc
2059 Junction Avenue • San Jose, CA 95131 • (408) 428-1280 • FAX (408) 437-9356

CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

SERVICE REQUEST NO. S9602247 P.O.# ______

PROJECT NAME Town & Country # 22152-01.01

PROJECT MGR. Mark Smolley

COMPANY/ADDRESS Emcon, SJ

PHONE ______ FAX ______

SAMPLERS SIGNATURE Pete Christensen

ANALYSIS REQUESTED

PRESERVATIVE: NP / HCl / HCl / HCl / NP / HCl / HCl / HNO3 / NP / H_2SO_4 / H_2SO_4 / H_2SO_4

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240/8260	Halogenated or Aromatic Volatiles 601/8010 □ 602/8020 □	TPH as Gas/BTEX DHS LUFT / 8020	TPH as Diesel/HBHC DHS LUFT	TRPH - 418.1	Oil and Grease Method	Metals (total or dissolved) List Below Pb As	pH, Cond, Cl, SO_4, F, TDS, TSS Alk (circle)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle)	Total Organic Carbon TOC	Total Phenols	Chlorinated Pesticides				REMARKS
EB-8 @ 3.5	12/18/96		1	Soil	1								X					X				
EB-9 @ 1.5'	12/19/96		2																			
EB-9 @ 3.5'			3																			
EB-10 @ 1'			4																			
EB-10 @ 3'			5																			
MW-2 @ 1'			6																			
MW-2 @ 3'			7																			
																						R20/S29

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Pete Christensen	Signature: Robert K. Davis	Signature: Robert K. Davis	Signature: Joanne Brown
Printed Name: Pete Christensen	Printed Name: ROB DAVIS	Printed Name: ROB DAVIS	Printed Name: Joanne Brown
Firm: Emcon	Firm: EMCON	Firm: EMCON	Firm: CAS
Date/Time: 12/19/96 1330	Date/Time: 12/19/96 13:30	Date/Time: 12/19/96 14:10	Date/Time: 12-19-96 14:10

TURNAROUND REQUIREMENTS
- ___ 24 hr ___ 48 hr. X 5 day
- ___ Standard (10-15 working days)
- ___ Provide Verbal Preliminary Results
- ___ Provide FAX preliminary Results

Requested Report Date 12-27

REPORT REQUIREMENTS
- X I. Routine Report
- ___ II. Report (includes DUP MAS MSD, as required, may be charged as samples)
- ___ III. Data Validation Report (includes All Raw Data)
- ___ RWQCB (MDLs/PQLs/TRACE#)

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

Circle which metals are to be analyzed:

Metals: Al Sb Ba Be B Cd Ca Cr Cu Co Fe Mg Mn Mo Ni K Ag Na Sn V Zn As Pb Se Tl Hg

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400.5

97-036

Columbia Analytical Services inc.

December 26, 1996

Service Request No.: S9602230

Mr. Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

RE: Town & Country/22152-001.001

Dear Mr. Smolley:

The following pages contain analytical results for sample(s) received by the laboratory on December 18, 1996. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytic Report below confirms that pages 2 through 21, following, have been thoroughly reviewed an approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Cristina V. Raylen for

Steven L. Green
Project Chemist

97-036

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602230
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-18/96
Sample Matrix:	Soil	**Date Received:**	12/18/96
		Date Extracted:	12/19/96

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: mg/Kg (ppm)
As Received Basis

		EB-1 @1'	**EB-1 @3'**	**EB-2 @1'**
	Sample Name:	**EB-1 @1'**	**EB-1 @3'**	**EB-2 @1'**
	Lab Code:	S9602230-001	S9602230-002	S9602230-003
	Date Analyzed:	12/19/96	12/20/96	12/20/96
Analyte	**MRL**			
Dichlorodifluoromethane (CFC 12)	0.1	ND	ND	ND
Chloromethane	0.1	ND	ND	ND
Vinyl Chloride	0.05	ND	ND	ND
Bromomethane	0.05	ND	ND	ND
Chloroethane	0.05	ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.05	ND	ND	ND
1,1-Dichloroethene	0.05	ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	0.05	ND	ND	ND
Methylene Chloride	0.05	ND	ND	ND
trans-1,2-Dichloroethene	0.05	ND	ND	ND
cis-1,2-Dichloroethene	0.05	ND	ND	ND
1,1-Dichloroethane	0.05	ND	ND	ND
Chloroform	0.05	ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.05	ND	ND	ND
Carbon Tetrachloride	0.05	ND	ND	ND
1,2-Dichloroethane	0.05	ND	ND	ND
Trichloroethene (TCE)	0.05	ND	ND	ND
1,2-Dichloropropane	0.05	ND	ND	ND
Bromodichloromethane	0.05	ND	ND	ND
2-Chloroethyl Vinyl Ether	0.5	ND	ND	ND
trans-1,3-Dichloropropene	0.05	ND	ND	ND
cis-1,3-Dichloropropene	0.05	ND	ND	ND
1,1,2-Trichloroethane	0.05	ND	ND	ND
Tetrachloroethene (PCE)	0.05	0.12	0.31	0.07
Dibromochloromethane	0.05	ND	ND	ND
Chlorobenzene	0.05	ND	ND	ND
Bromoform	0.05	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.05	ND	ND	ND
1,3-Dichlorobenzene	0.1	ND	ND	ND
1,4-Dichlorobenzene	0.1	ND	ND	ND
1,2-Dichlorobenzene	0.1	ND	ND	ND

97-036

3S44/060194

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/22152-001.001
Sample Matrix: Soil

Service Request: S9602230
Date Collected: 12/17-18/96
Date Received: 12/18/96
Date Extracted: 12/19/96

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: mg/Kg (ppm)
As Received Basis

		Sample Name:	**EB-2 @3'**	**EB-6 @1'**	**EB-6 @3'**
		Lab Code:	S9602230-004	S9602230-010	S9602230-011
		Date Analyzed:	12/20/96	12/20/96	12/20/96
Analyte	**MRL**				
Dichlorodifluoromethane (CFC 12)	0.1		ND	ND	ND
Chloromethane	0.1		ND	ND	ND
Vinyl Chloride	0.05		ND	ND	ND
Bromomethane	0.05		ND	ND	ND
Chloroethane	0.05		ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.05		ND	ND	ND
1,1-Dichloroethene	0.05		ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	0.05		ND	ND	ND
Methylene Chloride	0.05		ND	ND	ND
trans-1,2-Dichloroethene	0.05		ND	ND	ND
cis-1,2-Dichloroethene	0.05		ND	ND	ND
1,1-Dichloroethane	0.05		ND	ND	ND
Chloroform	0.05		ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.05		ND	ND	ND
Carbon Tetrachloride	0.05		ND	ND	ND
1,2-Dichloroethane	0.05		ND	ND	ND
Trichloroethene (TCE)	0.05		ND	ND	ND
1,2-Dichloropropane	0.05		ND	ND	ND
Bromodichloromethane	0.05		ND	ND	ND
2-Chloroethyl Vinyl Ether	0.5		ND	ND	ND
trans-1,3-Dichloropropene	0.05		ND	ND	ND
cis-1,3-Dichloropropene	0.05		ND	ND	ND
1,1,2-Trichloroethane	0.05		ND	ND	ND
Tetrachloroethene (PCE)	0.05		0.13	ND	ND
Dibromochloromethane	0.05		ND	ND	ND
Chlorobenzene	0.05		ND	ND	ND
Bromoform	0.05		ND	ND	ND
1,1,2,2-Tetrachloroethane	0.05		ND	ND	ND
1,3-Dichlorobenzene	0.1		ND	ND	ND
1,4-Dichlorobenzene	0.1		ND	ND	ND
1,2-Dichlorobenzene	0.1		ND	ND	ND

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3S44/060194

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602230
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-18/96
Sample Matrix:	Soil	**Date Received:**	12/18/96
		Date Extracted:	12/19/96

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: mg/Kg (ppm)
As Received Basis

		Sample Name:	**MW-3 @58-60'**	**Method Blank**
		Lab Code:	S9602230-13	S961219-SB1
		Date Analyzed:	12/20/96	12/19/96
Analyte	**MRL**			
Dichlorodifluoromethane (CFC 12)	0.1		ND	ND
Chloromethane	0.1		ND	ND
Vinyl Chloride	0.05		ND	ND
Bromomethane	0.05		ND	ND
Chloroethane	0.05		ND	ND
Trichlorofluoromethane (CFC 11)	0.05		ND	ND
1,1-Dichloroethene	0.05		ND	ND
Trichlorotrifluoroethane (CFC 113)	0.05		ND	ND
Methylene Chloride	0.05		ND	ND
trans-1,2-Dichloroethene	0.05		ND	ND
cis-1,2-Dichloroethene	0.05		ND	ND
1,1-Dichloroethane	0.05		ND	ND
Chloroform	0.05		ND	ND
1,1,1-Trichloroethane (TCA)	0.05		ND	ND
Carbon Tetrachloride	0.05		ND	ND
1,2-Dichloroethane	0.05		ND	ND
Trichloroethene (TCE)	0.05		ND	ND
1,2-Dichloropropane	0.05		ND	ND
Bromodichloromethane	0.05		ND	ND
2-Chloroethyl Vinyl Ether	0.5		ND	ND
trans-1,3-Dichloropropene	0.05		ND	ND
cis-1,3-Dichloropropene	0.05		ND	ND
1,1,2-Trichloroethane	0.05		ND	ND
Tetrachloroethene (PCE)	0.05		ND	ND
Dibromochloromethane	0.05		ND	ND
Chlorobenzene	0.05		ND	ND
Bromoform	0.05		ND	ND
1,1,2,2-Tetrachloroethane	0.05		ND	ND
1,3-Dichlorobenzene	0.1		ND	ND
1,4-Dichlorobenzene	0.1		ND	ND
1,2-Dichlorobenzene	0.1		ND	ND

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3S44/060194

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/#22152-001.001
Sample Matrix: Soil

Service Request: L9605032
Date Collected: 12/17/96
Date Received: 12/18/96
Date Extracted: 12/21/96

Organochlorine Pesticides
EPA Methods 3550/8080
Units: mg/Kg (ppm)

		Sample Name:	**EB-3@1'**	**EB-3@3'**	**EB-4@1'**
		Lab Code:	L9605032-001	L9605032-002	L9605032-003
		Date Analyzed:	12/23/96	12/23/96	12/23/96
Analyte	**MRL**				
Alpha-BHC	0.01		ND	ND	ND
Gamma-BHC (Lindane)	0.01		ND	ND	ND
Beta-BHC	0.04		ND	ND	ND
Heptachlor	0.01		ND	ND	ND
Delta-BHC	0.01		ND	ND	ND
Aldrin	0.02		ND	ND	ND
Heptachlor Epoxide	0.01		ND	ND	ND
Endosulfan I	0.1		ND	ND	ND
4,4'-DDE	0.01		ND	ND	ND
Dieldrin	0.01		ND	ND	0.16
Endrin	0.05		ND	ND	ND
4,4'-DDD	0.01		ND	ND	ND
Endosulfan II	0.01		ND	ND	0.03
4,4'-DDT	0.02		ND	ND	ND
Endrin Aldehyde	1.0		ND	ND	0.05
Endosulfan Sulfate	0.5		ND	ND	ND
Methoxychlor	0.5		ND	ND	ND
Toxaphene	0.1		ND	ND	ND
Chlordane	0.1		ND	ND	ND

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3S44/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/#22152-001.001
Sample Matrix: Soil

Service Request: L9605032
Date Collected: 12/17/96
Date Received: 12/18/96
Date Extracted: 12/21/96

Organochlorine Pesticides
EPA Methods 3550/8080
Units: mg/Kg (ppm)

	Sample Name:	**EB-4@3'**	**EB-5@1'**	**EB-6@1'**
	Lab Code:	L9605032-004	L9605032-005	L9605032-006
	Date Analyzed:	12/23/96	12/23/96	12/23/96
Analyte	**MRL**			
Alpha-BHC	0.01	ND	ND	ND
Gamma-BHC (Lindane)	0.01	ND	ND	ND
Beta-BHC	0.04	ND	ND	ND
Heptachlor	0.01	ND	ND	ND
Delta-BHC	0.01	ND	ND	ND
Aldrin	0.02	ND	ND	ND
Heptachlor Epoxide	0.01	ND	ND	ND
Endosulfan I	0.1	ND	ND	ND
4,4'-DDE	0.01	ND	0.49	ND
Dieldrin	0.01	ND	ND	ND
Endrin	0.05	ND	ND	ND
4,4'-DDD	0.01	ND	0.09	ND
Endosulfan II	0.01	ND	ND	ND
4,4'-DDT	0.02	ND	ND	ND
Endrin Aldehyde	1.0	ND	ND	ND
Endosulfan Sulfate	0.5	ND	ND	ND
Methoxychlor	0.5	ND	ND	ND
Toxaphene	0.1	ND	ND	ND
Chlordane	0.1	ND	ND	ND

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3S44/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/#22152-001.001
Sample Matrix: Soil

Service Request: L9605032
Date Collected: 12/17/96
Date Received: 12/18/96
Date Extracted: 12/21/96

Organochlorine Pesticides
EPA Methods 3550/8080
Units: mg/Kg (ppm)

	Sample Name:	**EB-6@3'**
	Lab Code:	L9605032-007
	Date Analyzed:	12/23/96
Analyte	**MRL**	
Alpha-BHC	0.01	ND
Gamma-BHC (Lindane)	0.01	ND
Beta-BHC	0.04	ND
Heptachlor	0.01	ND
Delta-BHC	0.01	ND
Aldrin	0.02	ND
Heptachlor Epoxide	0.01	ND
Endosulfan I	0.1	ND
4,4'-DDE	0.01	ND
Dieldrin	0.01	ND
Endrin	0.05	ND
4,4'-DDD	0.01	ND
Endosulfan II	0.01	ND
4,4'-DDT	0.02	ND
Endrin Aldehyde	1.0	ND
Endosulfan Sulfate	0.5	ND
Methoxychlor	0.5	ND
Toxaphene	0.1	ND
Chlordane	0.1	ND

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/#22152-001.001
Sample Matrix: Soil

Service Request: L9605032
Date Collected: 12/18/96
Date Received: 12/18/96
Date Extracted: 12/21/96

Organochlorine Pesticides
EPA Methods 3550/8080
Units: mg/Kg (ppm)

		Sample Name:	MW-3@3.5-5'	EB-7@1'	EB-7@3'
		Lab Code:	L9605032-008	L9605032-009	L9605032-010
		Date Analyzed:	12/23/96	12/23/96	12/23/96
Analyte	**MRL**				
Alpha-BHC	0.01		ND	ND	ND
Gamma-BHC (Lindane)	0.01		ND	ND	ND
Beta-BHC	0.04		ND	ND	ND
Heptachlor	0.01		ND	ND	ND
Delta-BHC	0.01		ND	ND	ND
Aldrin	0.02		ND	ND	ND
Heptachlor Epoxide	0.01		ND	ND	ND
Endosulfan I	0.1		ND	ND	ND
4,4'-DDE	0.01		ND	0.03	0.07
Dieldrin	0.01		ND	ND	ND
Endrin	0.05		ND	ND	ND
4,4'-DDD	0.01		ND	ND	ND
Endosulfan II	0.01		ND	ND	ND
4,4'-DDT	0.02		ND	ND	ND
Endrin Aldehyde	1.0		ND	ND	ND
Endosulfan Sulfate	0.5		ND	ND	ND
Methoxychlor	0.5		ND	ND	ND
Toxaphene	0.1		ND	ND	ND
Chlordane	0.1		ND	ND	ND

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/#22152-001.001
Sample Matrix: Soil

Service Request: L9605032
Date Collected: 12/18/96
Date Received: 12/18/96
Date Extracted: 12/21/96

Organochlorine Pesticides
EPA Methods 3550/8080
Units: mg/Kg (ppm)

		Sample Name:	EB-8@1.5'	Method Blank
		Lab Code:	L9605032-011*	L961221-MB
		Date Analyzed:	12/24/96	12/23/96
Analyte	**MRL**			
Alpha-BHC	0.01		<0.02	ND
Gamma-BHC (Lindane)	0.01		<0.02	ND
Beta-BHC	0.04		<0.08	ND
Heptachlor	0.01		<0.02	ND
Delta-BHC	0.01		<0.02	ND
Aldrin	0.02		<0.04	ND
Heptachlor Epoxide	0.01		<0.02	ND
Endosulfan I	0.1		<0.2	ND
4,4'-DDE	0.01		2.6	ND
Dieldrin	0.01		<0.02	ND
Endrin	0.05		<0.1	ND
4,4'-DDD	0.01		0.29	ND
Endosulfan II	0.01		<0.02	ND
4,4'-DDT	0.02		0.53	ND
Endrin Aldehyde	1.0		<2.0	ND
Endosulfan Sulfate	0.5		<1	ND
Methoxychlor	0.5		<1	ND
Toxaphene	0.1		<0.2	ND
Chlordane	0.1		<0.2	ND

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3S44/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602230
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-18/96
Sample Matrix:	Soil	**Date Received:**	12/18/96
		Date Digested:	12/19/96

Metals
Units: mg/Kg (ppm)

		Sample Name:	**EB-3 @1'**	**EB-3 @3'**	**EB-4 @1'**
		Lab Code:	S9602230-005	S9602230-006	S9602230-007
		Date Analyzed:	12/19/96	12/19/96	12/19/96
Analyte	**EPA Method**	**MRL**			
Arsenic	3050BM/7060	[illegible]	73	53	78
Lead	3050BM/6010A	5	10	10	12

3S22EPA/120594

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/22152-001.001
Sample Matrix: Soil

Service Request: S9602230
Date Collected: 12/17-18/96
Date Received: 12/18/96
Date Digested: 12/19/96

Metals
Units: mg/Kg (ppm)

		Sample Name:	**EB-4 @3'**	**EB-5 @1'**	**EB-6 @1'**
		Lab Code:	S9602230-008	S9602230-009	S9602230-010
		Date Analyzed:	12/19/96	12/19/96	12/19/96
Analyte	**EPA Method**	**MRL**			
Arsenic	3050BM/7060	1	46	60	78
Lead	3050BM/6010A	5	8	34	11

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3S22EPA/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602230
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-18/96
Sample Matrix:	Soil	**Date Received:**	12/18/96
		Date Digested:	12/19/96

Metals
Units: mg/Kg (ppm)

		Sample Name:	**EB-6 @3'**	**MW-3 @3.5-5'**	**EB-7 @1'**
		Lab Code:	S9602230-011	S9602230-012	S9602230-014
		Date Analyzed:	12/19/96	12/19/96	12/19/96
Analyte	**EPA Method**	**MRL**			
Arsenic	3050BM/7060	1	34	25	59
Lead	3050BM/6010A	5	9	6	12

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/22152-001.001
Sample Matrix: Soil

Service Request: S9602230
Date Collected: 12/17-18/96
Date Received: 12/18/96
Date Digested: 12/19/96

Metals
Units: mg/Kg (ppm)

		Sample Name:	EB-7 @3'	EB-8 @1.5'	Method Blank
		Lab Code:	S9602230-015	S9602230-016	S9602230-SB1
		Date Analyzed:	12/19/96	12/19/96	12/19/96
Analyte	**EPA Method**	**MRL**			
Arsenic	3050BM/7060	1	53	82	ND
Lead	3050BM/6010A	5	11	91	ND

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3S22EPA/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602230
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-18/96
Sample Matrix:	Soil	**Date Received:**	12/18/96
		Date Extracted:	12/22/96
		Date Analyzed:	12/22/96, 12/24/96

Hydrocarbon Scan
California DHS LUFT Method
Units: mg/Kg (ppm)
As Received Basis

	Analyte:	**Mineral Spirits**	**Jet Fuel**	**Kerosene**	**Diesel**	**Hydraulic Fluid**
	Method Reporting Limit:	1	1	1	1	5
Sample Name	**Lab Code**					
EB-6 @1'	S9602230-010	ND	ND	ND	ND	ND
EB-6 @3'	S9602230-011	ND	ND	ND	ND	ND
Method Blank	9601222-SB1	ND	ND	ND	ND	ND

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SA/061694

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602230
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-18/96
Sample Matrix:	Soil	**Date Received:**	12/18/96
		Date Extracted:	12/20/96

BTEX, MTBE and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: mg/Kg (ppm)

	Sample Name:	**EB-6 @1'**	**EB-6 @3'**	**Method Blank**
	Lab Code:	S9602230-010	S9602230-011	S961220-SB1
	Date Analyzed:	12/23/96	12/24/96	12/21/96
Analyte	**MRL**			
TPH as Gasoline	1	ND	ND	ND
Benzene	0.005	ND	ND	ND
Toluene	0.005	ND	ND	ND
Ethylbenzene	0.005	ND	ND	ND
Total Xylenes	0.005	ND	ND	ND
Methyl-tert-butyl ether	0.05	ND	ND	ND

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3S22/060194

APPENDIX A

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	S9602230
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-18/96
Sample Matrix:	Soil	**Date Received:**	12/18/96
		Date Extracted:	12/19/96
		Date Analyzed:	NA

Surrogate Recovery Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/8010

Sample Name	**Lab Code**	**Percent Recovery** 4-Bromofluorobenzene
EB-1 @1'	S9602230-001	98
EB-1 @3'	S9602230-002	91
EB-2 @1'	S9602230-003	98
EB-2 @3'	S9602230-004	94
EB-6 @1'	S9602230-010	96
EB-6 @3'	S9602230-011	94
MW-3 @58-60'	S9602230-013	98
Method Blank		

CAS Acceptance Limits: 74-125

97-036

SUR1/062994

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Town & Country/#22152-001.001
Sample Matrix: Soil

Service Request: L9605032
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary
Organochlorine Pesticides and Polychlorinated Biphenyls (PCBs)
EPA Methods 3550/8080

Sample Name	Lab Code	Percent Recovery Tetrachloro-*m* -xylene
EB-3@1'	L9605032-001	70
EB-3@3'	L9605032-002	88
EB-4@1'	L9605032-003	79
EB-4@3'	L9605032-004	82
EB-5@1'	L9605032-005	89
EB-6@1'	L9605032-006	77
EB-6@3'	L9605032-007	64
MW-3@3.5-5'	L9605032-008	68
EB-7@1'	L9605032-009	61
EB-7@3'	L9605032-010	76
EB-8@1.5'	L9605032-011	77
Method Blank	L961221-MB	95

CAS Acceptance Limits: 45-140

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SUR1/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Town & Country/22152-001.001
Sample Matrix: Soil

Service Request: S9602230
Date Collected: 12/17-18/96
Date Received: 12/18/96
Date Extracted: NA
Date Analyzed: 12/22/96, 12/24/96

Surrogate Recovery Summary
Hydrocarbon Scan
California DHS LUFT Method

Sample Name	**Lab Code**	**Percent Recovery** p-Terphenyl
EB-6 @1'	S9602230-010	85
EB-6 @3'	S9602230-011	85
Method Blank	9601222-SB1	81

CAS Acceptance Limits: 41-140

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SUR1/062994

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	S9602230
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-18/96
Sample Matrix:	Soil	**Date Received:**	12/18/96
		Date Extracted:	NA
		Date Analyzed:	NA

Surrogate Recovery Summary
TPH as Gasoline/BTEX
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	**Lab Code**	**PID Detector Percent Recovery** 4-Bromofluorobenzene	**FID Detector Percent Recovery** α,α,α–Trifluorotoluene
EB-6 @1'	S9602230-010	104	99
EB-6 @3'	S9602230-011	105	99
Method Blank	S961220-SB1	106	101
	CAS Acceptance Limits:	51-137	51-137

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SUR2/060194

Columbia Analytical Services℠

2059 Junction Avenue • San Jose, CA 95131 • (408) 428-1280 • FAX (408) 437-9356

CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

SERVICE REQUEST NO. S9602230 P.O.#____

PROJECT NAME Town & Country #22152-01.01

PROJECT MGR Mark Smolley

COMPANY/ADDRESS Emcon, SJ

PHONE ____ FAX ____

SAMPLERS SIGNATURE Pete Chr[signature]

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	GC/MS Base/Neu/Acid Organics 625/8270	GC/MS Volatile Organics 624/8240/8260	Halogenated or Aromatic Volatiles 601/8010 ☒ 602/8020 ☐ PCE	TPH as Gas/BTEX DHS LUFT / 8020	TPH as Diesel (HBHC) DHS LUFT	TRPH - 418.1	Oil and Grease Method ____	Metals (total or dissolved) List Below Pb + As	pH, Cond, Cl, SO_4, F, TDS, TSS Alk (circle)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle)	Total Organic Carbon TOC	Total Phenols	Pesticides (8080)	MTBE				REMARKS
PRESERVATIVE							NP	HCl	HCl	HCl	NP	HCl	HCl	HNO_3	NP	H_2SO_4	H_2SO_4	H_2SO_4					
EB-1 @ 1'	12/17/96		1	Soil	1			X															
EB-1 @ 3'	↓		2		↓			X															
EB-2 @ 1'			3					X															
EB-2 @ 3'			4					X															
EB-3 @ 1'			5																				
EB-3 @ 3'			6										X					X					
EB-4 @ 1'			7										X					X					
EB-4 @ 3'			8										X					X					
EB-5 @ 1'			9										X					X					
EB-6 @ 1'	↓		10		↓								X					X					
								X	X	X			X					X	X				

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature [signature]	Signature [signature]	Signature	Signature
Printed Name Pete Christmas	Printed Name Brian Hogge	Printed Name	Printed Name
Firm Emcon	Firm CAS	Firm	Firm
Date/Time 12/18/96 1537	Date/Time 12/18/96 1537	Date/Time	Date/Time

TURNAROUND REQUIREMENTS

___ 24 hr ___ 48 hr. X 3-5 day

___ Standard (10-15 working days)

___ Provide Verbal Preliminary Results

___ Provide FAX preliminary Results

Requested Report Date ____

REPORT REQUIREMENTS

X I. Routine Report

___ II Report (includes DUP MAS MSD, as required, may be charged as samples)

___ III Data Validation Report (includes All Raw Data)

___ RWQCB (MDLs/PQLs/TRACE#)

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

Circle which metals are to be analyzed:

Metals: Al As Sb Pb Ba Se Be Tl B Hg Cd Ca Cr Cu Co Fe Mg Mn Mo Ni K Ag Na Sn V Zn

97 - 0386

Columbia Analytical Services™

2059 Junction Avenue • San Jose, CA 95131 • (408) 428-1280 • FAX (408) 437-9356

CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

SERVICE REQUEST NO. S9602230 P.O.# ______ PAGE 2 OF 2

PROJECT NAME Town & Country # 22152-41.01

PROJECT MGR. Mark Smalley

COMPANY/ADDRESS

PHONE

FAX

SAMPLERS SIGNATURE Pete C

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	GC/MS 625/8270 Base/Neu/Acid Organics	GC/MS 624/8240/8260 Volatile Organics	601/8010 ☒ Halogenated or Aromatic Volatiles 602/8020 ☐	TPH as Gas/BTEX DHS LUFT / 8020	TPH as Diesel/(BHC) DHS LUFT	TRPH - 418.1	Oil and Grease Method	Metals (total or dissolved) List Below Pb, As	pH, Cond, Cl, SO_4, F, TDS, TSS Alk (circle)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle)	TOC Total Organic Carbon	Total Phenols	Pesticides (8080)	MTBE			REMARKS
PRESERVATIVE							NP	HCl	HCl	HCl	NP	HCl	HCl	HNO_3	NP	H_2SO_4	H_2SO_4	H_2SO_4				
EB-6 @ 3'	12/17/96		11	Soil	1			X	X	X			X					X				
MW-3 @ 3.5-5'	12/18/96		12	↓	↓								X					X				
MW-3 @ 58.5-60'	12/18/96		13					X														
EB-7 @ 1'	↓		14										X					X				
EB-7 @ 3'			15										X					X				
EB-8 @ 1.5'	↓		16	↓	↓								X					X				

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature Pete C	Signature Brian Hogg	Signature	Signature
Printed Name Pete Christiansen	Printed Name Brian Hogge	Printed Name	Printed Name
Firm EMCON	Firm CAS	Firm	Firm
Date/Time 12/18/96 1537	Date/Time 12/18/96 1537	Date/Time	Date/Time

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

TURNAROUND REQUIREMENTS

___ 24 hr ___ 48 hr X 3-5 day

___ Standard (10-15 working days)

___ Provide Verbal Preliminary Results

___ Provide FAX preliminary Results

Requested Report Date ______

REPORT REQUIREMENTS

X I. Routine Report

___ II. Report (includes DUP MAS MSD, as required, may be charged as samples)

___ III. Data Validation Report (includes All Raw Data)

___ RWQCB (MDLs/PQLs/TRACE#)

SPECIAL INSTRUCTIONS/COMMENTS:

Circle which metals are to be analyzed:

Metals: Al As Sb Pb Ba Se Be Tl B Hg Cd Ca Cr Cu Co Fe Mg Mn Mo Ni K Ag Na Sn V Zn

28

97 - 036

Columbia Analytical Services inc.

December 31, 1996

Service Request No.: S9602259

Mr. Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

RE: Town & Country/22152-001.001

Dear Mr. Smolley:

The following pages contain analytical results for sample(s) received by the laboratory on December 20, 1996. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytic Report below confirms that pages 2 through 10, following, have been thoroughly reviewed an approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Steven L. Green
Project Chemist

97-036

59 Junction Avenue ▪ San Jose, California 95131 ▪ Telephone 408/428-1280 ▪ Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

97 - 036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	L9605103
Project:	Town & Country/#22152-01.01	**Date Collected:**	12/19/96
Sample Matrix:	Soil	**Date Received:**	12/20/96
		Date Extracted:	12/28/96

Organochlorine Pesticides
EPA Methods 3550/8080
Units: mg/Kg (ppm)

		Sample Name:	**EB-5 @ 3'**	**Method Blank**
		Lab Code:	L9605103-001	L961228-MB
		Date Analyzed:	12/30/96	12/30/96
Analyte	**MRL**			
Alpha-BHC	0.01		ND	ND
Gamma-BHC (Lindane)	0.01		ND	ND
Beta-BHC	0.04		ND	ND
Heptachlor	0.01		ND	ND
Delta-BHC	0.01		ND	ND
Aldrin	0.02		ND	ND
Heptachlor Epoxide	0.01		ND	ND
Endosulfan I	0.1		ND	ND
4,4'-DDE	0.01		1.7	ND
Dieldrin	0.01		ND	ND
Endrin	0.05		ND	ND
4,4'-DDD	0.01		0.10	ND
Endosulfan II	0.01		ND	ND
4,4'-DDT	0.02		ND	ND
Endrin Aldehyde	1.0		ND	ND
Endosulfan Sulfate	0.5		ND	ND
Methoxychlor	0.5		ND	ND
Toxaphene	0.1		ND	ND
Chlordane	0.1		ND	ND

97-036

3S44/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602259
Project:	Town & Country/22152-001.001	**Date Collected:**	12/19-20/96
Sample Matrix:	Soil	**Date Received:**	12/20/96
		Date Extracted:	12/23/96
		Date Analyzed:	12/23-24/96

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
As Received Basis

	Analyte:	**TPH as Gasoline**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Xylenes, Total**
	Units:	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)
	Method Reporting Limit:	1	0.005	0.005	0.005	0.005
Sample Name	**Lab Code**					
MW-1 @ 19.5'	S9602259-002	ND	ND	ND	ND	ND
MW-1 @ 30'	S9602259-003	ND	ND	ND	ND	ND
Method Blank	S961223-SB1	ND	ND	ND	ND	ND

5ABTXGAS/061694

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602259
Project:	Town & Country/22152-001.001	**Date Collected:**	12/19-20/96
Sample Matrix:	Soil	**Date Received:**	12/20/96
		Date Extracted:	12/27/96
		Date Analyzed:	12/27/96

TPH as Diesel
California DHS LUFT Method
Units: mg/Kg (ppm)
As Received Basis

Sample Name	**Lab Code**	**MRL**	**Result**
MW-1 @ 19.5'	S9602259-002	1	ND
MW-1 @ 30'	S9602259-003	1	ND
Method Blank	S9601227-SB1	1	ND

97-036

1AMRL/060194

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/22152-001.001
Sample Matrix: Soil

Service Request: S9602259
Date Collected: 12/19-20/96
Date Received: 12/20/96
Date Digested: 12/21/96

Metals
Units: mg/Kg (ppm)

			Sample Name:	**EB-5 @ 3'**	**Method Blank**
			Lab Code:	S9602259-001	S9602259-MB1
			Date Analyzed:	12/22/96	12/22/96
Analyte	**EPA Method**	**MRL**			
Arsenic	3050BM/6010A	5		860	ND
Lead	3050BM/6010A	5		1500	ND

3S22EPA/120594

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	L9605103
Project:	Town & Country/#22152-01.01	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	NA
		Date Analyzed:	NA

Surrogate Recovery Summary
Organochlorine Pesticides
EPA Methods 3550/8080

Sample Name	**Lab Code**	**Percent Recovery** Tetrachloro-*m*-xylene
EB-5 @ 3'	L9605103-001	76
Method Blank	L961228-MB	99

CAS Acceptance Limits: 45-140

97-036

SUR1/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Town & Country/22152-001.001
Sample Matrix: Soil

Service Request: S9602259
Date Collected: 12/19-20/96
Date Received: 12/20/96
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary
TPH as Gasoline/BTEX
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	**Lab Code**	**PID Detector Percent Recovery** 4-Bromofluorobenzene	**FID Detector Percent Recovery** α,α,α–Trifluorotoluene
MW-1 @ 19.5'	S9602259-002	109	99
MW-1 @ 30'	S9602259-003	104	97
Method Blank	S961223-SB1	100	91
	CAS Acceptance Limits:	51-137	51-137

97-036

SUR2/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Town & Country/22152-001.001
Sample Matrix: Soil

Service Request: S9602259
Date Collected: 12/19-20/96
Date Received: 12/20/96
Date Extracted: NA
Date Analyzed: 12/27/96

Surrogate Recovery Summary
TPH as Diesel
California DHS LUFT Method

Sample Name	**Lab Code**	**Percent Recovery** p-Terphenyl
MW-1 @ 19.5'	S9602259-002	89
MW-1 @ 30'	S9602259-003	88
Method Blank	S9601227-SB1	86

CAS Acceptance Limits: 41-140

SUR1/062994

97-036

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

SERVICE REQUEST NO. S9602259 P.O.# ______ PAGE 1 OF 1

PROJECT NAME TOWN & COUNTRY # 22152-01.01
PROJECT MGR. MARK SMOLLEY
COMPANY/ADDRESS EMCON, SJ
PHONE
FAX
SAMPLERS SIGNATURE Pete Christinson

ANALYSIS REQUESTED

PRESERVATIVE: NP | HCl | HCl | HCl | NP | HCl | HCl | HNO3 | NP | H_2SO_4 | H_2SO_4 | H_2SO_4

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240/8260	Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐	TPH as Gas/BTEX DHS LUFT/8020	TPH as Diesel/HBHC DHS LUFT	TRPH - 418.1	Oil and Grease Method	Metals (total or dissolved) List Below As + Pb	pH, Cond, Cl, SO_4, F, TDS, TSS Alk (circle)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle)	Total Organic Carbon TOC	Total Phenols	Chlorinated Pesticides	REMARKS
EB-5 @ 3'	12/19/96		1	SOIL	1								X					X	
MW-1 @ 19.5'	12/20/96		2	↓	1				X	X									
MW-1 @ 30'	12/20/96		3	↓	1				X	X									
MW-1 @ 6.5'	↓		4	↓	1														
MW-1 @ 10'	↓		5	↓	1														HOLD
MW-1 @ 15'	↓		6	↓	1														↓
MW-1 @ 24.5	↓		7	↓	1														↓
MW-1 @ 34.5	↓		8	↓	1														↓
~~MW-1~~ rc			~~9~~																

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Pete Christinson	Signature: Joanne Brown	Signature	Signature
Printed Name: Pete Christinson	Printed Name: Joanne Brown	Printed Name	Printed Name
Firm: EMCON	Firm: CAS	Firm	Firm
Date/Time: 12/20/96 1545	Date/Time: 12/20/96 1545	Date/Time	Date/Time

TURNAROUND REQUIREMENTS
___ 24 hr ___ 48 hr. X 5 day
___ Standard (10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX preliminary Results
Requested Report Date ______

REPORT REQUIREMENTS
X I. Routine Report
___ II. Report (includes DUP MAS MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ RWQCB (MDLs/PQLs/TRACE#)

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:
Circle which metals are to be analyzed:
Metals: Al As Sb Pb Ba Se Be Tl B Hg Cd Ca Cr Cu Co Fe Mg Mn Mo Ni K Ag Na Sn V Zn

GCTEH TPH-D R8, Metals R20/S29

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400 5

97-036

Columbia Analytical Services inc.

January 10, 1997

Service Request No.: S9700021

Mr. Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

RE: **Town & Country/22152-001.001**

Dear Mr. Smolley:

The following pages contain analytical results for sample(s) received by the laboratory on December 18, 1996. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytic Report below confirms that pages 2 through 8, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Steven L. Green
Project Chemist

97-036

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

97 - 036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9700021
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-19/96
Sample Matrix:	Soil	**Date Received:**	12/18-19/96
		Date Digested:	1/9/97

Metals
Units: mg/L (ppm) in WET Extract
Soluble Threshold Limit Concentration (STLC)

			Sample Name:	**EB-3 @1'**	**EB-3 @3'**	**EB-4 @1'**
			Lab Code:	S9700021-001	S9700021-002	S9700021-003
			Date Analyzed:	1/9/97	1/9/97	1/9/97
Analyte	**EPA Method**	**STLC Limits***	**MRL**			
Arsenic	3005/6010A	5.0	0.5	ND	ND	ND

* State of California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 and Article 5, Section 66261.126, Appendix II.

1S22EPA/120594

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9700021
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-19/96
Sample Matrix:	Soil	**Date Received:**	12/18-19/96
		Date Digested:	1/9/97

Metals
Units: mg/L (ppm) in WET Extract
Soluble Threshold Limit Concentration (STLC)

			Sample Name:	**EB-5 @1'**	**EB-6 @1'**	**EB-7 @1'**
			Lab Code:	S9700021-004	S9700021-005	S9700021-006
			Date Analyzed:	1/9/97	1/9/97	1/9/97
Analyte	**EPA Method**	**STLC Limits***	**MRL**			
Arsenic	3005/6010A	5.0	0.5	ND	ND	ND

* State of California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 and Article 5, Section 66261.126, Appendix II.

3S22EPA/120594

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client.	EMCON	**Service Request:**	S9700021
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-19/96
Sample Matrix:	Soil	**Date Received:**	12/18-19/96
		Date Digested:	1/9/97

Metals
Units: mg/L (ppm) in WET Extract
Soluble Threshold Limit Concentration (STLC)

			Sample Name:	**EB-7 @3'**	**EB-8 @1.5'**	**EB-8 @3.5'**
			Lab Code:	S9700021-007	S9700021-008	S9700021-009
			Date Analyzed:	1/9/97	1/9/97	1/9/97
Analyte	**EPA Method**	**STLC Limits***	**MRL**			
Arsenic	3005/6010A	5.0	0.5	ND	ND	ND
Lead	3005/6010A	5.0	C.5	--	2.4	2.2

* State of California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 and Article 5, Section 66261.126, Appendix II.

3S22EPA/120594

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9700021
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-19/96
Sample Matrix:	Soil	**Date Received:**	12/18-19/96
		Date Digested:	1/9/97

Metals
Units: mg/L (ppm) in WET Extract
Soluble Threshold Limit Concentration (STLC)

			Sample Name:	**EB-9 @1.5'**	**EW-9 @3.5'**	**MW-2 @1'**
			Lab Code:	S9700021-010	S9700021-011	S9700021-012
			Date Analyzed.	1/9/97	1/9/97	1/9/97
Analyte	**EPA Method**	**STLC Limits***	**MRL**			
Arsenic	3005/6010A	5.0	0.5	<2C	ND	ND
Lead	3005/6010A	5.0	0.5	5.5	0.5	ND

* State of California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 and Article 5, Section 66261.126, Appendix II.

C MRL is elevated because of matrix interferences and because of sample required diluting.

3S22EPA/120594

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9700021
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-19/96
Sample Matrix:	Soil	**Date Received:**	12/18-19/96
		Date Digested:	1/9/97

Metals
Units: mg/L (ppm) in WET Extract
Soluble Threshold Limit Concentration (STLC)

			Sample Name:	**MW-2 @3'**	**Method Blank**
			Lab Code:	S9700021-013	S960021-WB1
			Date Analyzed:	1/9/97	1/9/97
Analyte	**EPA Method**	**STLC Limits***	**MRL**		
Arsenic	3005/6010A	5.0	0.5	ND	ND
Lead	3005/6010A	5.0	0.5	ND	ND

* State of California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 and Article 5, Section 66261.126, Appendix II.

3S22EPA/120594

97 - 036

Columbia Analytical Services

2059 Junction Avenue • San Jose, CA 95131 • (408) 437-2400 • FAX (408) 437-9356

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

SERVICE REQUEST NO. S970021 P.O.# ______ PAGE 1 OF 2

PROJECT NAME Tarrant Country # 22152-001.001

PROJECT MGR. Mark Smolley

COMPANY EMCON SJ

ADDRESS

PHONE

FAX

SAMPLER'S SIGNATURE

ANALYSIS REQUESTED

PRESERVATIVE: NP, HCl, HCl, HCl, NP, HCl, HNO3, NP, H_2SO_4, H_2SO_4, H_2SO_4, NaOH

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240/8260	Halogenated or Aromatic Volatiles 601/8010 602/8020	TPH as Gas/BTEX DHS LUFT / 8020	TPH as Diesel/HBHC DHS LUFT	TRPH - 418.1 Oil and Grease Method	Metals (total or dissolved) List Below	pH, Cond, Cl, SO_4, F, TDS, TSS Alk, NO_3, NO_2 (circle)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle)	Total Organic Carbon TOC	Total Phenols Method	Cyanide	STLC As	STEA STLC As, Pb M 1/6/97	REMARKS
EB-3@1'	12/17/96		1	Soil	1													X		S9602230-005
EB-3@3'			2		1													X		6
EB-4@1'			3		1													X		7
EB-5@1'			4		1													X		9
EB-6@1'			5		1													X		10
EB-7@1'	12/18/96		6		1													X		14
EB-7@3'			7		1													X		15
EB-8@1.5'			8		1														X	16
EB-8@3.5'	12/18/96		9		1														X	S9602247-001
EB-9@1.5'	12/19/96		10		1														X	S9602247-002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature	Signature	Signature	Signature
Printed Name	Printed Name	Printed Name	Printed Name
Firm	Firm	Firm	Firm
Date/Time	Date/Time	Date/Time	Date/Time

TURNAROUND REQUIREMENTS
- ___ 1 day ___ 2 day ___ 3 day
- MK 5 day ___ Other
- ~~Standard (10 working days)~~
- ___ Provide Preliminary Results
- Date Due 1/10/97 (4 days)

REPORT REQUIREMENTS
- X I. Routine Report
- ___ II Report (includes DUP MAS MSD, as required, may be charged as samples)
- ___ III Data Validation Report (includes All Raw Data)
- ___ RWQCB (MDLs/PQLs/TRACE#)

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

Circle which metals are to be analyzed:

Metals: Al Sb Ba Be B Cd Ca Cr Co Cu Fe Mg Mn Mo Ni K Ag Na Sn V Zn As Pb Se Tl Hg

Samples originally received 12/18/96 and 12/19/96 under SR#s S9602230 and S9602247.
Additional analyses requested 1/6/97 by Mark Smolley.

DISTRIBUTION WHITE - return to originator; YELLOW - lab, PINK - retained by originator

400 5

97-036

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

SERVICE REQUEST NO. S970002/ P.O.# PAGE 2 OF 2

PROJECT NAME Town+Country #22152001001

PROJECT MGR. Mark Smolley

COMPANY EMCON - SJ

ADDRESS

PHONE

FAX

SAMPLER'S SIGNATURE

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270 (NP)	Volatile Organics GC/MS 624/8240/8260 (HCl)	Halogenated or Aromatic Volatiles 601/8010 ⌐ 602/8020 ⌐ (HCl)	TPH as Gas/BTEX DHS LUFT / 8020 (HCl)	TPH as Diesel/HBHC DHS LUFT (NP)	TRPH - 418.1 Oil and Grease Method (HCl)	Metals (total or dissolved) List Below (HNO3)	pH, Cond, Cl, SO4, F, TDS, TSS Alk, NO3, NO2 (circle) (NP)	NH3-N, COD, Total-P, TKN, NO3 / NO2 (circle) (H_2SO_4)	TOC Total Organic Carbon (H_2SO_4)	Total Phenols Method (H_2SO_4)	Cyanide (NaOH)	~~STLC Ni/Pb~~ As	STLC As	STLC As, Pb		REMARKS
EW-9 @ 3.5'	12/19/96		11	Soil	1													X				S9602247-003
MW-2 @ 1'	↓		12	↓	1														X			6
MW-2 @ 3'	↓		13	↓	1														X			↓ 7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature	Signature	Signature	Signature
Printed Name	Printed Name	Printed Name	Printed Name
Firm	Firm	Firm	Firm
Date/Time	Date/Time	Date/Time	Date/Time

TURNAROUND REQUIREMENTS
- ___ 1 day ___ 2 day ___ 3 day
- ___ 5 day ___ Other
- ___ Standard (10 working days)
- ___ Provide Preliminary Results

Date Due 1/10/97 (4 days)

REPORT REQUIREMENTS
- X I Routine Report
- ___ II Report (includes DUP MAS MSD, as required, may be charged as samples)
- ___ III Data Validation Report (includes All Raw Data)
- ___ RWQCB (MDLs/PQLs/TRACE#)

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

Circle which metals are to be analyzed:

Metals: Al As Sb Pb Ba Se Be Tl B Hg Cd Ca Cr Co Cu Fe Mg Mn Mo Ni K Ag Na Sn V Zn

DISTRIBUTION: WHITE - return to originator, YELLOW - lab; PINK - retained by originator

400 5

97 - 036

Columbia Analytical Services inc.

January 10, 1997

Service Request No.: S9700021

Mr. Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

RE: **Town & Country/22152-001.001**

Dear Mr. Smolley:

The following pages contain analytical results for sample(s) received by the laboratory on December 18, 1996. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytic Report below confirms that pages 2 through 8, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Steven L. Green
Project Chemist

97-036

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/22152-001.001
Sample Matrix: Soil

Service Request: S9700021
Date Collected: 12/17-19/96
Date Received: 12/18-19/96
Date Digested: 1/9/97

Metals
Units: mg/L (ppm) in WET Extract
Soluble Threshold Limit Concentration (STLC)

			Sample Name:	**EB-3 @1'**	**EB-3 @3'**	**EB-4 @1'**
			Lab Code:	S9700021-001	S9700021-002	S9700021-003
			Date Analyzed:	1/9/97	1/9/97	1/9/97
Analyte	**EPA Method**	**STLC Limits***	**MRL**			
Arsenic	3005/6010A	5.0	0.5	ND	ND	ND

* State of California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 and Article 5, Section 66261.126, Appendix II.

3S22EPA/120594

97 - 036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9700021
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-19/96
Sample Matrix:	Soil	**Date Received:**	12/18-19/96
		Date Digested:	1/9/97

Metals
Units: mg/L (ppm) in WET Extract
Soluble Threshold Limit Concentration (STLC)

			Sample Name:	**EB-5 @1'**	**EB-6 @1'**	**EB-7 @1'**
			Lab Code:	S9700021-004	S9700021-005	S9700021-006
			Date Analyzed:	1/9/97	1/9/97	1/9/97
Analyte	**EPA Method**	**STLC Limits***	**MRL**			
Arsenic	3005/6010A	5.0	0.5	ND	ND	ND

* State of California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 and Article 5, Section 66261.126, Appendix II.

3S22EPA/120594

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON		**Service Request:**	S9700021
Project:	Town & Country/22152-001.001		**Date Collected:**	12/17-19/96
Sample Matrix:	Soil		**Date Received:**	12/18-19/96
			Date Digested:	1/9/97

Metals
Units: mg/L (ppm) in WET Extract
Soluble Threshold Limit Concentration (STLC)

			Sample Name:	**EB-7 @3'**	**EB-8 @1.5'**	**EB-8 @3.5'**
			Lab Code:	S9700021-007	S9700021-008	S9700021-009
			Date Analyzed:	1/9/97	1/9/97	1/9/97
Analyte	**EPA Method**	**STLC Limits***	**MRL**			
Arsenic	3005/6010A	5.0	0.5	ND	ND	ND
Lead	3005/6010A	5.0	0.5	--	2.4	2.2

* State of California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 and Article 5, Section 66261.126, Appendix II.

3S22EPA/120594

97 - 036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9700021
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-19/96
Sample Matrix:	Soil	**Date Received:**	12/18-19/96
		Date Digested:	1/9/97

Metals
Units: mg/L (ppm) in WET Extract
Soluble Threshold Limit Concentration (STLC)

			Sample Name:	**EB-9 @1.5'**	**EW-9 @3.5'**	**MW-2 @1'**
			Lab Code:	S9700021-010	S9700021-011	S9700021-012
			Date Analyzed:	1/9/97	1/9/97	1/9/97
Analyte	**EPA Method**	**STLC Limits***	**MRL**			
Arsenic	3005/6010A	5.0	0.5	<2C	ND	ND
Lead	3005/6010A	5.0	0.5	5.5	0.5	ND

* State of California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 and Article 5, Section 66261.126, Appendix II.

C MRL is elevated because of matrix interferences and because of sample required diluting.

3S22EPA/120594

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9700021
Project:	Town & Country/22152-001.001	**Date Collected:**	12/17-19/96
Sample Matrix:	Soil	**Date Received:**	12/18-19/96
		Date Digested:	1/9/97

Metals
Units: mg/L (ppm) in WET Extract
Soluble Threshold Limit Concentration (STLC)

			Sample Name:	**MW-2 @3'**	**Method Blank**
			Lab Code:	S9700021-013	S960021-WB1
			Date Analyzed:	1/9/97	1/9/97
Analyte	**EPA Method**	**STLC Limits***	**MRL**		
Arsenic	3005/6010A	5.0	0.5	ND	ND
Lead	3005/6010A	5.0	0.5	ND	ND

* State of California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 and Article 5, Section 66261.126, Appendix II.

3S22EPA/120594

97-036

Analytical Services

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

SERVICE REQUEST NO S970021 P.O # ______ PAGE 1 OF 2

PROJECT NAME Tarrant County # 22157-001.001

PROJECT MGR. Mark Smolley

COMPANY EMCON SD

ADDRESS ______

PHONE ______

FAX ______

SAMPLER'S SIGNATURE ______

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	GC/MS 625/8270 Base/Neu/Acid Organics (NP)	GC/MS 624/8240/8260 Volatile Organics (HCl)	601/8010 ┐ 602/8020 ┐ Halogenated or Aromatic Volatiles (HCl)	DHS LUFT / 8020 TPH as Gas/BTEX (HCl)	DHS LUFT TPH as Diesel/HBHC (NP)	TRPH - 418.1 Oil and Grease Method (HCl)	Metals (total or dissolved) List Below (HNO_3)	pH, Cond, Cl, SO_4, F, TDS, TSS Alk, NO_3, NO_2 (circle) (NP)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle) (H_2SO_4)	TOC Total Organic Carbon (H_2SO_4)	Total Phenols Method (H_2SO_4)	Cyanide (NaOH)	STLC As	~~STLA~~ STLC As, Pb M/6/97	REMARKS
EB-3@1'	12/17/96		1	Soil	1													X		S9602230-005
EB-3@3'			2		1													X		6
EB-4@1'			3		1													X		7
EB-5@1'			4		1													X		9
EB-6@1'			5		1													X		10
EB-7@1'	12/18/96		6		1													X		14
EB-7@3'			7		1													X		15
EB-8@1.5'			8		1														X	16
EB-8@3.5'	12/18/96		9		1														X	S9602247-001
EB-9@1.5'	12/19/96		10		1														X	S9602247-002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature	Signature	Signature	Signature
Printed Name	Printed Name	Printed Name	Printed Name
Firm	Firm	Firm	Firm
Date/Time	Date/Time	Date/Time	Date/Time

TURNAROUND REQUIREMENTS

___ 1 day ___ 2 day ___ 3 day

~~X~~ 5 day ___ Other M/6/97

X Standard (10 working days)

___ Provide Preliminary Results

Date Due 1/10/97 (4 days)

REPORT REQUIREMENTS

X I. Routine Report

___ II. Report (includes DUP MAS MSD, as required, may be charged as samples)

___ III. Data Validation Report (includes All Raw Data)

___ RWQCB (MDLs/PQLs/TRACE#)

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

Circle which metals are to be analyzed:

Metals: Al Sb Ba Be B Cd Ca Cr Co Cu Fe Mg Mn Mo Ni K Ag Na Sn V Zn As Pb Se Tl Hg

Samples originally received 12/18/96 and 12/19/96 under SR#s S9602230 and S9602247.

Additional analyses requested 1/6/97 by Mark Smolley.

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-5

97-036

Analytical Services
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SERVICE REQUEST NO. S970002/ P.O.# ______ PAGE 2 OF 2

PROJECT NAME Town + Country # 22152-001.001
PROJECT MGR. Mark Smolley
COMPANY EMCON - SJ
ADDRESS ______
PHONE ______
FAX ______
SAMPLER'S SIGNATURE ______

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270 (NP)	Volatile Organics GC/MS 624/8240/8260 (HCl)	Halogenated or Aromatic Volatiles 601/8010 / 602/8020 (HCl)	TPH as Gas/BTEX DHS LUFT / 8020 (HCl)	TPH as Diesel/HBHC DHS LUFT (NP)	TRPH - 418.1 Oil and Grease Method (HCl)	Metals (total or dissolved) List Below (HNO3)	pH, Cond, Cl, SO_4, F, TDS, TSS Alk, NO_3, NO_2 (circle) (NP)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle) (H_2SO_4)	Total Organic Carbon TOC (H_2SO_4)	Total Phenols Method (H_2SO_4)	Cyanide (NaOH)	~~STLC~~ As STLC As AH 1/6/97	STLC As, Pb			REMARKS
EW-9 @3.5'	12/19/96		11	Soil	1													X				S9602247-003
MW-2 @ 1'	↓		12	↓	1														X			↓ 6
MW-2 @ 3'	↓		13	↓	1														X			↓ 7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature	Signature	Signature	Signature
Printed Name	Printed Name	Printed Name	Printed Name
Firm	Firm	Firm	Firm
Date/Time	Date/Time	Date/Time	Date/Time

TURNAROUND REQUIREMENTS

___ 1 day ___ 2 day ___ 3 day
___ 5 day ___ Other
___ Standard (10 working days)
___ Provide Preliminary Results
Date Due 1/10/97 (4 days)

REPORT REQUIREMENTS

X I. Routine Report
___ II. Report (includes DUP MAS MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ RWQCB (MDLs/PQLs/TRACE#)

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:
Circle which metals are to be analyzed:
Metals: Al Sb Ba Be B Cd Ca Cr Co Cu Fe Mg Mn Mo Ni K Ag Na Sn V Zn As Pb Se Tl Hg

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400 5

97-038

APPENDIX E

LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION FOR GROUNDWATER SAMPLES

97-036

Columbia Analytical Services inc.

January 3, 1997

Service Request No.: S9602302

Mr. Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

RE: Federal Realty Investment Trust/22152-001 001

Dear Mr. Smolley:

The following pages contain analytical results for sample(s) received by the laboratory on December 31, 1996. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytic Report below confirms that pages 2 through 11, following, have been thoroughly reviewed an approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Steven L. Green
Project Chemist

97-036

-059 Junction Avenue ▪ San Jose, California 95131 ▪ Telephone 408/428-1280 ▪ Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, Inc.
Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

97 - 036

ACRONLST.DOC 7/14/95

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602302
Project:	Federal Realty Investment Trust/22152-001.001	**Date Collected:**	12/31/96
Sample Matrix:	Water	**Date Received:**	12/31/96
		Date Extracted:	NA

Halogenated Volatile Organic Compounds
EPA Methods 8010
Units: ug/L (ppb)

		Sample Name:	**MW-1**	**Method Blank**
		Lab Code:	S9602302-001	S961231-WB1
		Date Analyzed:	12/31/96	12/31/96
Analyte	**MRL**			
Dichlorodifluoromethane (CFC 12)	1		ND	ND
Chloromethane	1		ND	ND
Vinyl Chloride	0.5		ND	ND
Bromomethane	0.5		ND	ND
Chloroethane	0.5		ND	ND
Trichlorofluoromethane (CFC 11)	0.5		ND	ND
1,1-Dichloroethene	0.5		ND	ND
Trichlorotrifluoroethane (CFC 113)	0.5		ND	ND
Methylene Chloride	0.5		ND	ND
trans-1,2-Dichloroethene	0.5		ND	ND
cis-1,2-Dichloroethene	0.5		ND	ND
1,1-Dichloroethane	0.5		ND	ND
Chloroform	0.5		ND	ND
1,1,1-Trichloroethane (TCA)	0.5		ND	ND
Carbon Tetrachloride	0.5		ND	ND
1,2-Dichloroethane	0.5		ND	ND
Trichloroethene (TCE)	0.5		ND	ND
1,2-Dichloropropane	0.5		ND	ND
Bromodichloromethane	0.5		ND	ND
2-Chloroethyl Vinyl Ether	5		ND	ND
trans-1,3-Dichloropropene	0.5		ND	ND
cis-1,3-Dichloropropene	0.5		ND	ND
1,1,2-Trichloroethane	0.5		ND	ND
Tetrachloroethene (PCE)	0.5		ND	ND
Dibromochloromethane	0.5		ND	ND
Chlorobenzene	0.5		ND	ND
Bromoform	0.5		ND	ND
1,1,2,2-Tetrachloroethane	0.5		ND	ND
1,3-Dichlorobenzene	1		ND	ND
1,4-Dichlorobenzene	1		ND	ND
1,2-Dichlorobenzene	1		ND	ND

97-036

3S44/060194

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	L9700001
Project:	Federal Realty Trust/#22152-001.001	**Date Collected:**	12/31/96
Sample Matrix:	Water	**Date Received:**	1/2/97
		Date Extracted:	1/2/97

Organochlorine Pesticides
EPA Methods 3510/8080
Units: ug/L (ppb)

		Sample Name:	**MW-1**	**Method Blank**
		Lab Code:	L9700001-001	L970102-MB
		Date Analyzed:	1/2/97	1/2/97
Analyte	**MRL**			
Alpha-BHC	0.01		ND	ND
Gamma-BHC (Lindane)	0.01		ND	ND
Beta-BHC	0.04		ND	ND
Heptachlor	0.01		ND	ND
Delta-BHC	0.01		ND	ND
Aldrin	0.02		ND	ND
Heptachlor Epoxide	0.01		ND	ND
Endosulfan I	0.1		ND	ND
4,4'-DDE	0.01		ND	ND
Dieldrin	0.01		ND	ND
Endrin	0.05		ND	ND
4,4'-DDD	0.01		ND	ND
Endosulfan II	0.01		ND	ND
4,4'-DDT	0.02		ND	ND
Endrin Aldehyde	1.0		ND	ND
Endosulfan Sulfate	0.5		ND	ND
Methoxychlor	0.5		ND	ND
Toxaphene	1.0		ND	ND
Chlordane	1.0		ND	ND

97-036

3S44/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602302
Project:	Federal Realty Investment Trust/22152-001.001	**Date Collected:**	12/31/96
Sample Matrix:	Water	**Date Received:**	12/31/96
		Date Extracted:	12/3196
		Date Analyzed:	1/2/97

TPH as Diesel
California DHS LUFT Method
Units: ug/L (ppb)

Sample Name	Lab Code	MRL	Result
MW-1	S9602302-001	50	ND
Method Blank	S9601231-WB1	50	ND

1AMRL/060194

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602302
Project:	Federal Realty Investment Trust/22152-001.001	**Date Collected:**	12/31/96
Sample Matrix:	Water	**Date Received:**	12/31/96
		Date Extracted:	NA

BTEX, MTBE and TPH as Gasoline
EPA Methods 5030/8020/Caluornia DHS LUFT Method
Units: ug/L (ppb)

		Sample Name:	**MW-1**	**Method Blank**
		Lab Code:	S9602302-001	S970102-WB1
		Date Analyzed:	1/2/97	1/2/97
Analyte	**MRL**			
TPH as Gasoline	50		ND	ND
Benzene	0.5		ND	ND
Toluene	0.5		ND	ND
Ethylbenzene	0.5		ND	ND
Total Xylenes	0.5		ND	ND
Methyl *tert* -Butyl Ether	3		ND	ND

97-036

3S22/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	S9602302
Project:	Federal Realty Investment Trust/22152-001.001	**Date Collected:**	12/31/96
Sample Matrix:	Water	**Date Received:**	12/31/96
		Date Extracted:	NA
		Date Analyzed:	NA

Surrogate Recovery Summary
Halogenated Volatile Organic Compounds
EPA Methods 8010

Sample Name	**Lab Code**	**Percent Recovery** 4-Bromofluorobenzene
MW-1	S9602302-001	94
Method Blank	S961231-WB1	83

CAS Acceptance Limits: 74-125

97 - 036

SUR1/062994

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Federal Realty Trust/#22152-001.001
Sample Matrix: Water

Service Request: L9700001
Date Collected: NA
Date Received: NA
Date Extracted: 1/2/97
Date Analyzed: 1/2/97

Surrogate Recovery Summary
Organochlorine Pesticides and Polychlorinated Biphenyls (PCBs)
EPA Methods 3510/8080

Sample Name	**Lab Code**	**Percent Recovery** Tetrachloro-*m* -xylene
MW-1	L9700001-001	94
Method Blank	L970102-MB	90

CAS Acceptance Limits: 45-140

97-036

SUR1/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Federal Realty Investment Trust/22152-001.001
Sample Matrix: Water

Service Request: S9602302
Date Collected: 12/31/96
Date Received: 12/31/96
Date Extracted: NA
Date Analyzed: 1/2/97

Surrogate Recovery Summary
TPH as Diesel
California DHS LUFT Method

Sample Name	**Lab Code**	**Percent Recovery** p-Terphenyl
MW-1	S9602302-001	82
Method Blank	S9601231-WB1	85

CAS Acceptance Limits: 50-140

SUR1/062994

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	S9602302
Project:	Federal Realty Investment Trust/22152-001.001	**Date Collected:**	12/31/96
Sample Matrix:	Water	**Date Received:**	12/31/96
		Date Extracted:	NA
		Date Analyzed:	NA

Surrogate Recovery Summary
BTEX, MTBE and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	**Lab Code**	**PID Detector Percent Recovery** 4-Bromofluorobenzene	**FID Detector Percent Recovery** α,α,α−Trifluorotoluene
MW-1	S9602302-001	94	88
Method Blank	S970102-WB1	102	87
	CAS Acceptance Limits:	69-116	69-116

97-036

SUR2/060194

Analytical Services™

2059 Junction Avenue • San Jose, CA 95131 • (408) 437-2400 • FAX (408) 437-9356

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

Realty Investment Trust

SERVICE REQUEST NO. 59602302 P.O.# ______ PAGE ___ OF ___

PROJECT NAME Federal #22152001001

PROJECT MGR. M Smolley

COMPANY Emcon

ADDRESS San Jose

PHONE ______ FAX ______

SAMPLER'S SIGNATURE [signature]

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	GC/MS 625/8270 Base/Neu/Acid Organics	GC/MS 624/8240/8260 Volatile Organics	601/8010 Halogenated or Aromatic Volatiles 602/8020 (HCl)	TPH as Gas/BTEX DHS LUFT / 8020 (HCl) MTBE	TPH as Diesel/HBHC DHS LUFT (HCl)	TRPH - 418.1 Oil and Grease Method	Metals (total or dissolved) List Below	pH, Cond, Cl, SO4, F, TDS, TSS Alk, NO3, NO2 (circle)	NH3-N, COD, Total-P, TKN, NO3 / NO2 (circle)	TOC Total Organic Carbon	Total Phenols Method	Cyanide	Pesticides (8080)			REMARKS
MW-1	12-31-96	1150		Water	8			2X	2X	2X							2X				All 4 VOAs contain significant sediment

Preservative: NP, HCl, HCl, HCl, NP, HCl, HNO3, NP, H_2SO_4, H_2SO_4, H_2SO_4, NaOH, NP

pu Ak Chritina Wilkins

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature [signature]	Signature [signature]	Signature	Signature
Printed Name Joe Willin	Printed Name Joanne Brown	Printed Name	Printed Name
Firm Emcon	Firm CAS	Firm	Firm
Date/Time 12-31-96 1240	Date/Time 12-31-97 1240	Date/Time	Date/Time

TURNAROUND REQUIREMENTS

___ 1 day X 2 day ___ 3 day

___ 5 day ___ Other

___ Standard (10 working days)

___ Provide Preliminary Results

Date Due ______

Need results by 1-3-97

REPORT REQUIREMENTS

X I Routine Report

___ II Report (includes DUP MAS MSD, as required may be charged as samples)

___ III Data Validation Report (includes All Raw Data)

___ RWQCB (MDLs/PQLs/TRACE#)

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

Circle which metals are to be analyzed:

Metals: Al As Sb Pb Ba Se Be Tl B Hg Cd Ca Cr Co Cu Fe Mg Mn Mo Ni K Ag Na Sn V Zn

R8, R9, R20/S4

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400

97-036

Columbia Analytical Services inc.

December 31, 1996

Service Request No.: S9602255

Mr. Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

RE: Town & Country/Federal Realty Investment Trust / #22152-001.001

Dear Mr. Smolley:

The following pages contain analytical results for sample(s) received by the laboratory on December 20, 1996. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytical Report below confirms that pages 2 through 11, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Steven L. Green
Project Chemist

97-036

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

97 - 036

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	L9605105
Project:	Federal Realty Investement Trust/#22152-001.001	**Date Collected:**	12/20/96
Sample Matrix:	Water	**Date Received:**	12/20/96
		Date Extracted:	12/26/96

Organochlorine Pesticides
EPA Methods 3510/8080
Units: ug/L (ppb)

		Sample Name:	**MW-2**	**MW-3**	**Method Blank**
		Lab Code:	L9605105-001	L9605105-002	L961226-MB
		Date Analyzed:	12/27/96	12/27/96	12/27/96
Analyte	**MRL**				
Alpha-BHC	0.01		ND	ND	ND
Gamma-BHC (Lindane)	0.01		ND	ND	ND
Beta-BHC	0.04		ND	ND	ND
Heptachlor	0.01		ND	ND	ND
Delta-BHC	0.01		ND	ND	ND
Aldrin	0.02		ND	ND	ND
Heptachlor Epoxide	0.01		ND	ND	ND
Endosulfan I	0.1		ND	ND	ND
4,4'-DDE	0.01		ND	ND	ND
Dieldrin	0.01		ND	ND	ND
Endrin	0.05		ND	ND	ND
4,4'-DDD	0.01		ND	ND	ND
Endosulfan II	0.01		ND	ND	ND
4,4'-DDT	0.02		ND	ND	ND
Endrin Aldehyde	1.0		ND	ND	ND
Endosulfan Sulfate	0.5		ND	ND	ND
Methoxychlor	0.5		ND	ND	ND
Toxaphene	1.0		ND	ND	ND
Chlordane	1.0		ND	ND	ND

97-036

3S44/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Federal Realty Investement Trust/#22152-001.001
Sample Matrix: Water

Service Request: L9605105
Date Collected: 12/20/96
Date Received: 12/20/96
Date Extracted: NA

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: ug/L (ppb)

		Sample Name:	MW-2	MW-3	Method Blank
		Lab Code:	L9605105-001	L9605105-002	L961227-MB
		Date Analyzed:	12/28/96	12/28/96	12/27/96
Analyte	**MRL**				
Dichlorodifluoromethane (CFC 12)	1		ND	ND	ND
Chloromethane	1		ND	ND	ND
Vinyl Chloride	0.5		ND	ND	ND
Bromomethane	0.5		ND	ND	ND
Chloroethane	0.5		ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.5		ND	ND	ND
1,1-Dichloroethene	0.5		ND	ND	ND
Methylene Chloride	0.5		ND	ND	ND
trans-1,2-Dichloroethene	0.5		ND	ND	ND
cis-1,2-Dichloroethene	0.5		ND	ND	ND
1,1-Dichloroethane	0.5		ND	ND	ND
Chloroform	0.5		ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.5		ND	ND	ND
Carbon Tetrachloride	0.5		ND	ND	ND
1,2-Dichloroethane	0.5		ND	ND	ND
Trichloroethene (TCE)	0.5		ND	ND	ND
1,2-Dichloropropane	0.5		ND	ND	ND
Bromodichloromethane	0.5		ND	ND	ND
2-Chloroethyl Vinyl Ether	5		ND	ND	ND
trans-1,3-Dichloropropene	0.5		ND	ND	ND
cis-1,3-Dichloropropene	0.5		ND	ND	ND
1,1,2-Trichloroethane	0.5		ND	ND	ND
Tetrachloroethene (PCE)	0.5		ND	ND	ND
Dibromochloromethane	0.5		ND	ND	ND
Chlorobenzene	0.5		ND	ND	ND
Bromoform	0.5		ND	ND	ND
1,1,2,2-Tetrachloroethane	0.5		ND	ND	ND
1,3-Dichlorobenzene	1		ND	ND	ND
1,4-Dichlorobenzene	1		ND	ND	ND
1,2-Dichlorobenzene	1		ND	ND	ND
Trichlorotrifluoroethane (Freon 113)	2		ND	ND	ND

97-036

3S44/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602255
Project:	Town & Country/Federal Realty Investment Trust/22152-001.001	**Date Collected:**	12/20/96
Sample Matrix:	Water	**Date Received:**	12/20/96
		Date Extracted:	NA
		Date Analyzed:	12/26/96

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

	Analyte:	**TPH as Gasoline**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes, Total**
	Units:	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)
	Method Reporting Limit:	50	0.5	0.5	0.5	0.5
Sample Name	**Lab Code**					
MW-2	S9602255-001	ND	ND	ND	ND	ND
MW-3	S9602255-002	ND	ND	ND	ND	ND
Method Blank	S961226-WB1	ND	ND	ND	ND	ND

97-036

5ABTXGAS/061694

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9602255
Project:	Town & Country/Federal Realty Investment Trust/22152-001.001	**Date Collected:**	12/20/96
Sample Matrix:	Water	**Date Received:**	12/20/96
		Date Extracted:	12/22/96
		Date Analyzed:	12/22/96

TPH as Diesel
California DHS LUFT Method
Units: ug/L (ppb)

Sample Name	Lab Code	MRL	Result
MW-2	S9602255-001	50	200A, B
MW-3	S9602255-002	50	ND C
Method Blank	S9901222-WB1	50	ND

A Quantitated as diesel. The samples contained components that eluted in the diesel range, The chromatograms did not match the typical fingerprint.
B The sample also contained heavy oil at 670 ppb.
C The sample also contained heavy oil at 190 ppb

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Federal Realty Investement Trust/#22152-001.001
Sample Matrix: Water

Service Request: L9605105
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary
Organochlorine Pesticides and Polychlorinated Biphenyls (PCBs)
EPA Methods 3510/8080

Sample Name	**Lab Code**	**Percent Recovery** Tetrachloro-*m*-xylene
MW-2	L9605105-001	91
MW-3	L9605105-002	97
Method Blank	L961226-MB	89

CAS Acceptance Limits: 45-140

SUR1/120594

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	L9605105
Project:	Federal Realty Investement Trust/#22152-001.001	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	NA
		Date Analyzed:	NA

Surrogate Recovery Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/8010

Sample Name	**Lab Code**	**Percent Recovery** 4-Bromochlorobenzene
MW-2	L9605105-001	94
MW-3	L9605105-002	99
Method Blank	L961227-MB	93

CAS Acceptance Limits: 70-125

97-036

SUR1/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Town & Country/Federal Realty Investment Trust/22152-001.001
Sample Matrix: Water

Service Request: S9602255
Date Collected: 12/20/96
Date Received: 12/20/96
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	Lab Code	PID Detector Percent Recovery 4-Bromofluorobenzene	FID Detector Percent Recovery α,α,α–Trifluorotoluene
MW-2	S9602255-001	105	95
MW-3	S9602255-002	104	91
Method Blank	S961226-WB1	102	91
	CAS Acceptance Limits:	69-116	69-116

97-036

SUR2/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Town & Country/Federal Realty Investment Trust/22152-001.001
Sample Matrix: Water

Service Request: S9602255
Date Collected: 12/20/96
Date Received: 12/20/96
Date Extracted: NA
Date Analyzed: 12/22/96

Surrogate Recovery Summary
TPH as Diesel
California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery p-Terphenyl
MW-2	S9602255-001	89
MW-3	S9602255-002	103
Method Blank	S9901222-WB1	89

CAS Acceptance Limits: 50-140

97-036

SUR1/062994

EMCON - San Jose

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

1921 Ringwood Avenue, San Jose, CA 95131 (408) 453-7300 FAX (408) 437-9526

9602255

Date ______ Page ___ of ___

Project Name: Federal Realty Investment Trust
Project Number: 22152-001.001
Project Manager: Mark Smolley

Company/Address: EMCON
1921 Ringwood Ave.
San Jose, CA 95131
Phone: (408) 453-7300

Sampler's Signature: [signature]

Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	Number of Containers	VOCs (EPA Method 8010)	TPHG/ BTEX (EPA Methods 8020/ 8015)	Diesel (EPA Method 8015)	Pesticides (EPA Method 8080)							REMARKS
						HCL	HCL	NP	NP							Preservations
MW-1	—	—	—	H2O	~~8~~	~~X~~	~~X~~	~~X~~	~~X~~							
MW-2	12/20/96	0940	1	H2O	8	X	X	X	X							VOAs have sediments
MW-3	〃	1140	2	H2O	8	X	X	X	X							VOAs have sediments

Relinquished By	Received By
Signature: [signature]	Signature: [signature]
Printed Name: Manuel Gallegos	Printed Name: Joanne Brown
Firm: EMCON	Firm: CAS
Date/Time: 12/20/96 / 12:40	Date/Time: 12/20/96 12:40

Relinquished By	Received By
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

TURNAROUND REQUIREMENTS
- 24 hr ___ 48 hr ___ 5 day
- X Standard (~10-15 working days)
- Provide Verbal Preliminary Results
- Provide FAX Preliminary Results

Requested Report Date ______

REPORT REQUIREMENTS
- X I. Routine Report
- II. Report (includes DUP, MS MSD, as required, may be charged as samples)
- III. Data Validation Report (includes All Raw Data)
- RWQCB (MDLs/PQLs/TRACE#)

INVOICE INFORMATION
P O # ______
Bill to: ______

SAMPLE RECEIPT
Shipping VIA: ______
Shipping #: ______
Condition: ______
Lab No: ______

Special Instructions/Comments:

R9, R20/S29

97 - 036

emcon
1921 Ringwood Avenue, San Jose, CA 95131 (408) 453-7300 FAX (408) 437-9526

EMCON - San Jose CHAIN OF CUSTODY/ LABORATORY ANALYSIS REQUEST FORM

Subcontract S9602255

Date ______ Page ___ of ___

Project Name: Federal Realty Investment Trust
Project Number: 22152-001.001
Project Manager: Mark Smolley L9605105

Company/Address: EMCON
1921 Ringwood Ave.
San Jose, CA 95131
Phone: (408) 453-7300

Sampler's Signature

Analysis Requested

Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	Number of Containers	VOCs (EPA Method 8010) HCL	~~(EPA Method 8020/8015)~~ HCL	~~(EPA Method 8015)~~ NP	Pesticides (EPA Method 8080) NP	REMARKS Preservations
~~MW-1~~	—	—	—	~~H2O~~	~~8~~	~~X~~	~~X~~		~~X~~	
MW-2	12/20/96	0940	1	H2O	8	X	~~X~~	~~X~~	X	VOAs have sediments
MW-3	↓	1140	2	H2O	8	X	~~X~~	~~X~~	X	VOAs have sediment

Relinquished By	Received By
Signature: [signature]	Signature
Printed Name: Manuel Gallegos	Printed Name
Firm: EMCON	Firm
Date/Time: 12/20/96 12:40	Date/Time

Relinquished By	Received By
Signature: Joanne Brown	Signature: [signature]
Printed Name: Joanne Brown	Printed Name: A. BRAGNIN
Firm: CAS-SJ	Firm: CAS-CP
Date/Time: 12/20/96 1930	Date/Time: 12/23/96 0930

TURNAROUND REQUIREMENTS
24 hr ___ 48 hr ___ 5 day ✓
Standard (~10-15 working days)
Provide Verbal Preliminary Results
Provide FAX Preliminary Results
Requested Report Date 12/30

REPORT REQUIREMENTS
X I. Routine Report
II. Report (Includes DUP, MS MSD, as required, may be charged as samples)
III. Data Validation Report (Includes All Raw Data)
RWQCB (MDLs/PQLs/TRACE#)

INVOICE INFORMATION
P.O. # ______
Bill to ______

SAMPLE RECEIPT
Shipping VIA ______
Shipping #: ______
Condition ______
Lab No. S9602255

Special Instructions/Comments:
Intact/Cool

Pest.
LLAB: 8010, 8080

R9, R20/S29

97-036

APPENDIX F

UNCERTAINITY ANALYSIS

97-036

UNCERTAINTY ANALYSIS

Uncertainties

Risk estimates are values that have uncertainties associated with them. These uncertainties, which arise at every step of a risk assessment, are evaluated to provide an indication of the relative degree of uncertainty associated with a risk estimate. In this section, a qualitative discussion of the uncertainties associated with the development of the risk estimates for the site is presented.

Risk assessments are not intended to estimate actual risks to receptors associated with exposure to chemicals in the environment. In fact, accurately estimating actual risks is not possible because of the variability in the exposed or potentially exposed populations. Therefore, risk assessment is a means of estimating the probability that an adverse health effect (*e.g.*, cancer, impaired reproduction) will occur for a receptor. The multitude of conservative assumptions used in risk assessments insures that the risk estimates are not likely to be underestimated.

Risk estimates are calculated by combining site data, assumptions about individual receptor's exposures to impacted media, and toxicity data. The uncertainties in this PEA relevant to the risk evaluation can be grouped into four main categories that correspond to these steps:

- Uncertainties in environmental sampling and analysis
- Uncertainties in fate and transport modeling.
- Uncertainties in assumptions concerning exposure scenarios
- Uncertainties in toxicity data and dose-response extrapolations

Environmental Sampling and Analysis

Risk estimates developed for the site are based on the sampling results obtained from the previous investigations. Errors in sampling results can arise from the field sampling, laboratory analyses, and data analyses. Errors in laboratory analysis procedures are possible, although the impacts of these sorts of errors on the risk estimates are likely to be low. The environmental sampling at the site is one source of uncertainty in the evaluation. However, sampling was conducted in areas of known releases and in the area slated for residential development, and the highest overall concentrations of the chemicals were used in the HHSE. Therefore, the sampling and analysis data should be sufficient to conservatively characterize the impacts and the associated potential risks. Actual concentrations in soil across the site are likely to be lower than the measured concentrations, so risks are likely overestimated.

Fate and Transport Modeling

The assumptions and uncertainties inherent in the fate and transport modeling conducted at the site (i.e., dermal absorption and particulate and volatile air concentrations) are intended to overestimate actual exposures and thus be protective of human health. Air modeling was conducted according to PEA guidance, which is intended to conservatively estimate possible exposures and risks.

Exposure Assessment

In this report, the exposure assessment is based on a number of assumptions with varying degrees of uncertainty. Uncertainties can arise from the types of exposures examined, the points of potential human exposure, the concentrations of chemicals at the points of human exposure, and the intake assumptions. These factors and the ways in which they contribute to the risk estimation are discussed below.

Types of Exposures Examined. The selection of exposure pathways is a process, often based on best professional judgment, that attempts to identify the most probable potentially harmful exposure scenarios. In an evaluation, risks are sometimes not calculated for all of the exposure pathways that may occur, possibly causing some underestimation of risk. In this evaluation, potential risks were estimated for a residential scenario at the site. Risks to potential receptors were estimated for a number of different exposure pathways (*e.g.*, inhalation of dusts). While other exposure routes could exist for the site, these exposures are expected to be lower than the risks associated with the pathways considered. Therefore, elimination of these exposure pathways is not likely to result in underestimation of risk. This is consistent with the intent of the PEA process (California, 1994).

Points of Human Exposure and Concentrations of Chemicals at Points of Exposure. Two more sources of uncertainty in the exposure assessment are the assumptions made regarding the locations where individuals could be exposed to impacted media at the site and the concentrations of chemicals at the points of exposure. In this assessment, conservative assumptions were made to indicate the locations where people could come into contact with impacted media (e.g., beneath pavement to directly contact benzene in soil. For example, it was assumed that the entire site was unpaved and that receptors could directly contact chemicals in subsurface soils.

Intake Assumptions Used. The risks calculated depend largely on the assumptions used to calculate the rate of chemical intake. For this assessment, the assumptions recommended by PEA guidance were used. The uncertainties associated with the parameters used in this HHSE are intended to overestimate exposures (California, 1994).

Toxicological Data and Dose Response Extrapolations

The availability and quality of toxicological data is another source of uncertainty in the risk assessment. Uncertainties associated with animal and human studies may have influenced the toxicity values. Carcinogenic values are classified according to the amount of evidence available that suggests human carcinogenicity. U.S. EPA assigns each carcinogen a designation of A through E, dependent upon the strength of the scientific evidence for carcinogenicity. In the establishment of non-cancer values, conservative multipliers, known as uncertainty and modifying factors, are used.

Uncertainties in Animal and Human Studies. Extrapolation of toxicological data from animal tests is one of the largest sources of uncertainty in a risk assessment. There may be important, but unidentified, differences in uptake, metabolism, and distribution of chemicals in the body between the test species and humans. For the most part, these uncertainties are addressed through use of conservative assumptions in establishing values for RfDs and SFs, which results in the likelihood that the estimated risk is overstated.

Typically, animals are administered high doses (*e.g.*, maximum tolerated dose) of a chemical in a standard diet or in air. Humans may be exposed to much lower doses in a highly variable diet, which may affect the toxicity of the chemical. In these studies, animals, usually laboratory rodents, are exposed daily to the chemical agent for various periods of time up to their 2-year lifetimes. Humans have an average 70-year lifetime and may be exposed either intermittently or regularly for an exposure period ranging from months to a full lifetime. Because of these differences, animal to human extrapolation error is a large source of uncertainty in a risk assessment.

Non-Cancer Toxicity Values. In the establishment of non-cancer values, conservative multipliers, known as uncertainty factors (UFs), are used. The chronic non-cancer toxicity values that was located in the IRIS database (for DDT) has a UF of 100. This means that the dose corresponding to a toxicological endpoint (*e.g.*, LOAEL) was divided by 100; thus increasing the apparent toxicity of the chemical by two orders of magnitude. The purpose of the UF is to account for the extrapolation of toxicity data from animals to humans with the additional the goal of the protection of sensitive individuals. However, in accomplishing these things, the conservativeness and uncertainty in the value is greatly increased.

Carcinogenic Toxicity Values. Uncertainty due to extrapolation of toxicological data for potential carcinogens tested in animals to human data is more prominent for potentially carcinogenic chemicals than non-carcinogenic ones. U.S. EPA typically uses the linearized multistage (LMS) model to extrapolate toxicological data. The LMS assumes that there is no threshold for carcinogenic substances; that is, exposure to even one molecule of a carcinogen is sufficient to cause cancer. This is a highly conservative assumption because the body has several mechanisms to protect against cancer.

The use of the LMS model to extrapolate data from animals to humans is a well-recognized source of significant uncertainty in the development of carcinogenic toxicity values and, subsequently, carcinogenic risk estimates. At high levels of exposure, there may indeed be a risk of cancer regardless of whether the effect occurs via a threshold mechanism or not. However, an animal bioassay cannot determine what happens at low levels of exposure, which is generally typical of human exposure levels.

At low levels of exposure, the probability of cancer cannot be measured but must be extrapolated from higher dosages. To do this, animals are typically exposed to carcinogens at levels that are orders of magnitude greater than those likely to be encountered by humans in the environment. It would be difficult, if not impossible, to perform animal experiments with a large enough number of animals to directly estimate the level of risk at the low exposure levels typically encountered by humans. Thus, to estimate the risk to humans exposed at low levels, dose-response data derived from animals given high dosages are extrapolated downward using mathematical models such as the LMS, which assumes that there is no threshold of response. The dose-response curve generated by the model is known as the maximum likelihood estimate (MLE). The slope of the 95 percent lower confidence interval (*i.e.*, upper bound limit) curve, which is a function of the variability in the input animal data, is taken as the SF. SFs are then used directly in cancer risk assessment.

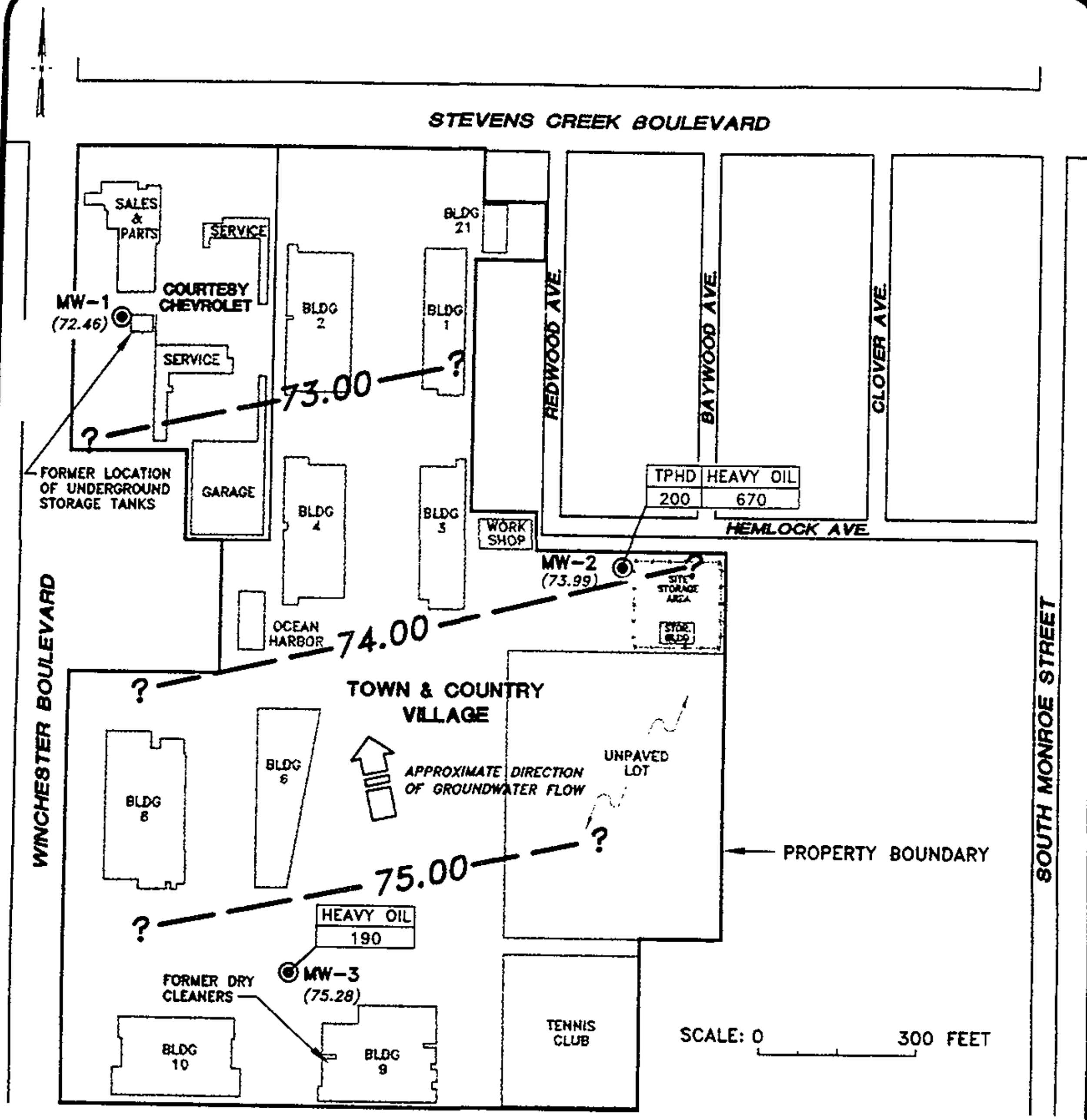
The federal government, including USEPA, has acknowledged the limitations of the high-to-low dose extrapolation models, particularly the LMS (USEPA, 1991). In fact, this aspect of cancer risk assessment has been criticized by many scientists (including regulatory scientists) in recent years. USEPA has recently proposed revisions to the 1986 cancer risk assessment guidelines to move away from dependence on this model (USEPA, 1996a).

Even for genotoxic (*i.e.*, non-threshold) substances, there are two major sources of bias embedded in the LMS: (1) its inherent conservatism at low doses and (2) the routine use of the linearized form in which the 95 percent upper confidence interval is used instead of the unbiased MLE. The inherent conservatism at low doses is due in part to the fact that the LMS ignores all of the numerous biological factors that argue against a linear dose response relationship for genotoxic effects (*e.g.*, DNA repair, immunosurveillance, toxicokinetic factors).

Even if studies of chemical effect in humans are available (*e.g.*, for benzene), they generally are for workplace exposures far in excess of those expected in the environment. Uncertainties can be large because the activity patterns, exposure duration and frequency, individual susceptibility, and dose may not be the same in the study populations as in the individuals exposed to environmental concentrations. Because conservative methods are used in developing the RfDs and CSFs, the possibility of underestimating risks is low.

Combinations of Sources of Uncertainty

Uncertainties from different sources are compounded in the HHSE. For example, if a person's daily intake rate for a chemical is compared to an RfD to estimate potential health risks, the uncertainties in the concentration measurements, exposure assumptions, and toxicities will all be expressed in the result. Therefore, by combining all upper-bound numbers, the uncertainty is compounded, and the resulting risk estimate is above the 90th or 95th percentile, perhaps even greater than the 99th percentile, of the risks likely to result from chemical exposure.



EXPLANATION

◉ MONITORING WELL

(72.46) GROUNDWATER ELEVATION (FT.-MSL); MEASURED 1/8/97

?—— —— GROUNDWATER ELEVATION CONTOUR (FT.-MSL)

HEAVY OIL
190

CHEMICAL CONCENTRATION IN GROUNDWATER (ug/L). SEE NOTE.

NOTE:

GROUNDWATER SAMPLES ANALAYZED FOR TPHG, BTEX, MTBE, TPHD, ORGANOCHLORINE, PESTICIDES, AND VOCs. ONLY THOSE COMPOUNDS DETECTED ARE SHOWN ON THIS FIGURE.

EMCON

DATE JAN. 1997
DWN KMM
APP
REV 0
PROJECT NO. 2152-001.001

Figure 4
FEDERAL REALTY INVESTMENT TRUST
TOWN & COUNTRY VILLAGE
STEVENS CREEK BLVD. – SAN JOSE, CA

GROUNDWATER SUMMARY MAP

EA-SANJOSE-CAD/DRAWINGS: I:\2152001\GWSUM.dwg Xrefs: <NONE> Time: 2:13 PM Operator: KLT
Scale: 1 = 300.00 DimScale: 1 = 300.00 Date: 1/17/97

97-036

APPENDIX F

SITE CHARACTERIZATION REPORT

97-036

EMCON
1921 Ringwood Avenue • San Jose, California 95131-1721 • (408) 453-7300 • Fax (408) 437-9526

March 21, 1997
Project 22152-001.001

Ms. Nancy Herman
Federal Realty Investment Trust
1626 East Jefferson Street
Rockville, Maryland 20852-4041

Re: Site Characterization Report, Town & Country Village Shopping Center, San Jose, California

Dear Ms. Herman:

This letter report documents the results of site characterization activities conducted at the Town & Country Village Shopping Center (TCVSC, Site), 2980 Stevens Creek Boulevard, San Jose, California. The site characterization was conducted to delineate the extent of tetrachloroethene (PCE) impact associated with a former dry cleaners and to delineate the extent of elevated arsenic and lead concentrations detected in the southeastern corner of the Site. This letter report is provided as an addendum to EMCON's *Environmental Site Assessment, Town and Country Village Shopping Center, San Jose, California*, dated January 20, 1997.

SCOPE OF WORK

EMCON's scope of work for this investigation, as approved by the California Department of Toxic Substances Control (DTSC), included the following:

- Collect soil samples from 7 direct push technology (DPT) borings to delineate the extent of PCE impact associated with the former dry cleaners.
- Collect soil samples from 5 DPT borings to delineate the extent of elevated arsenic and lead concentrations previously detected in a sample from boring EB-5.
- Selectively analyze the soil samples for PCE, arsenic, and lead.
- Revise the human health screening evaluation (HHSE) for the Site based on the new analytical results.

- Measure depth to groundwater in the three existing on-site wells to confirm the direction of groundwater flow.
- Prepare a figure showing the individual pesticides concentrations detected in all soil samples collected from the Site
- Prepare a report describing the procedures, findings, and conclusions for the Site.

SITE CHARACTERIZATION PROCEDURES

Before field activities, EMCON obtained a soil boring permit (Appendix A) as required from the Santa Clara Valley Water District. In addition, EMCON cleared underground utilities at the borehole locations by contacting Underground Services Alert (USA) and a private utility locator. The following sections summarize the soil sampling, laboratory analyses, groundwater level measuring, and the pesticide evaluation.

Soil Sampling

On February 6 and 7, 1997, EMCON collected soil samples from borings EB-11 through EB-16 within and adjacent to the former dry cleaning facility, and from borings EB-17 through EB-21 in the vicinity of boring EB-5, where the elevated arsenic and lead concentrations were previously detected (Drawings 1 and 2). Subsequent sampling (boring EB-22) was conducted in the former dry cleaning area on February 28, 1997. The boring locations within and adjacent to the former dry cleaning facility were located in the area of the former dry cleaning machine and along the sewer line that serviced the dry cleaning machine. The borings associated with the former dry cleaner were drilled to depths of approximately 20 feet below the ground surface (BGS), except for boring EB-22 which was drilled to 45 feet BGS. This boring was drilled to delineate the vertical extent of PCE in soil detected in the February 6 and 7, 1997, borings. The borings in the area of the elevated lead and arsenic concentrations were drilled to depths of 10 feet BGS.

The borings were drilled with a direct push technology (DPT) drilling rig. The DPT drilling rig advances a boring by pushing a 1.5-inch diameter steel rod into the ground. Once the appropriate sample depth is reached, the rod is removed from the boring and a steel sampler is lowered to the base of the boring. The sampler has a retractable tip which is removed, and the sampler is pushed 2 feet into undisturbed soil to collect the sample. Soil samples were collected in brass and acetate tubes to contain soil samples for laboratory analyses. The tubes were covered at each end with Teflon® squares and capped with plastic end caps. Borings were logged from an unused portion of the sample to describe the subsurface lithology. Additionally, a photoionization detector (PID) was used in the field during the PCE-soil sampling to assist with sample selection. Logs of exploratory borings EB-11 through EB-22 are presented in Appendix B.

Upon completion of sampling, the DPT boreholes were backfilled to the surface with Portland cement. Soil samples were transported in a cooler to a state-certified laboratory along with appropriate chain-of-custody documentation.

The DPT drill rods and sampling equipment were washed in a liquinox-water solution and double rinsed in water to prevent cross contamination. The decontamination water was temporarily stored on site in a 55-gallon drum until results of the laboratory analyses of the soil samples could be evaluated.

Laboratory Analyses

To delineate the PCE in soil associated with the former dry cleaners and the elevated arsenic and lead concentrations in the southeastern corner of the Site, 53 soil samples were analyzed. Soil samples from borings EB-11 through EB-16, and EB-22 were analyzed for volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (USEPA) method 8010 or 8260. Samples from borings EB-17 through EB-21 were analyzed for arsenic and lead by USEPA 6010/7000 series. Samples from all borings, except EB-22, were analyzed by Columbia Analytical Services. Samples from EB-22 were analyzed in a mobile laboratory operated by Mobile Chem Labs, Inc. The analytical reports and chain-of-custody documentation for the samples are included in Appendix C.

Groundwater Level Measurements

Groundwater levels in the wells were measured on February 28, 1997, and again on March 4, 1997. The groundwater levels were measured to calculate groundwater elevations for the wells and confirm the groundwater gradient at the Site. The groundwater elevation data from the February 28, 1997 monitoring event was not consistent with the previous gradient data from the Site and was also not consistent with the regional groundwater gradient. For these reasons, EMCON re-measured depth to groundwater levels in the wells on March 4, 1997. The March 4, 1997 groundwater elevation data is presented on Figure 1. A summary of the monitoring data is presented in Table 1.

Pesticide Evaluation

Pesticides have been detected in soils during previous investigations conducted at the Site. The individual pesticide concentrations were evaluated in the HHSE section of the *Environmental Site Assessment* report. However, on the drawings presented in the *Environmental Site Assessment* report, the distribution of pesticides was shown as total pesticides. At the request of the DTSC, a map has been prepared depicting the distribution of the individual pesticide compounds (4-4'-DDE, 4-4'-DDT, and 4-4'-DDD), for the available data. The distribution of the individual pesticide compounds are shown in Drawing 3.

FINDINGS

This section presents findings based on observations recorded in the field, the results of the soil analyses, and the revised HHSE.

Subsurface Conditions

The soil consists predominantly of clay, silt, and sand mixtures to a depth of approximately 12 feet BGS which is underlain by coarser sands and gravels to the maximum depth explored, 46 feet BGS. This is consistent with previous investigations.

Based on the March 4, 1997, monitoring event, depth to groundwater ranged from 49 to 53 feet BGS. The groundwater flows toward the north-northwest at an approximate gradient of 0.002 foot per foot (ft/ft). Groundwater contours and flow direction are presented in Figure 1.

Analytical Results - Former Dry Cleaning Facility. PCE was detected in all the borings within the former dry cleaning facility. Overall, the highest concentration of PCE was 1.2 mg/kg detected in boring EB-11 at 3.5 feet BGS. This boring was drilled on the southwestern side of the former dry cleaning machine and was adjacent to the sewer line. After reviewing the data from borings EB-11 through EB-16, and at the request of DTSC, one additional boring (EB-22) was drilled to delineate the vertical extent of PCE impact. Soil samples from boring EB-22 detected low concentrations of PCE to a depth of 30 feet BGS. The three lower samples from 35, 40, and 45 feet BGS did not detect PCE indicating a vertical extent between 30 and 35 feet BGS. A summary of the soil analytical results for PCE is presented in Table 2.

Analytical Results - Arsenic and Lead. Low concentrations of arsenic (less than 25 mg/kg) and lead (less than 14 mg/kg) were detected in all the samples from EB-17 through EB-21. These low concentrations represent background levels in the soil and do not confirm the elevated arsenic and lead concentrations detected from boring EB-5 at 3 feet BGS. The elevated lead and arsenic concentrations is found in only one sample. Therefore, the horizontal and vertical extent of the elevated lead and arsenic has been defined. A summary of the arsenic and lead is presented in Table 2.

Analytical Results - Pesticides. The pesticide distribution is shown in Drawing 3. No samples were analyzed for pesticides during this site characterization; therefore, the data has not changed from that reported in *Environmental Site Assessment* report.

Revised Human Health Screening Evaluation

A HHSE was presented in *Environmental Site Assessment* report. This HHSE was based on chemical concentrations detected at the Site from assessment activities through December 1996. Because new analytical data was collected during this site characterization, the HHSE was revised.

The HHSE focuses on estimating the potential threat to public health posed by recognized environmental conditions at the Site. The purpose of the HHSE is to assist in assessing the need for and extent of site remediation to protect human health. The Preliminary Endangerment Assessment (PEA) guidance document provides conservative, non-site-specific estimates of exposure intended to be a health-conservative preliminary evaluation of potential risk and hazard.

As requested by the DTSC, additional soil samples were collected in February 1997 and analyzed for PCE, arsenic, and lead during this site characterization. In the previous HHSE, the concentrations of PCE, arsenic, and lead did not exceed levels of risk considered unacceptable, as documented in *Environmental Site Assessment.* The concentrations of arsenic and lead from the February 1997 sampling do not exceed previous concentrations; therefore, arsenic and lead were not evaluated further in this revised HHSE. However, PCE was detected in the February 1997 sampling at concentrations greater than originally detected; therefore, the potential risk was reevaluated as discussed below.

Consistent with the previous HHSE, the potential risk and hazard of PCE were characterized assuming the same exposure pathways. The maximum detected concentrations were used in the HHSE to represent the highest potential exposure for possible residential receptors. Initially, the maximum PCE concentration of 0.31 mg/kg was found in sample EB-1 at 3.0 feet BGS. However, the February 1997 sampling detected a maximum soil concentration of 1.2 mg/kg from soil sample EB-11 at 3.5 feet BGS.

For ingestion and dermal contact with soil, the maximum detected concentration was used directly as the exposure concentration. The measured concentration was combined with intake assumptions provided in the PEA guidance document to quantify exposures via these pathways. Resulting daily doses for ingestion and dermal contact are shown on Tables 3 and 4. As discussed in the previous HHSE, the dust inhalation exposure pathway was not evaluated for volatiles, which includes PCE. For inhalation of volatile chemicals originating in soil, the detected concentrations in soil were input into a simple, infinite source model, following PEA guidance, to estimate air emission rates at the soil surface. Resulting air concentrations are shown on Table 5, along with intake assumptions and exposure equations provided in the PEA guidance manual. Resulting daily doses from inhalation of vapors are also shown on this table.

The revised potential risk associated with the results of PCE from the additional analyses was calculated using the toxicity values (for both carcinogenic and non-carcinogenic effects) and methods previously described in the initial HHSE. These results are summarized in Table 6. The cumulative PCE cancer risk changed from 7.44E-08 to 2.88E-07 based on the February 1997 sampling. The cumulative hazard index for a child went from 1.20E-03 to 4.65E-03. The total hazard index for an adult went from 2.88E-04 to 1.12E-03.

The revised risks associated with all the chemicals identified on the Site were essentially unchanged and are presented in Table 6. The total cancer risk of 1.40E-05 remained the same, even though the concentration of PCE detected in the soil increased. The hazard index for a child and an adult only increased by a factor of 1.02. The hazard index for a child went from 5.70E-01 to 5.80E-01. The hazard index for an adult went from 7.5E-02 to 7.6E-02. Consistent with the previous HHSE, potential exposure to PCE at the maximum detected concentration at the Site via soil ingestion, dermal contact with soil, and VOC inhalation does not exceed the acceptable level of cancer risk of 1.0E-06 or the non-cancer risk threshold level of 1.

CONCLUSIONS

The following conclusions were based on the field observations and data collected during the site characterization activities and the revised HHSE.

- The direction of groundwater flow is to the north-northwest at an approximate gradient of 0.002 foot per foot, similar to the flow direction and gradient presented in the *Environmental Site Assessment* report.

- Low concentrations of PCE are present in the soil underlying the former dry cleaning building. The PCE impact has been delineated vertically and did not exceed 30 feet BGS.

- The elevated arsenic and lead concentrations detected previously in boring EB-5 were not detected in adjacent boring EB-19 or in the surrounding borings. Based on these data, it appears the elevated arsenic and lead concentrations detected in EB-5 represents a very localized impact.

- Results of the revised HHSE indicate no significant risk to the public health from recognized environmental conditions at the Site. In particular, the increased levels of PCE detected in the area of the former dry cleaners, do not present a significant risk.

Please call if you have questions or need additional information.

Sincerely,

EMCON

Peter T. Christianson, R.E.A. 05615
Project Geologist

Mark Smolley, R.G. 4650
Project Manager

Attachments: Limitations
Table 1 - Groundwater Elevation Data
Table 2 - Summary of Soil Analytical Results
Table 3 - Estimation of Soil Ingestion Dose
Table 4 - Estimation of Dermal Dose
Table 5 - Estimation of Inhalation of Dust Dose
Table 6 - Risk Characterization Summary
Figure 1 - Groundwater Summary Map, 3/4/97
Drawing 1 - Analytical Results for Soil, Site Plan
Drawing 2 - Analytical Results for Soil, Former UST, Former Dry Cleaners, and Unpaved Areas
Drawing 3 - Analytical Results for Pesticides in Soil

Attachment A - Soil Boring Permit
Attachment B - Exploratory Boring Logs
Attachment C - Analytical Reports and Chain-of-Custody Documentation

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Table 1

Groundwater Elevation Data
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Well Designation	Well Casing Elevation (ft/MSL)	Date Measured	Depth to Water (ft)	Water Level Elevation (ft/MSL)
MW-1	129.89	01/08/97	57.43	72.46
		02/28/97	48.23	81.66
		03/04/97	49.23	80.66
MW-2	132.70	01/08/97	58.71	73.99
		02/28/97	51.50	81.20
		03/04/97	51.16	81.54
MW-3	136.59	01/08/97	61.31	75.28
		02/28/97	53.29	83.30
		03/04/97	53.02	83.57

Notes:
1. Benchmark = City of San Jose #641-B, elevation of 129.50 MSL
2. MSL = mean sea level

Table 2

Summary of Soil Analytical Results
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Units: mg/kg

Borehole Designation	Sample Depth (ft.)	Date Sampled	PCE(1)	Arsenic	Lead
EB-11	3.5	02/05/97	1.2	NA(2)	NA
	8	02/05/97	0.14	NA	NA
	10	02/05/97	<0.05(3)	NA	NA
	15	02/05/97	0.28	NA	NA
	20	02/05/97	0.20	NA	NA
EB-12	3	02/05/97	0.18	NA	NA
	5	02/05/97	0.19	NA	NA
	10	02/05/97	0.23	NA	NA
	15	02/05/97	0.48	NA	NA
	20	02/05/97	0.43	NA	NA
EB-13	3	02/05/97	0.26	NA	NA
	5	02/05/97	0.27	NA	NA
	10	02/05/97	0.06	NA	NA
	15	02/05/97	0.16	NA	NA
	20	02/05/97	0.28	NA	NA
EB-14	3	02/05/97	0.12	NA	NA
	5	02/05/97	0.088	NA	NA
	10	02/05/97	<0.05	NA	NA
	15	02/05/97	0.066	NA	NA
	20	02/05/97	0.21	NA	NA
EB-15	3	02/05/97	0.13	NA	NA
	5	02/05/97	<0.05	NA	NA
	10	02/05/97	0.15	NA	NA
	15	02/05/97	0.094	NA	NA
	20	02/05/97	0.23	NA	NA
EB-16	3	02/06/97	0.42	NA	NA
	5	02/06/97	0.19	NA	NA
	10	02/06/97	0.16	NA	NA
	15	02/06/97	0.45	NA	NA
	20	02/06/97	0.52	NA	NA
EB-17	3	02/06/97	NA	5	8.5
	6	02/06/97	NA	6	8.0
	10	02/06/97	NA	6	9.4
EB-18	3	02/06/97	NA	7	8.5
	6	02/06/97	NA	6	8.8
	10	02/06/97	NA	6	7.7
EB-19	3	02/06/97	NA	5	8.3
	6	02/06/97	NA	6	8.0
	10	02/06/97	NA	5	8.6

97-036

Table 2

Summary of Soil Analytical Results
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Units: mg/kg

Borehole Designation	Sample Depth (ft.)	Date Sampled	PCE(1)	Arsenic	Lead
EB-20	3	02/06/97	NA	25	9.4
	6	02/06/97	NA	5	8.5
	10	02/06/97	NA	6	8.3
EB-21	3	02/06/97	NA	18	14
	6	02/06/97	NA	5	7.3
	10	02/06/97	NA	5	8.1
EB-22	10	02/28/97	0.056	NA	NA
	15	02/28/97	0.039	NA	NA
	20	02/28/97	0.030	NA	NA
	25	02/28/97	0.017	NA	NA
	30	02/28/97	0.0054	NA	NA
	35	02/28/97	<0.005	NA	NA
	40	02/28/97	<0.005	NA	NA
	45	02/28/97	<0.005	NA	NA

(1) PCE = Tetrachloroethene. All other VOCs by EPA method 8260 or 8010 below method reporting limits.

(2) NA = Not analyzed.

(3) < = Sample below detection limits stated.

Table 3

Estimation of Soil Ingestion Dose
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Parameter	Symbol	Units	Note	DDD	DDE	DDT	Chloropropham	Arsenic	Benzene	Ethylbenzene	Toluene	Xylenes	PCE
Soil Chemical Concentration	Cs	mg/kg		1.1	7.5	4.9	22	0.9	0.084	0.1	0.16	0.37	1.2
Exposure frequency	EF	day/year	1	350	350	350	350	350	350	350	350	350	350
Exposure duration - children	EDk	years	1	6	6	6	6	6	6	6	6	6	6
Exposure duration - adults	EDa	years	1	24	24	24	24	24	24	24	24	24	24
Soil ingestion rate - children	SIRk	mg/day	1	200	200	200	200	200	200	200	200	200	200
Soil ingestion rate - adults	SIRa	mg/day	1	100	100	100	100	100	100	100	100	100	100
Conversion factor	CF2	kg/mg	1	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Body weight - children	BWk	kg	1	15	15	15	15	15	15	15	15	15	15
Body weight - adults	BWa	kg	1	70	70	70	70	70	70	70	70	70	70
Averaging time (noncarcinogens) - children	ATnk	days	2	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190
Averaging time (noncarcinogens) - adults	ATna	days	3	8760	8760	8760	8760	8760	8760	8760	8760	8760	8760
Averaging time (carcinogens)	ATc	days	4	25550	25550	25550	25550	25550	25550	25550	25550	25550	25550
Daily Dose - Cancer - Children	LADDk	mg/kg/day	5	1.21E-06	8.22E-06	5.37E-06	2.41E-05	9.86E-07	9.21E-08	1.10E-07	1.75E-07	4.05E-07	1.32E-06
Daily Dose - Cancer - Adults	LADDa	mg/kg/day	6	5.17E-07	3.52E-06	2.30E-06	1.03E-05	4.23E-07	3.95E-08	4.70E-08	7.51E-08	1.74E-07	5.64E-07
Daily Dose - Cancer - Child/Adult	LADDka	mg/kg/day	7	1.72E-06	1.17E-05	7.67E-06	3.44E-05	1.41E-06	1.32E-07	1.57E-07	2.50E-07	5.79E-07	1.88E-06
Slope Factor	SF	$(mg/kg/day)^{-1}$	8	0.24	0.34	0.34	NA	1.5	0.1	NA	NA	NA	0.051
Cancer Risk - Child/Adult	CR	Unitless	9	4.13E-07	3.99E-06	2.61E-06	NA	2.11E-06	1.32E-08	NA	NA	NA	9.58E-08
Daily Dose - Noncancer - Children	ADDk	mg/kg/day	10	1.41E-05	9.59E-05	6.26E-05	2.81E-04	1.15E-05	1.07E-06	1.28E-06	2.05E-06	4.73E-06	1.53E-05
Daily Dose - Noncancer - Adults	ADDa	mg/kg/day	11	1.51E-06	1.03E-05	6.71E-06	3.01E-05	1.23E-06	1.15E-07	1.37E-07	2.19E-07	5.07E-07	1.64E-06
Reference Dose	RfD	mg/kg/day	12	5.00E-04	5.00E-04	5.00E-04	2.00E-01	3.00E-04	NA	1.00E-01	2.00E-01	2.00E+00	1.00E-02
Hazard Quotient - Children	HQk	Unitless	13	2.81E-02	1.92E-01	1.25E-01	1.41E-03	3.84E-02	NA	1.28E-05	1.02E-05	2.37E-06	1.53E-03
Hazard Quotient - Adults	HQa	Unitless	14	3.01E-03	2.05E-02	1.34E-02	1.51E-04	4.11E-03	NA	1.37E-06	1.10E-06	2.53E-07	1.64E-04

1 From: California (1994)
2 EDk * 365 days/yr
3 EDa * 365 days/yr
4 70-year lifetime * 365 days/yr
5 (Cs * SIRk * CF2 * EF * EDk)/(BWk * ATc)
6 (Cs * SIRa * CF2 * EF * EDa)/(BWa * ATc)
7 LADDk + LADDa
8 Slope factors from OEHHA (1994)
9 CR = LADDka * SF
10 (Cs * EF * EDk * SIRk * CF2/BWk * ATnk)
11 (Cs * EF * EDa * SIRa * CF2/BWa * ATna)
12 Chronic reference dose for DDT from USEPA (1996). Toxicity of DDD and DDE assumed to be equal to that for DDT.
13 ADDk/RfD
14 ADDa/RfD

97-036

Table 4

Estimation of Dermal Dose
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Parameter	Symbol	Units	Note	DDD	DDE	DDT	Chloropropham	Arsenic	Benzene	Ethylbenzene	Toluene	Xylenes	PCE
Soil Chemical Concentration	Cs	mg/kg		1.1	7.5	4.9	22	0.9	0.084	0.1	0.16	0.37	1.2
Dermal Absorption Factor	DAF	Unitless	1	0.05	0.05	0.05	0.25	0.03	0.1	0.1	0.1	0.1	0.1
Soil Adherence Factor	SAF	mg/cm²-day	1	1	1	1	1	1	1	1	1	1	1
Exposed Skin Area - Children	ESk	cm²	1	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Exposed Skin Area - Adults	ESa	cm²	1	5800	5800	5800	5800	5800	5800	5800	5800	5800	5800
Unit Conversion Factor	CF1	kg/mg		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Body Weight - Children	BWk	kg	1	15	15	15	15	15	15	15	15	15	15
Body Weight - Adults	BWa	kg	1	70	70	70	70	70	70	70	70	70	70
Exposure Frequency - Children	EFk	days/yr	1	350	350	350	350	350	350	350	350	350	350
Exposure Frequency - Adults	EFa	days/yr	1	100	100	100	100	100	100	100	100	100	100
Exposure Duration - Children	EDk	yr	1	6	6	6	6	6	6	6	6	6	6
Exposure Duration - Adults	EDa	yr	1	24	24	24	24	24	24	24	24	24	24
Year Length	Y	day/yr	1	365	365	365	365	365	365	365	365	365	365
Lifetime	LT	years	1	70	70	70	70	70	70	70	70	70	70
Daily Dose - Cancer - Children	LADDk	mg/kg/day	2	6.03E-07	4.11E-06	2.68E-06	6.03E-05	2.96E-07	9.21E-08	1.10E-07	1.75E-07	4.05E-07	1.32E-06
Daily Dose - Cancer - Adults	LADDa	mg/kg/day	3	4.28E-07	2.92E-06	1.91E-06	4.28E-05	2.10E-07	6.54E-08	7.78E-08	1.25E-07	2.88E-07	9.34E-07
Daily Dose - Cancer - Child/Adult	LADDka	mg/kg/day	4	1.03E-06	7.03E-06	4.59E-06	1.03E-04	5.06E-07	1.57E-07	1.87E-07	3.00E-07	6.93E-07	2.25E-06
Slope Factor	SF	(mg/kg/day)⁻¹	5	0.24	0.34	0.34	NA	1.5	0.1	NA	NA	NA	0.051
Cancer Risk - Child/Adult	CR	Unitless	6	2.47E-07	2.39E-06	1.56E-06	NA	7.59E-07	1.57E-08	NA	NA	NA	1.15E-07
Daily Dose - Noncancer - Children	ADDk	mg/kg/day	7	7.03E-06	4.79E-05	3.13E-05	7.03E-04	3.45E-06	1.07E-06	1.28E-06	2.05E-06	4.73E-06	1.53E-05
Daily Dose - Noncancer - Adults	ADDa	mg/kg/day	8	1.25E-06	8.51E-06	5.56E-06	1.25E-04	6.13E-07	1.91E-07	2.27E-07	3.63E-07	8.40E-07	2.72E-06
Reference Dose	RfD	mg/kg/day	9	5.00E-04	5.00E-04	5.00E-04	2.00E-01	3.00E-04	NA	1.00E-01	2.00E-01	2.00E+00	1.00E-02
Hazard Quotient - Children	HQk	Unitless	10	1.41E-02	9.59E-02	6.26E-02	3.52E-03	1.15E-02	NA	1.28E-05	1.02E-05	2.37E-06	1.53E-03
Hazard Quotient - Adults	HQa	Unitless	11	2.50E-03	1.70E-02	1.11E-02	6.24E-04	2.04E-03	NA	2.27E-06	1.82E-06	4.20E-07	2.72E-04

1 From: California (1994)
2 (DAF * Cs * SAF * CF1 * ESk * EFk * EDk)/(BWk * LT * Y)
3 (DAF * Cs * SAF * CF1 * ESa * EFa * EDa)/(BWa * LT * Y)
4 LADDk + LADDa
5 Slope factors from OEHHA (1994)
6 CR = LADDka * SF
7 (DAF * Cs * SAF * CF1 * ESk * EFk * EDk)/(BWk * EDk * Y)
8 (DAF * Cs * SAF * CF1 * ESa * EFa * EDa)/(BWa * EDa * Y)
9 Chronic reference dose for DDT from USEPA (1996). Toxicity of DDD and DDE assumed to be equal to that for DDT.
10 ADDk/RfD
11 ADDa/RfD

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Table 5

Estimation of Volatile Inhalation Dose
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Parameter	Symbol	Units	Note	Benzene	Ethylbenzene	Toluene	Xylenes	PCE
Air diffusion coefficient	Di	cm2/sec	1	0.088	0.075	0.078	0.087	0.072
Henry's Law constant	Hc	atm-m3/mol	1	5.43E-03	8.44E-03	5.94E-03	5.30E-03	1.49E-02
Organic soil-water partition coefficient	Koc	L/kg	1	65	220	257	240	661
Fraction of organic carbon in soil	foc	Unitless	1	0.02	0.02	0.02	0.02	0.02
Soil chemical concentration	Ci	mg/kg		0.084	0.1	0.16	0.37	1.2
VOC emission rate numerator	Ei1	NA	1	4.94E-06	2.30E-06	2.31E-06	5.69E-06	1.56E-05
VOC emission rate denominator	Ei2	NA	1	1.34E-02	8.43E-03	6.69E-03	6.91E-03	6.35E-03
Total VOC emission rate	Ei	mg/sec	14	3.69E-04	2.73E-04	3.45E-04	8.23E-04	2.45E-03
Box model default divisor	BM	unitless	1	99	99	99	99	99
Conversion factor	CF2	kg/mg	1	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Air concentration	Ca	mg/m^3	15	3.73E-06	2.76E-06	3.48E-06	8.32E-06	2.48E-05
Exposure frequency	EF	day/year	1	350	350	350	350	350
Exposure duration - children	EDk	years	1	6	6	6	6	6
Exposure duration - adults	EDa	years	1	24	24	24	24	24
Inhalation rate - children	IRk	m^3/day	1	10	10	10	10	10
Inhalation rate - adults	IRa	m^3/day	1	20	20	20	20	20
Body weight - children	BWk	kg	1	15	15	15	15	15
Body weight - adults	BWa	kg	1	70	70	70	70	70
Averaging time (noncarcinogens) - children	ATnk	days	2	2190	2190	2190	2190	2190
Averaging time (noncarcinogens) - adults	ATna	days	3	8760	8760	8760	8760	8760
Averaging time (carcinogens)	ATc	days	1	25550	25550	25550	25550	25550
Daily Dose - Cancer - Children	LADDk	mg/kg/day	4	2.04E-07	1.51E-07	1.91E-07	4.56E-07	1.36E-06
Daily Dose - Cancer - Adults	LADDa	mg/kg/day	5	3.50E-07	2.59E-07	3.27E-07	7.81E-07	2.33E-06
Daily Dose - Cancer - Child/Adult	LADDka	mg/kg/day	6	5.54E-07	4.10E-07	5.18E-07	1.24E-06	3.69E-06
Slope Factor	SF	$(mg/kg/day)^{-1}$	7	0.1	NA	NA	NA	0.021
Cancer Risk - Child/Adult	CR	Unitless	8	5.54E-08	NA	NA	NA	7.74E-08
Daily Dose - Noncancer - Children	ADDk	mg/kg/day	9	2.38E-06	1.76E-06	2.23E-06	5.32E-06	1.58E-05
Daily Dose - Noncancer - Adults	ADDa	mg/kg/day	10	1.02E-06	7.56E-07	9.55E-07	2.28E-06	6.79E-06
Reference Dose	RfD	mg/kg/day	11	NA	2.90E-01	1.10E-01	2.00E-01	1.00E-02
Hazard Quotient - Children	HQk	Unitless	12	NA	6.08E-06	2.02E-05	2.66E-05	1.58E-03
Hazard Quotient - Adults	HQa	Unitless	13	NA	2.61E-06	8.68E-06	1.14E-05	6.79E-04

[1] From: California (1994)
[2] EDk * 365 days/yr
[3] EDa * 365 days/yr
[4] (Ca * IRk * EF * EDk) /(BWk * ATc)
[5] (Ca * IRa * EF * EDa)/(BWa * ATc)
[6] LADDk + LADDa
[7] Slope factors from OEHHA (1994)
[8] CR = LADDka * SF
[9] (Ca * IRk * EF * EDk)/(BWk * ATnk)
[10] (Ca * IRa * EF * EDa)/(BWa * ATna)
[11] Chronic reference dose for DDT from USEPA (1996). Toxicity of DDD and DDE assumed to be equal to that for DDT.
[12] ADDk/RfD
[13] ADDa/RfD
[14] Ei = Ei1/Ei2 (California, 1994)
[15] Ca = Ei/BM (California, 1994)

Table 6

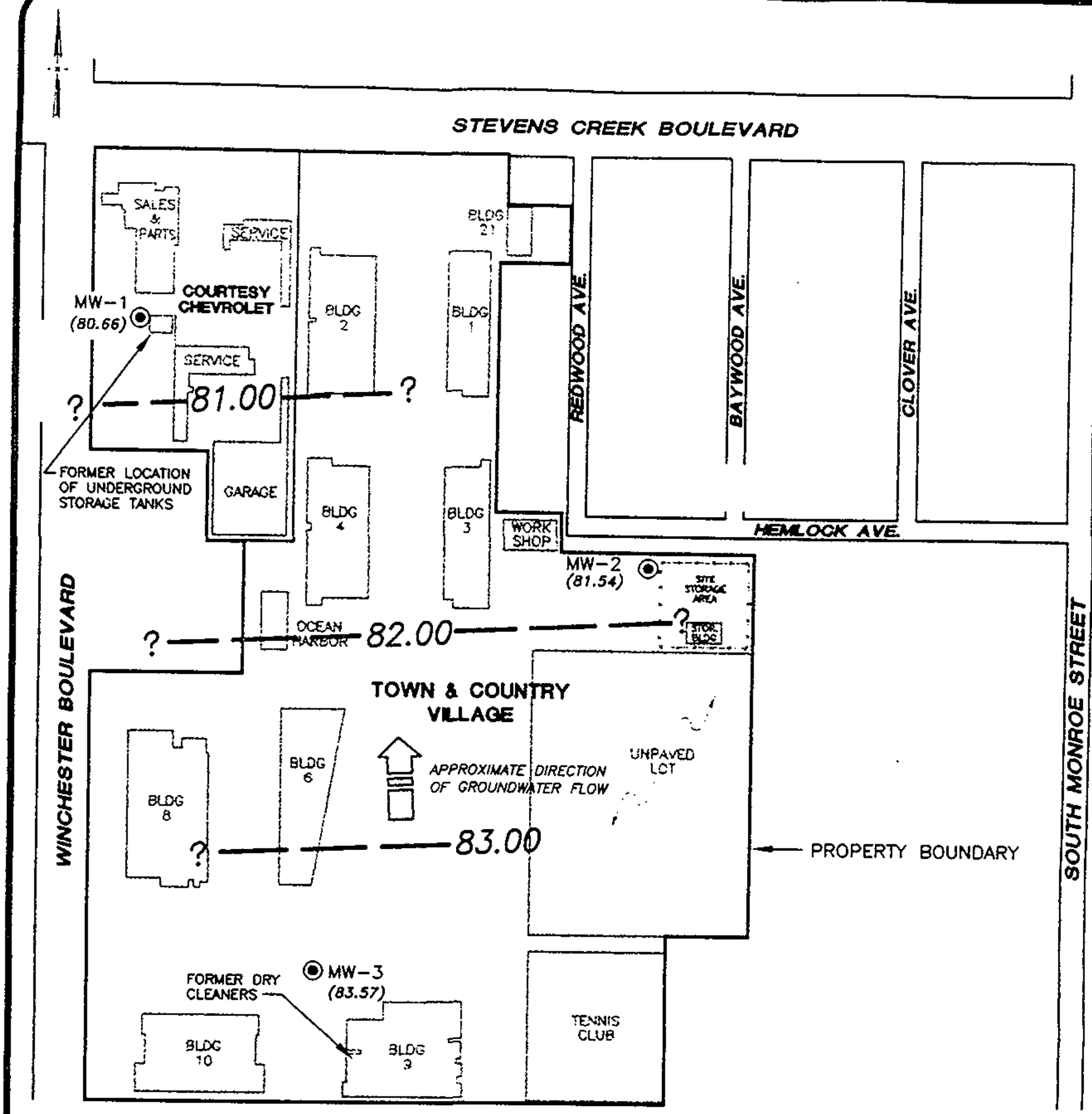
Risk Characterization Summary
Federal Realty Investment Trust
2980-3030 Stevens Creek Boulevard, San Jose, California

Pathway	Cancer Risk	Hazard Index/Child	Hazard Index/Adult
Soil Ingestion			
DDD	4.13E-07	2.81E-02	3.01E-03
DDE	3.99E-06	1.92E-01	2.05E-02
DDT	2.61E-06	1.25E-01	1.34E-02
Chloropropham	NA	1.41E-03	1.51E-04
Arsenic	2.11E-06	3.84E-02	4.11E-03
Benzene	1.32E-08	NA	NA
Ethylbenzene	NA	1.28E-05	1.37E-06
Toluene	NA	1.02E-05	1.10E-06
Xylenes	NA	2.37E-06	2.53E-07
PCE	9.58E-08	1.53E-03	1.64E-04
Total	**9.1E-06**	**3.8E-01**	**4.1E-02**
Dermal Contact			
DDD	2.47E-07	1.41E-02	2.50E-03
DDE	2.39E-06	9.59E-02	1.70E-02
DDT	1.56E-06	6.26E-02	1.11E-02
Chloropropham	NA	3.52E-03	6.24E-04
Arsenic	7.59E-07	1.15E-02	2.04E-03
Benzene	1.57E-08	NA	NA
Ethylbenzene	NA	1.28E-05	2.27E-06
Toluene	NA	1.02E-05	1.82E-06
Xylenes	NA	2.37E-06	4.20E-07
PCE	1.15E-07	1.53E-03	2.72E-04
Total	**5.0E-06**	**1.9E-01**	**3.3E-02**
Dust Inhalation			
DDD	1.96E-09	7.03E-05	3.01E-05
DDE	1.90E-08	4.79E-04	2.05E-04
DDT	1.24E-08	3.13E-04	1.34E-04
Chloropropham	NA	3.52E-06	1.51E-06
Arsenic	1.00E-07	9.59E-05	4.11E-05
Total	**5.1E-06**	**9.6E-04**	**4.1E-04**
VOC Inhalation			
Benzene	5.54E-08	NA	NA
Toluene	NA	6.08E-06	2.61E-06
Ethylbenzene	NA	2.02E-05	8.68E-06
Xylenes	NA	2.66E-05	1.14E-05
PCE	7.74E-08	1.58E-03	6.79E-04
Total	**1.3E-07**	**1.6E-03**	**7.0E-04**
Cumulative Totals			
DDD	6.63E-07	4.23E-02	5.54E-03
DDE	6.40E-06	2.88E-01	3.78E-02
DDT	4.18E-06	1.88E-01	2.47E-02
Chloropropham	NA	4.93E-03	7.76E-04
Arsenic	2.97E-06	5.00E-02	6.19E-03
Benzene	8.43E-08	NA	NA
Ethylbenzene	NA	4.58E-05	1.23E-05
Toluene	NA	2.65E-05	5.52E-06
Xylenes	NA	3.13E-05	1.21E-05
PCE	2.88E-07	4.65E-03	1.12E-03
Total	**1.4E-05**	**5.8E-01**	**7.6E-02**

Shading indicates risk exceeds 1E-06 value

* Please refer to Table 7 included in *Environmental Site Assessment, Town and Country Village Shopping Center, San Jose, California* (EMCON January 1997) for resulting daily doses from dust inhalation exposure.

97 - 036



EXPLANATION

MONITORING WELL

(83.57) GROUNDWATER ELEVATION (FT.-MSL); MEASURED 3/4/97

? GROUNDWATER ELEVATION CONTOUR (FT.-MSL)

0 300 600

SCALE IN FEET

EMCON

DATE MAR. 1997
DWN KAJ
APP
REV 0
PROJECT NO.
2152-001.001

FIGURE 1
FEDERAL REALTY INVESTMENT TRUST
TOWN & COUNTRY VILLAGE
STEVENS CREEK BLVD. – SAN JOSE, CA
GROUNDWATER ELEVATION CONTOURS

EA-SANJOSE-CAD/DRAWINGS: I:\2152001\GWSUM.dwg Xrefs: <NONE>
Scale: 1 = 300.00 DimScale: 1 = 300.00 Date: 3/9/97 Time: 5:50 PM Operator: KAJ

97-036

Feb-24-97 10:32A P.02

Santa Clara Valley Water District

APPLICATION TO DRILL EXPLORATORY BORINGS

22152-001.00 FC 285 (08-07-96)

5750 Almaden Expressway, San Jose, CA 95118 (408) 265-2600

Date Issued:	Expiration Date:	District Permit Number:
2-26-97	5-26-97	97E00022

Property Owner: FEDERAL REALTY INVESTMENT TRUST	Client (if different): NA	Name of Business/Residence at Site: TOWN & COUNTRY SHOPPING CENTER
Property Owner's Address: 1626 E. JEFFERSON ST.	Client's Address:	Address of Site: 2980 STEVENS CREEK BLVD
City, State, Zip: ROCKVILLE, MARYLAND	City, State, Zip:	City, State, Zip: SAN JOSE CA
Telephone No: 310-998-8100	Telephone No:	Assessor's Parcel Number of Site: Book: 277 Page: 33 Parcel: 005

Consulting Company Name: EMCON	Drilling Company Name: HOLGUIN, FAHAN & ASSOC., INC.
Address: 1921 RINGWOOD AVE.	Address: 16570 ASTON ST.
City, State, Zip: SAN JOSE CA 95131-1721	City, State, Zip: IRVINE, CA 92606
Telephone No: 408-453-7300	Telephone: 888-432-2781 C-57/C-61 License No: 682362

In space at right sketch location of proposed boring(s) in sufficient detail to identify location. In addition to distances to nearest street and intersection, show distances to any existing structures, landmarks or topographic features.

How many borings will be installed on parcel? 1 TO 3

Proposed depth of boring(s):

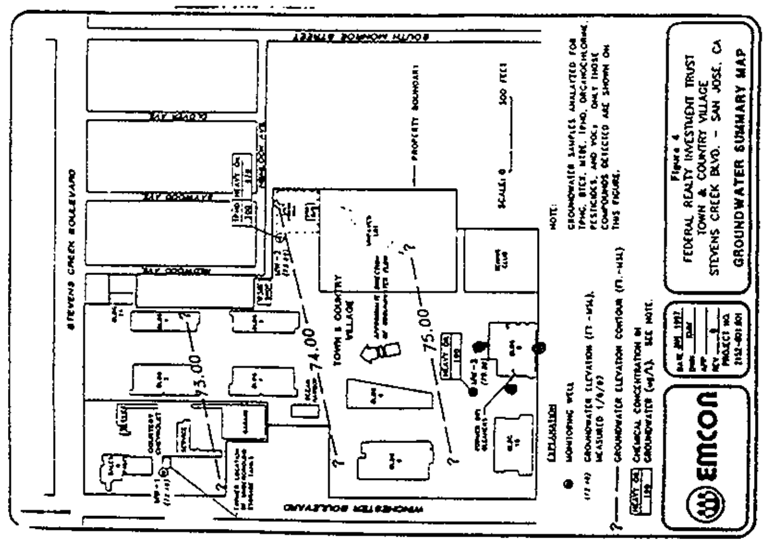
- [x] 45 to 150 feet
- [ ] 151 to 300 feet
- [ ] Over 300 feet

NO PERMIT IS REQUIRED FOR BORINGSS UNDER 45 FEET

Type of boring(s):

- [ ] Hollow stem
- [ ] Rotary
- [x] CPT/Hydropunch
- [ ] Other: ________

SITE PLAN - PLEASE DRAW ACCURATELY



● PROPOSED BORINGS

I understand that all work is to be done in accordance with S.C.V.W.D. Ordinance 90-1, "The Standards for the Construction and Reconstruction of Wells and Other Deep Excavations in Santa Clara County," and the conditions of this permit. I also certify that the information given above is correct to the best of my knowledge.

Signature of Property Owner/Agent: AGENT FOR FEDERAL REALTY INVESTMENT TRUST (EMCON) Peter Christiansen	Print/Type Name: PETE CHRISTIANSEN	Date: 2/24/97
Signature of Client/Agent:	Print/Type Name:	Date
Signature of Driller/Agent: AGENT FOR FEDERAL REALTY INVESTMENT TRUST (EMCON) Peter Christiansen	Print/Type Name: PETE CHRISTIANSEN	Date: 2/24/97
Signature of Consultant: Mark Smolley	Print/Type Name: Mark Smolley R.G. 4650	Date: 2/24/97

IMPORTANT: A minimum 24-hour notice must be given to SCVWD Well Inspection Dept. prior to installing the annular seal. Call (408) 265-2607, Ext. 2660. For weekends, holidays, and after hours call (408) 395-8121.

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**
BORING NO.: **EB-11**

PROJECT NAME: **Federal Realty Investment Trust**
PAGE: **1 of 2**

BY: **P. Christianson**
DATE: **2/5/97**
SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							CONCRETE	
							FILL, SAND.	
0.8/2.0	1.5							
0.0/2.0				5			SANDY SILT (ML), very dark gray (10YR, 3/1); 60% low-plasticity fines; 30% fine to coarse sand, (F:M:C=3:2:1); 10 % fine gravel; soft; moist.	
1.0/2.0	2.6							
							SANDY CLAY (CL), dark yellowish brown (10YR, 3/4); 70% non-plastic fines; 30% fine sand; soft; moist.	
2.0/2.0	2.5			10				
							GRAVELLY SAND (SW), dark yellowish brown (10YR, 4/6); 5% non-plastic fines; 55% fine to coarse sand, (F:M:C=2:1:1); 40% fine to coarse gravel; damp.	
1.0/2.0	3.3			15				
1.0/2.0	2.6			20				

REMARKS
Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 22152-001.001
BORING NO.: EB-11

PROJECT NAME: Federal Realty Investment Trust
PAGE: 2 of 2

BY: P. Christianson
DATE: 2/5/97
SURFACE ELEVATION: NA

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							GRAVELLY SAND (SW), continued. BORING TERMINATED AT 20.5 FEET (Drilled to 18.5 feet, sampled to 20.5 feet).	
				25				
				30				
				35				
				40				

REMARKS
Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001** | BORING NO.: **EB-12**

PROJECT NAME: **Federal Realty Investment Trust** | PAGE: **1 of 2**

BY: **P. Christianson** | DATE: **2/5/97** | SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							CONCRETE.	
							SILTY SAND (SM), dark brown (10YR, 3/3); 25% low-plasticity fines; 55% fine to coarse sand (F:M:C=2:1:1); 20% fine to coarse gravel; moist.	
1.0/2.0	6.5							
1.5/2.0	8.5			5				
							SANDY CLAY (CL), dark yellowish brown (10YR,3/4); 80% medium-plasticity fines; 20% fine sand; stiff; moist.	
1.5/2.0	7.5			10				
							GRAVELLY SAND (SW), dark yellowish brown (10YR, 4/6); 5% non-plastic fines; 60% fine to coarse sand, (F:M:C=2:1:1); 35% fine to coarse gravel; subangular to subround; damp.	
1.8/2.0	10.2			15				
							@18.5': 80% fine to coarse sand (F:M:C=4:1:1); 20% fine to coarse gravel; moist.	
1.5/2.0	8.8			20				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-12**

PROJECT NAME: **Federal Realty Investment Trust**

BY: **P. Christianson** DATE: **2/5/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							GRAVELLY SAND (SW), continued BORING TERMINATED AT 20.5 FEET (Drilled to 18.5 feet, sampled to 20.5 feet).	
				25				
				30				
				35				
				40				

REMARKS
Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

97-036

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001** BORING NO.: **EB-13**

PROJECT NAME: **Federal Realty Investment Trust**

BY: **P. Christianson** DATE: **2/5/97** SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							CONCRETE.	
							SILTY SAND (SM), very dark brown (10YR, 2/2); 25% non-plastic fines; 50% fine to coarse sand, (F:M:C=2:2:1); 25% fine to coarse gravel; medium dense; damp to moist.	
1.9/2.0	10.8							
				5				
1.7/2.0	12.8							
							SANDY CLAY (CL), dark yellowish brown (10yr, 3/4); 75% medium-plasticity fines; 25% fine sands; stiff; moist.	
1.5/2.0	12.5			10				
							GRAVELLY SAND (SW), dark yellowish brown (10YR, 4/6); 5% non-plastic fines; 55% fine to coarse sand, (F:M:C=4:2:1); 40% fine to coarse gravel; medium dense; damp to moist.	
1.8/2.0	13.5			15				
1.5/2.0	13.3			20				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 22152-001.001

PROJECT NAME: Federal Realty Investment Trust

BY: P. Christianson DATE: 2/5/97

BORING NO.: EB-13

SURFACE ELEVATION: NA

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							GRAVELLY SAND (SW), continued.	
							BORING TERMINATED AT 20.5 FEET (Drilled to 18.5 feet, sampled to 20.5 feet).	
				25				
				30				
				35				
				40				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-14**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **1** of **2**

BY: **P. Christianson**

DATE: **2/5/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							CONCRETE.	
							AGGREGATE BASEROCK.	
							SANDY CLAY (CL), very dark brown (10YR, 2/2); 70% medium-plasticity fines; 25% fine to coarse sand (F:M:C=4:2:1); 5% fine gravel; very stiff; moist.	
1.5/2.0	15.7							
1.0/2.0	13.3							
				5				
							SANDY SILT (ML), dark yellowish brown (10YR, 3/4); 70% low-plasticity fines; 30% fine sand; very stiff; moist.	
				10				
1.9/2.0	17.5							
							SAND (SP), brown (10YR, 4/3); fine to medium sand (F:M=10:1); moist.	
				15				
2.0/2.0	15.6							
							SAND (SW), brown (10YR, 4/3); 95% fine to coarse sand (F:M:C=5:1:1); 5% fine gravel; moist.	
1.9/2.0	13.5			20				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

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LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-14**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **2 of 2**

BY: **P. Christianson** DATE: **2/5/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							SAND (SW), continued.	
							BORING TERMINATED AT 20.5 FEET (Drilled to 18.5 feet, sampled to 20.5 feet).	
				25				
				30				
				35				
				40				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

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LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-15**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **1 of 2**

BY: **P. Christianson**

DATE: **2/5/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							CONCRETE.	
							SILTY SAND (SM), very dark brown (10YR, 2/2); 25% low-plasticity fines; 70% fine to coarse sand, (F:M:C=2:1:1); 5% fine gravel.	
1.5/2.0	11.5							
0.5/2.0	12.6			5				
							SANDY SILT (ML), very dark brown (10YR, 3/3); 75% non-plastic fines; 25% fine sand; firm; moist.	
				10				
1.2/2.0	18.1							
							SAND (SP), dark yellowish brown (10YR, 3/4), fine grained; moist.	
				15				
1.8/2.0								
							GRAVELLY SAND (SW), dark yellowish brown (10YR, 3/4); 5% non-plastic fines; 60% fine to coarse sand, (F:M:C=2:1:1); 35% fine to coarse gravel; damp.	
1.5/2.0				20				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

PROJECT NAME: **Federal Realty Investment Trust**

BY: **P. Christianson**

DATE: **2/5/97**

BORING NO.: **EB-15**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							GRAVELLY SAND (SW), continued.	
							BORING TERMINATED AT 20.5 FEET (Drilled to 18.5 feet, sampled to 20.5 feet).	
				25				
				30				
				35				
				40				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

PROJECT NAME: **Federal Realty Investment Trust**

BY: **P. Christianson** DATE: **2/6/97**

BORING NO.: **EB-16**

PAGE: **1 of 2**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT.	
							AGGREGATE BASE.	
							SANDY SILT (ML), very dark brown (10YR, 2/2); 70% non-plasticity fines; 30% fine sand; soft; moist.	
1.9/2.0	5.6							
1.2/2.0	4.0			5			SANDY CLAY (CL), very dark grayish brown (10YR, 3/2); 75% low to medium plastic fines; 25% fine sand; moist.	
1.5/2.0	1.7			10				
							GRAVELLY SAND (SW), grayish brown (10YR, 5/2); trace non-plastic fines; 70% fine to coarse sand (F:M:C=3:2:1); 30% fine to coarse gravel; damp to moist.	
1.6/2.0	1.8			15				
1.8/2.0	1.4			20				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

PROJECT NAME: **Federal Realty Investment Trust**

BY: **P. Christianson** DATE: **2/6/97**

BORING NO.: **EB-16**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							GRAVELLY SAND (SW), continued.	
							BORING TERMINATED AT 20.5 FEET (Drilled to 18.5 feet, sampled to 20.5 feet).	
				25				
				30				
				35				
				40				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

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LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-17**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **1 of 1**

BY: **P. Christianson**

DATE: **2/5/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	DESCRIPTION
					ASPHALT.
1.5/2.0	3.2				SANDY CLAY (CL), very dark brown (10YR, 3/3); 85% medium-plasticity fines; 15% fine to medium sand (F:M=4:1); very stiff; moist.
				5	
1.2/2.0	5.0				
					SANDY SILT (ML), dark brown (10YR, 3/3), 85% low-plasticity fines; 15% fine sand; very stiff; moist.
				10	
2.0/2.0	2.5				BORING TERMINATED AT 11.0 FEET.
				15	
				20	

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-18**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **1 of 1**

BY: **P. Christiansen**

DATE: **2/6/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT.	
1.5/2.0	2.5						SANDY CLAY (CL), very dark brown (10YR, 2/2); 85% low to medium plasticity fines; 15% fine to medium sand (F:M=2:1); trace gravel; very stiff; damp to moist.	
				5				
1.7/2.0	1.5							
							SANDY SILT (ML), dark yellow brown (10YR, 3/4); 95% low-plasticity fines; 5% fine sand; very stiff; moist.	
				10				
1.7/2.0	3.2							
							BORING TERMINATED AT 11.0 FEET.	
				15				
				20				

EMCON

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

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LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-19**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **1 of 1**

BY: **P. Christianson**

DATE: **2/6/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT.	
1.8/2.0	9.6						SANDY CLAY (CL), very dark brown (10YR, 2/2); 85% medium-plasticity fines; 15% fine to medium sand (F:M=4:1); trace fine gravel; very stiff; moist.	
1.5/2.0	11.5			5			CLAY (CL), very dark brown (10YR, 2/2); 90-95% medium-plasticity fines; 5-10% fine sand; stiff; moist.	
1.8/2.0	8.5			10			SILT (ML), dark brown (10YR, 3/3); 95% non-plastic fines; 5% fine sand; stiff; moist.	
							BORING TERMINATED AT 11.0 FEET.	
				15				
				20				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-20**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **1 of 1**

BY: **P. Christianson**

DATE: **2/6/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT.	
							AGGREGATE BASE.	
							CLAY (CL), very dark brown (10YR, 2/2); 95% low to medium-plasticity fines; 5% fine sand; trace gravel; very stiff; moist.	
1.5/2.0	12.5							
				5			@5.0': stiff.	
1.5/2.0	11.7							
				10				
1.8/2.0	10.4							
							BORING TERMINATED AT 11.0 FEET.	
				15				
				20				

REMARKS
Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-21**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **1 of 1**

BY: **P. Christianson**

DATE: **2/6/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT.	
							AGGREGATE BASE.	
							CLAY (CL), very dark brown (10YR, 2/2); 95% low to medium-plasticity fines; 5% fine sand; very stiff; moist.	
1.8/2.0	10.7							
				5				
1.0/2.0	9.8							
				10				
2.0/2.0	10.2						BORING TERMINATED AT 11.0 FEET.	
				15				
				20				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-22**

PROJECT NAME: **Federal Realty Investment Trust**

PAGE: **1 of 3**

BY: **P. Christianson**

DATE: **2/28/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT.	
							AGGREGATE BASE.	
				5				
							SANDY SILT (ML), dark brown (10YR, 3/3); 70% non-plastic fines; 30% fine sand; stiff; moist.	
1.0/2.0				10				
							GRAVELLY SAND (SW), dark grayish brown (10YR, 4/2); trace non-plastic fines; 60% fine to coarse sand, (F:M:C=2:1:1); 40% fine to coarse gravel; moist.	
1.2/2.0				15				
				20				

REMARKS
Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001** BORING NO.: **EB-22**

PROJECT NAME: **Federal Realty Investment Trust** PAGE: **2 of 3**

BY: **P. Christianson** DATE: **2/28/97** SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
1.5/2.0							GRAVELLY SAND (SW), continued. SILTY SAND (SM), dark grayish brown (10YR, 4/2); 15% non-plastic fines; 85% fine sand; medium dense; wet.	
1.8/2.0				25			SANDY SILT (ML), dark grayish brown (10YR, 4/2); 80% low-plasticity fines; 20% fine sand; stiff; wet.	
1.5/2.0				30			@29.0': 80% low-plasticity fines; 15% fine sand; 5% fine gravel; stiff; wet.	
2.0/2.0				35			CLAYEY SAND (SC), reddish brown (5Y, 4/4); 25% medium-plasticity fines; 75% fine sand; trace fine gravel; moist.	
				40			GRAVELLY SAND (SW), dark yellowish brown (10YR, 4/4); trace non-plastic fines; 70% fine to coarse sand (F:M:C=2:1:1); 30% fine to coarse gravel; moist to wet.	

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **22152-001.001**

BORING NO.: **EB-22**

PROJECT NAME: **Federal Realty Investment Trust**

BY: **P. Christianson** DATE: **2/28/97**

SURFACE ELEVATION: **NA**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/6")	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
1.5/2.0							GRAVELLY SAND (SW), continued.	
							SANDY GRAVEL (GW), brown (10YR, 4/3); 5% non-plastic fines; 30% fine to coarse sand (F:M:C=2:1:1); 65% fine to coarse gravel; moist to wet.	
1.0/2.0				45				
							BORING TERMINATED AT 46.0 FEET (Drilled to 44.0 feet, sampled to 46.0 feet).	
				50				
				55				
				60				

REMARKS

Borings drilled with a direct push technology (geoprobe) drilling rig using 1.5-inch diameter steel rods and sampler. Borings backfilled to surface using portland cement.

EMCON

97-036

Columbia Analytical Services inc.

February 12, 1997

Service Request No.: S9700219

Mr. Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

RE: Town & Country/Federal Realty/22152-001.001

Dear Mr. Smolley:

The following pages contain analytical results for sample(s) received by the laboratory on February 6, 1997. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytical Report below confirms that pages 2 through 16, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Steven L. Green
Project Chemist

97-036

2059 Junction Avenue ▪ San Jose, California 95131 ▪ Telephone 408/428-1280 ▪ Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, Inc.
Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/Federal Realty/22152-001.001
Sample Matrix: Soil

Service Request: S9700219
Date Collected: 2/5/97
Date Received: 2/6/97
Date Extracted: 2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

Analyte	MRL	Sample Name: EB-11 @ 3.5' Lab Code: S9700219-001 Date Analyzed: 2/7/97	Sample Name: EB-11 @ 8' Lab Code: S9700219-002 Date Analyzed: 2/7/97	Sample Name: EB-11 @ 10' Lab Code: S9700219-003 Date Analyzed: 2/7/97
Dichlorodifluoromethane (CFC 12)	100	ND	ND	ND
Chloromethane	100	ND	ND	ND
Vinyl Chloride	50	ND	ND	ND
Bromomethane	50	ND	ND	ND
Chloroethane	50	ND	ND	ND
Trichlorofluoromethane (CFC 11)	50	ND	ND	ND
1,1-Dichloroethene	50	ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	50	ND	ND	ND
Methylene Chloride	50	ND	ND	ND
trans-1,2-Dichloroethene	50	ND	ND	ND
cis-1,2-Dichloroethene	50	ND	ND	ND
1,1-Dichloroethane	50	ND	ND	ND
Chloroform	50	ND	ND	ND
1,1,1-Trichloroethane (TCA)	50	ND	ND	ND
Carbon Tetrachloride	50	ND	ND	ND
1,2-Dichloroethane	50	ND	ND	ND
Trichloroethene (TCE)	50	ND	ND	ND
1,2-Dichloropropane	50	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND
2-Chloroethyl Vinyl Ether	*500*	ND	ND	ND
trans-1,3-Dichloropropene	50	ND	ND	ND
cis-1,3-Dichloropropene	50	ND	ND	ND
1,1,2-Trichloroethane	50	ND	ND	ND
Tetrachloroethene (PCE)	50	1,200	140	ND
Dibromochloromethane	50	ND	ND	ND
Chlorobenzene	50	ND	ND	ND
Bromoform	50	ND	ND	ND
1,1,2,2-Tetrachloroethane	50	ND	ND	ND
1,3-Dichlorobenzene	100	ND	ND	ND
1,4-Dichlorobenzene	100	ND	ND	ND
1,2-Dichlorobenzene	100	ND	ND	ND

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	Service Request:	S9700219
Project:	Town & Country/Federal Realty/22152-001.001	Date Collected:	2/5/97
Sample Matrix:	Soil	Date Received:	2/6/97
		Date Extracted:	2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

		Sample Name:	**EB-11 @ 15'**	**EB-11 @ 20'**	**EB-12 @ 3'**
		Lab Code:	S9700219-004	S9700219-005	S9700219-006
		Date Analyzed:	2/7/97	2/7/97	2/7/97
Analyte	**MRL**				
Dichlorodifluoromethane (CFC 12)	100		ND	ND	ND
Chloromethane	100		ND	ND	ND
Vinyl Chloride	50		ND	ND	ND
Bromomethane	50		ND	ND	ND
Chloroethane	50		ND	ND	ND
Trichlorofluoromethane (CFC 11)	50		ND	ND	ND
1,1-Dichloroethene	50		ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	50		ND	ND	ND
Methylene Chloride	50		ND	ND	ND
trans-1,2-Dichloroethene	50		ND	ND	ND
cis-1,2-Dichloroethene	50		ND	ND	ND
1,1-Dichloroethane	50		ND	ND	ND
Chloroform	50		ND	ND	ND
1,1,1-Trichloroethane (TCA)	50		ND	ND	ND
Carbon Tetrachloride	50		ND	ND	ND
1,2-Dichloroethane	50		ND	ND	ND
Trichloroethene (TCE)	50		ND	ND	ND
1,2-Dichloropropane	50		ND	ND	ND
Bromodichloromethane	50		ND	ND	ND
2-Chloroethyl Vinyl Ether	500		ND	ND	ND
trans-1,3-Dichloropropene	50		ND	ND	ND
cis-1,3-Dichloropropene	50		ND	ND	ND
1,1,2-Trichloroethane	50		ND	ND	ND
Tetrachloroethene (PCE)	50		280	200	180
Dibromochloromethane	50		ND	ND	ND
Chlorobenzene	50		ND	ND	ND
Bromoform	50		ND	ND	ND
1,1,2,2-Tetrachloroethane	50		ND	ND	ND
1,3-Dichlorobenzene	100		ND	ND	ND
1,4-Dichlorobenzene	100		ND	ND	ND
1,2-Dichlorobenzene	100		ND	ND	ND

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/Federal Realty/22152-001.001
Sample Matrix: Soil

Service Request: S9700219
Date Collected: 2/5/97
Date Received: 2/6/97
Date Extracted: 2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

Analyte	MRL	Sample Name: / Lab Code: / Date Analyzed:	EB-12 @ 5' / S9700219-007 / 2/10/97	EB-12 @ 10' / S9700219-008 / 2/10/97	EB-12 @ 15' / S9700219-009 / 2/10/97
Dichlorodifluoromethane (CFC 12)	100		ND	ND	ND
Chloromethane	100		ND	ND	ND
Vinyl Chloride	50		ND	ND	ND
Bromomethane	50		ND	ND	ND
Chloroethane	50		ND	ND	ND
Trichlorofluoromethane (CFC 11)	50		ND	ND	ND
1,1-Dichloroethene	50		ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	50		ND	ND	ND
Methylene Chloride	50		ND	ND	ND
trans-1,2-Dichloroethene	50		ND	ND	ND
cis-1,2-Dichloroethene	50		ND	ND	ND
1,1-Dichloroethane	50		ND	ND	ND
Chloroform	50		ND	ND	ND
1,1,1-Trichloroethane (TCA)	50		ND	ND	ND
Carbon Tetrachloride	50		ND	ND	ND
1,2-Dichloroethane	50		ND	ND	ND
Trichloroethene (TCE)	50		ND	ND	ND
1,2-Dichloropropane	50		ND	ND	ND
Bromodichloromethane	50		ND	ND	ND
2-Chloroethyl Vinyl Ether	500		ND	ND	ND
trans-1,3-Dichloropropene	50		ND	ND	ND
cis-1,3-Dichloropropene	50		ND	ND	ND
1,1,2-Trichloroethane	50		ND	ND	ND
Tetrachloroethene (PCE)	50		190	230	480
Dibromochloromethane	50		ND	ND	ND
Chlorobenzene	50		ND	ND	ND
Bromoform	50		ND	ND	ND
1,1,2,2-Tetrachloroethane	50		ND	ND	ND
1,3-Dichlorobenzene	100		ND	ND	ND
1,4-Dichlorobenzene	100		ND	ND	ND
1,2-Dichlorobenzene	100		ND	ND	ND

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/Federal Realty/22152-001.001
Sample Matrix: Soil

Service Request: S9700219
Date Collected: 2/5/97
Date Received: 2/6/97
Date Extracted: 2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

		Sample Name:	**EB-12 @ 20'**	**EB-13 @ 3'**	**EB-13 @ 5'**
		Lab Code:	S9700219-010	S9700219-011	S9700219-012
		Date Analyzed:	2/10/97	2/10/97	2/10/97
Analyte	**MRL**				
Dichlorodifluoromethane (CFC 12)	100		ND	ND	ND
Chloromethane	100		ND	ND	ND
Vinyl Chloride	50		ND	ND	ND
Bromomethane	50		ND	ND	ND
Chloroethane	50		ND	ND	ND
Trichlorofluoromethane (CFC 11)	50		ND	ND	ND
1,1-Dichloroethene	50		ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	50		ND	ND	ND
Methylene Chloride	50		ND	ND	ND
trans-1,2-Dichloroethene	50		ND	ND	ND
cis-1,2-Dichloroethene	50		ND	ND	ND
1,1-Dichloroethane	50		ND	ND	ND
Chloroform	50		ND	ND	ND
1,1,1-Trichloroethane (TCA)	50		ND	ND	ND
Carbon Tetrachloride	50		ND	ND	ND
1,2-Dichloroethane	50		ND	ND	ND
Trichloroethene (TCE)	50		ND	ND	ND
1,2-Dichloropropane	50		ND	ND	ND
Bromodichloromethane	50		ND	ND	ND
2-Chloroethyl Vinyl Ether	500		ND	ND	ND
trans-1,3-Dichloropropene	50		ND	ND	ND
cis-1,3-Dichloropropene	50		ND	ND	ND
1,1,2-Trichloroethane	50		ND	ND	ND
Tetrachloroethene (PCE)	50		430	260	270
Dibromochloromethane	50		ND	ND	ND
Chlorobenzene	50		ND	ND	ND
Bromoform	50		ND	ND	ND
1,1,2,2-Tetrachloroethane	50		ND	ND	ND
1,3-Dichlorobenzene	100		ND	ND	ND
1,4-Dichlorobenzene	100		ND	ND	ND
1,2-Dichlorobenzene	100		ND	ND	ND

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9700219
Project:	Town & Country/Federal Realty/22152-001.001	**Date Collected:**	2/5/97
Sample Matrix:	Soil	**Date Received:**	2/6/97
		Date Extracted:	2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

		Sample Name:	**EB-13 @ 10'**	**EB-13 @ 15'**	**EB-13 @ 20'**
		Lab Code:	S9700219-013	S9700219-014	S9700219-015
		Date Analyzed:	2/10/97	2/10/97	2/10/97
Analyte	**MRL**				
Dichlorodifluoromethane (CFC 12)	100		ND	ND	ND
Chloromethane	100		ND	ND	ND
Vinyl Chloride	50		ND	ND	ND
Bromomethane	50		ND	ND	ND
Chloroethane	50		ND	ND	ND
Trichlorofluoromethane (CFC 11)	50		ND	ND	ND
1,1-Dichloroethene	50		ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	50		ND	ND	ND
Methylene Chloride	50		ND	ND	ND
trans-1,2-Dichloroethene	50		ND	ND	ND
cis-1,2-Dichloroethene	50		ND	ND	ND
1,1-Dichloroethane	50		ND	ND	ND
Chloroform	50		ND	ND	ND
1,1,1-Trichloroethane (TCA)	50		ND	ND	ND
Carbon Tetrachloride	50		ND	ND	ND
1,2-Dichloroethane	50		ND	ND	ND
Trichloroethene (TCE)	50		ND	ND	ND
1,2-Dichloropropane	50		ND	ND	ND
Bromodichloromethane	50		ND	ND	ND
2-Chloroethyl Vinyl Ether	500		ND	ND	ND
trans-1,3-Dichloropropene	50		ND	ND	ND
cis-1,3-Dichloropropene	50		ND	ND	ND
1,1,2-Trichloroethane	50		ND	ND	ND
Tetrachloroethene (PCE)	50		60	160	280
Dibromochloromethane	50		ND	ND	ND
Chlorobenzene	50		ND	ND	ND
Bromoform	50		ND	ND	ND
1,1,2,2-Tetrachloroethane	50		ND	ND	ND
1,3-Dichlorobenzene	100		ND	ND	ND
1,4-Dichlorobenzene	100		ND	ND	ND
1,2-Dichlorobenzene	100		ND	ND	ND

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/Federal Realty/22152-001.001
Sample Matrix: Soil

Service Request: S9700219
Date Collected: 2/5/97
Date Received: 2/6/97
Date Extracted: 2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

	Sample Name:	**EB-14 @ 3'**	**EB-14 @ 5'**	**EB-14 @ 10'**
	Lab Code:	S9700219-016	S9700219-017	S9700219-018
	Date Analyzed:	2/10/97	2/10/97	2/10/97
Analyte	**MRL**			
Dichlorodifluoromethane (CFC 12)	100	ND	ND	ND
Chloromethane	100	ND	ND	ND
Vinyl Chloride	50	ND	ND	ND
Bromomethane	50	ND	ND	ND
Chloroethane	50	ND	ND	ND
Trichlorofluoromethane (CFC 11)	50	ND	ND	ND
1,1-Dichloroethene	50	ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	50	ND	ND	ND
Methylene Chloride	50	ND	ND	ND
trans-1,2-Dichloroethene	50	ND	ND	ND
cis-1,2-Dichloroethene	50	ND	ND	ND
1,1-Dichloroethane	50	ND	ND	ND
Chloroform	50	ND	ND	ND
1,1,1-Trichloroethane (TCA)	50	ND	ND	ND
Carbon Tetrachloride	50	ND	ND	ND
1,2-Dichloroethane	50	ND	ND	ND
Trichloroethene (TCE)	50	ND	ND	ND
1,2-Dichloropropane	50	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND
2-Chloroethyl Vinyl Ether	500	ND	ND	ND
trans-1,3-Dichloropropene	50	ND	ND	ND
cis-1,3-Dichloropropene	50	ND	ND	ND
1,1,2-Trichloroethane	50	ND	ND	ND
Tetrachloroethene (PCE)	50	120	88	ND
Dibromochloromethane	50	ND	ND	ND
Chlorobenzene	50	ND	ND	ND
Bromoform	50	ND	ND	ND
1,1,2,2-Tetrachloroethane	50	ND	ND	ND
1,3-Dichlorobenzene	100	ND	ND	ND
1,4-Dichlorobenzene	100	ND	ND	ND
1,2-Dichlorobenzene	100	ND	ND	ND

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/Federal Realty/22152-001.001
Sample Matrix: Soil

Service Request: S9700219
Date Collected: 2/5/97
Date Received: 2/6/97
Date Extracted: 2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

		Sample Name:	EB-14 @ 15'	EB-14 @ 20'	EB-15 @ 3'
		Lab Code:	S9700219-019	S9700219-020	S9700219-021
		Date Analyzed:	2/10/97	2/10/97	2/10/97
Analyte	**MRL**				
Dichlorodifluoromethane (CFC 12)	100		ND	ND	ND
Chloromethane	100		ND	ND	ND
Vinyl Chloride	50		ND	ND	ND
Bromomethane	50		ND	ND	ND
Chloroethane	50		ND	ND	ND
Trichlorofluoromethane (CFC 11)	50		ND	ND	ND
1,1-Dichloroethene	50		ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	50		ND	ND	ND
Methylene Chloride	50		ND	ND	ND
trans-1,2-Dichloroethene	50		ND	ND	ND
cis-1,2-Dichloroethene	50		ND	ND	ND
1,1-Dichloroethane	50		ND	ND	ND
Chloroform	50		ND	ND	ND
1,1,1-Trichloroethane (TCA)	50		ND	ND	ND
Carbon Tetrachloride	50		ND	ND	ND
1,2-Dichloroethane	50		ND	ND	ND
Trichloroethene (TCE)	50		ND	ND	ND
1,2-Dichloropropane	50		ND	ND	ND
Bromodichloromethane	50		ND	ND	ND
2-Chloroethyl Vinyl Ether	500		ND	ND	ND
trans-1,3-Dichloropropene	50		ND	ND	ND
cis-1,3-Dichloropropene	50		ND	ND	ND
1,1,2-Trichloroethane	50		ND	ND	ND
Tetrachloroethene (PCE)	50		66	210	130
Dibromochloromethane	50		ND	ND	ND
Chlorobenzene	50		ND	ND	ND
Bromoform	50		ND	ND	ND
1,1,2,2-Tetrachloroethane	50		ND	ND	ND
1,3-Dichlorobenzene	100		ND	ND	ND
1,4-Dichlorobenzene	100		ND	ND	ND
1,2-Dichlorobenzene	100		ND	ND	ND

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/Federal Realty/22152-001.001
Sample Matrix: Soil

Service Request: S9700219
Date Collected: 2/5/97
Date Received: 2/6/97
Date Extracted: 2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

	Sample Name:	**EB-15 @ 5'**	**EB-15 @ 10'**	**EB-15 @ 15'**
	Lab Code:	S9700219-022	S9700219-023	S9700219-024
	Date Analyzed:	2/10/97	2/11/97	2/11/97
Analyte	**MRL**			
Dichlorodifluoromethane (CFC 12)	100	ND	ND	ND
Chloromethane	100	ND	ND	ND
Vinyl Chloride	50	ND	ND	ND
Bromomethane	50	ND	ND	ND
Chloroethane	50	ND	ND	ND
Trichlorofluoromethane (CFC 11)	50	ND	ND	ND
1,1-Dichloroethene	50	ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	50	ND	ND	ND
Methylene Chloride	50	ND	ND	ND
trans-1,2-Dichloroethene	50	ND	ND	ND
cis-1,2-Dichloroethene	50	ND	ND	ND
1,1-Dichloroethane	50	ND	ND	ND
Chloroform	50	ND	ND	ND
1,1,1-Trichloroethane (TCA)	50	ND	ND	ND
Carbon Tetrachloride	50	ND	ND	ND
1,2-Dichloroethane	50	ND	ND	ND
Trichloroethene (TCE)	50	ND	ND	ND
1,2-Dichloropropane	50	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND
2-Chloroethyl Vinyl Ether	500	ND	ND	ND
trans-1,3-Dichloropropene	50	ND	ND	ND
cis-1,3-Dichloropropene	50	ND	ND	ND
1,1,2-Trichloroethane	50	ND	ND	ND
Tetrachloroethene (PCE)	50	ND	150	94
Dibromochloromethane	50	ND	ND	ND
Chlorobenzene	50	ND	ND	ND
Bromoform	50	ND	ND	ND
1,1,2,2-Tetrachloroethane	50	ND	ND	ND
1,3-Dichlorobenzene	100	ND	ND	ND
1,4-Dichlorobenzene	100	ND	ND	ND
1,2-Dichlorobenzene	100	ND	ND	ND

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S9700219
Project:	Town & Country/Federal Realty/22152-001.001	**Date Collected:**	2/5/97
Sample Matrix:	Soil	**Date Received:**	2/6/97
		Date Extracted:	2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

		Sample Name:	**EB-15 @ 20'**	**EB-16 @ 3'**	**EB-16 @ 5'**
		Lab Code:	S9700219-025	S9700219-026	S9700219-027
		Date Analyzed:	2/11/97	2/11/97	2/11/97
Analyte	**MRL**				
Dichlorodifluoromethane (CFC 12)	100		ND	ND	ND
Chloromethane	100		ND	ND	ND
Vinyl Chloride	50		ND	ND	ND
Bromomethane	50		ND	ND	ND
Chloroethane	50		ND	ND	ND
Trichlorofluoromethane (CFC 11)	50		ND	ND	ND
1,1-Dichloroethene	50		ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	50		ND	ND	ND
Methylene Chloride	50		ND	ND	ND
trans-1,2-Dichloroethene	50		ND	ND	ND
cis-1,2-Dichloroethene	50		ND	ND	ND
1,1-Dichloroethane	50		ND	ND	ND
Chloroform	50		ND	ND	ND
1,1,1-Trichloroethane (TCA)	50		ND	ND	ND
Carbon Tetrachloride	50		ND	ND	ND
1,2-Dichloroethane	50		ND	ND	ND
Trichloroethene (TCE)	50		ND	ND	ND
1,2-Dichloropropane	50		ND	ND	ND
Bromodichloromethane	50		ND	ND	ND
2-Chloroethyl Vinyl Ether	500		ND	ND	ND
trans-1,3-Dichloropropene	50		ND	ND	ND
cis-1,3-Dichloropropene	50		ND	ND	ND
1,1,2-Trichloroethane	50		ND	ND	ND
Tetrachloroethene (PCE)	50		230	420	190
Dibromochloromethane	50		ND	ND	ND
Chlorobenzene	50		ND	ND	ND
Bromoform	50		ND	ND	ND
1,1,2,2-Tetrachloroethane	50		ND	ND	ND
1,3-Dichlorobenzene	100		ND	ND	ND
1,4-Dichlorobenzene	100		ND	ND	ND
1,2-Dichlorobenzene	100		ND	ND	ND

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3S44/060194

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/Federal Realty/22152-001.001
Sample Matrix: Soil

Service Request: S9700219
Date Collected: 2/5/97
Date Received: 2/6/97
Date Extracted: 2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

Analyte	MRL	Sample Name: **EB-16 @ 10'** Lab Code: S9700219-028 Date Analyzed: 2/11/97	**EB-16 @ 15'** S9700219-029 2/11/97	**EB-16 @ 20'** S9700219-030 2/11/97
Dichlorodifluoromethane (CFC 12)	100	ND	ND	ND
Chloromethane	100	ND	ND	ND
Vinyl Chloride	50	ND	ND	ND
Bromomethane	50	ND	ND	ND
Chloroethane	50	ND	ND	ND
Trichlorofluoromethane (CFC 11)	50	ND	ND	ND
1,1-Dichloroethene	50	ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	50	ND	ND	ND
Methylene Chloride	50	ND	ND	ND
trans-1,2-Dichloroethene	50	ND	ND	ND
cis-1,2-Dichloroethene	50	ND	ND	ND
1,1-Dichloroethane	50	ND	ND	ND
Chloroform	50	ND	ND	ND
1,1,1-Trichloroethane (TCA)	50	ND	ND	ND
Carbon Tetrachloride	50	ND	ND	ND
1,2-Dichloroethane	50	ND	ND	ND
Trichloroethene (TCE)	50	ND	ND	ND
1,2-Dichloropropane	50	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND
2-Chloroethyl Vinyl Ether	500	ND	ND	ND
trans-1,3-Dichloropropene	50	ND	ND	ND
cis-1,3-Dichloropropene	50	ND	ND	ND
1,1,2-Trichloroethane	50	ND	ND	ND
Tetrachloroethene (PCE)	50	160	450	520
Dibromochloromethane	50	ND	ND	ND
Chlorobenzene	50	ND	ND	ND
Bromoform	50	ND	ND	ND
1,1,2,2-Tetrachloroethane	50	ND	ND	ND
1,3-Dichlorobenzene	100	ND	ND	ND
1,4-Dichlorobenzene	100	ND	ND	ND
1,2-Dichlorobenzene	100	ND	ND	ND

97-036

3S44/060194

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: Town & Country/Federal Realty/22152-001.001
Sample Matrix: Soil

Service Request: S9700219
Date Collected: NA
Date Received: NA
Date Extracted: 2/6/97

Halogenated Volatile Organic Compounds
EPA Method 8260
Units: ug/Kg (ppb)
As Received Basis

		Sample Name:	**Method Blank**	**Method Blank**
		Lab Code:	S970206-SB1	S970206-SB2
		Date Analyzed:	2/7/97	2/10/97
Analyte	**MRL**			
Dichlorodifluoromethane (CFC 12)	100		ND	ND
Chloromethane	100		ND	ND
Vinyl Chloride	50		ND	ND
Bromomethane	50		ND	ND
Chloroethane	50		ND	ND
Trichlorofluoromethane (CFC 11)	50		ND	ND
1,1-Dichloroethene	50		ND	ND
Trichlorotrifluoroethane (CFC 113)	50		ND	ND
Methylene Chloride	50		ND	ND
trans-1,2-Dichloroethene	50		ND	ND
cis-1,2-Dichloroethene	50		ND	ND
1,1-Dichloroethane	50		ND	ND
Chloroform	50		ND	ND
1,1,1-Trichloroethane (TCA)	50		ND	ND
Carbon Tetrachloride	50		ND	ND
1,2-Dichloroethane	50		ND	ND
Trichloroethene (TCE)	50		ND	ND
1,2-Dichloropropane	50		ND	ND
Bromodichloromethane	50		ND	ND
2-Chloroethyl Vinyl Ether	500		ND	ND
trans-1,3-Dichloropropene	50		ND	ND
cis-1,3-Dichloropropene	50		ND	ND
1,1,2-Trichloroethane	50		ND	ND
Tetrachloroethene (PCE)	50		ND	ND
Dibromochloromethane	50		ND	ND
Chlorobenzene	50		ND	ND
Bromoform	50		ND	ND
1,1,2,2-Tetrachloroethane	50		ND	ND
1,3-Dichlorobenzene	100		ND	ND
1,4-Dichlorobenzene	100		ND	ND
1,2-Dichlorobenzene	100		ND	ND

97-036

3S44/060194

APPENDIX A

97-036

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Town & Country/Federal Realty/22152-001.001
Sample Matrix: Soil

Service Request: S9700219
Date Collected: 2/5/97
Date Received: 2/6/97
Date Extracted: 2/6/97
Date Analyzed: NA

Surrogate Recovery Summary
Halogenated Volatile Organic Compounds
EPA Method 8260

Sample Name	Lab Code	Percent Recovery 4-Bromofluorobenzene
EB-11 @ 3.5'	S9700219-001	99
EB-11 @ 8'	S9700219-002	97
EB-11 @ 10'	S9700219-003	96
EB-11 @ 15'	S9700219-004	89
EB-11 @ 20'	S9700219-005	97
EB-12 @ 3'	S9700219-006	96
EB-12 @ 5'	S9700219-007	96
EB-12 @ 10'	S9700219-008	97
EB-12 @ 15'	S9700219-009	96
EB-12 @ 20'	S9700219-010	92
EB-13 @ 3'	S9700219-011	91
EB-13 @ 5'	S9700219-012	93
EB-13 @ 10'	S9700219-013	91
EB-13 @ 15'	S9700219-014	98
EB-13 @ 20'	S9700219-015	92
EB-14 @ 3'	S9700219-016	92
EB-14 @ 5'	S9700219-017	95
EB-14 @ 10'	S9700219-018	90
EB-14 @ 15'	S9700219-019	92
EB-14 @ 20'	S9700219-020	92
EB-15 @ 3'	S9700219-021	97

CAS Acceptance Limits: 74-125

97-036

SUR1/062994

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Town & Country/Federal Realty/22152-001.001
Sample Matrix: Soil

Service Request: S9700219
Date Collected: 2/5/97
Date Received: 2/6/97
Date Extracted: 2/6/97
Date Analyzed: NA

Surrogate Recovery Summary
Halogenated Volatile Organic Compounds
EPA Method 8260

Sample Name	Lab Code	Percent Recovery 4-Bromofluorobenzene
EB-15 @ 5'	S9700219-022	92
EB-15 @ 10'	S9700219-023	92
EB-15 @ 15'	S9700219-024	91
EB-15 @ 20'	S9700219-025	100
EB-16 @ 3'	S9700219-026	93
EB-16 @ 5'	S9700219-027	91
EB-16 @ 10'	S9700219-028	89
EB-16 @ 15'	S9700219-029	99
EB-16 @ 20'	S9700219-030	98
Method Blank	S970206-SB1	94
Method Blank	S970206-SB2	93

CAS Acceptance Limits: 74-125

97-036

SUR1/062994

Columbia Analytical Services
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CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

SERVICE REQUEST NO. S970219 PO#

PROJECT NAME Federal Realty #22152-001.001
PROJECT MGR. MARK SMOLLEY
COMPANY/ADDRESS EMCON, SJ
PHONE
FAX
SAMPLERS SIGNATURE Pete Christiansen

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	GC/MS 625/8270 Base/Neu/Acid Organics	GC/MS 624/8240/8260 Volatile Organics	601/8010 602/8020 Halogenated or Aromatic Volatiles	DHS LUFT / 8020 TPH as Gas/BTEX	DHS LUFT TPH as Diesel/HBHC	TRPH - 418.1	Oil and Grease Method	List Below Metals (total or dissolved)	Alk (circle) pH, Cond, Cl, SO4, F, TDS, TSS	NO3 / NO2 (circle) NH3-N, COD, Total-P, TKN	TOC Total Organic Carbon	Total Phenols					REMARKS
PRESERVATIVE						NP	HCl	HCl	HCl	NP	HCl	HCl	HNO3	NP	H2SO4	H2SO4	H2SO4					
EB-11 @ 3.5'	2/5/97		1	Soil	1			X														
EB-11 @ 8'			2																			
EB-11 @ 10'			3																			
EB-11 @ 15'			4																			
EB-11 @ 20'			5																			
EB-12 @ 3'			6																			
EB-12 @ 5'			7																			
EB-12 @ 10'			8																			
EB-12 @ 15'			9																			
EB-12 @ 20'			10																			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Pete Christiansen	Signature: Mark Smolley	Signature	Signature
Printed Name: Pete Christiansen	Printed Name: Mark Smolley	Printed Name	Printed Name
Firm: Emcon	Firm: EMCON	Firm	Firm
Date/Time: 2/6/97 0950	Date/Time: 2/6/97 9:55	Date/Time	Date/Time

TURNAROUND REQUIREMENTS
24 hr 48 hr X 5 day
Standard (10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX preliminary Results
Requested Report Date ___

REPORT REQUIREMENTS
X I. Routine Report
II. Report (includes DUP MA MSD, as required, may be charged as samples)
III. Data Validation Report (includes All Raw Data)
RWQCB
(MDLs/PQLs TRACE#)

RELINQUISHED BY:	RECEIVED BY:
Signature: Mark Smolley	Signature: Joanne Brown
Printed Name: Mark Smolley	Printed Name: Joanne Brown
Firm: EMCON	Firm: CAS
Date/Time: 2/6/97 10:15	Date/Time: 2-6-97 10:15

SPECIAL INSTRUCTIONS/COMMENTS: Results due 2/12
Circle which metals are to be analyzed.
Metals: Al Sb Ba Be B Cd Ca Cr Cu Co Fe Mg Mn Mo Ni K Ag Na Sn V Zn As Pb Se Tl Hg

R9

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

97-038

Colu...s Analytical Services

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

SERVICE REQUEST NO. 9700312 P.O.# PAGE 2 OF 3

PROJECT NAME Federal Realty #22152-001.001

PROJECT MGR. Smoiley

COMPANY/ADDRESS EMCON

1921 Ringwood Ave.

San Jose PHONE 453-7300

FAX

SAMPLERS SIGNATURE Christianson

ANALYSIS REQUESTED

PRESERVATIVE: NP | HCl | HCl | HCl | NP | HCl | HCl | HNO_3 | NP | H_2SO_4 | H_2SO_4 | H_2SO_4

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240/8260	Halogenated or Aromatic Volatiles 601/8010 & 602/8020	TPH as Gas/BTEX DHS LUFT / 8020	TPH as Diesel/HBHC DHS LUFT	TRPH - 418.1	Oil and Grease Method	Metals (total or dissolved) List Below	pH, Cond, Cl, SO_4, F, TDS, TSS Alk (circle)	NH_3-N, COD, Total-P, TKN NO_3 / NO_2 (circle)	Total Organic Carbon TOC	Total Phenols					REMARKS
EB-13 @ 3	2/5/97		11	Soil	1			X														
EB-13 @ 5			12																			
EB-13 @ 10			13																			
EB-13 @ 15			14																			
EB-13 @ 20			15																			
EB-14 @ 3			16																			
EB-14 @ 5			17																			
EB-14 @ 10			18																			
EB-14 @ 15			19																			
EB-14 @ 20			20																			

RELINQUISHED BY: Pete Ch...
Signature
Pete Christianson
Printed Name
EMCON
Firm
2/6/97 0950
Date/Time

RECEIVED BY: Mark Smolley
Signature
Mark Smolley
Printed Name
EMCON
Firm
2/6/97 9:55
Date/Time

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS
___ 24 hr 48 hr ~~X~~ 5 day
___ Standard (10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX preliminary Results
Requested Report Date

REPORT REQUIREMENTS
~~I Routine Report~~
II Report (includes DUP MAS MSD, as required, may be charged as samples)
III Data Validation Report (includes All Raw Data)
RWQCB
(MDLs/PQLs/TRACE#)

RELINQUISHED BY: Mark Smolley
Signature
Mark Smolley
Printed Name
EMCON
Firm
2/6/97 10:15
Date/Time

RECEIVED BY: Joanne Brown
Signature
Joanne Brown
Printed Name
CAS
Firm
2-6-97 10:15
Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:
Circle which metals are to be analyzed.
Metals: Al Sb Ba Be B Cd Ca Cr Cu Co Fe Mg Mn Mo Ni K Ag Na Sn V Zn As Pb Se Tl Hg

x9

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

97-0356

Columbia Analytical Services
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CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

SERVICE REQUEST NO. S9700319 P.O.# PAGE 3 OF 3

PROJECT NAME Federal Realty #22152-001-00
PROJECT MGR Smolley
COMPANY/ADDRESS EMCON
1921 Ringwood Avenue
San Jose CA PHONE 453-7300
FAX
SAMPLERS SIGNATURE Christian Son [signature]

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270 (NP)	Volatile Organics GC/MS 624/8240/8260 (HCl)	Halogenated / Aromatic Volatiles 601/8010 602/8020 (HCl)	TPH as Gas/BTEX DHS LUFT / 8020 (HCl)	TPH as Diesel/HBHC DHS LUFT (NP)	TRPH - 418.1 (HCl)	Oil and Grease Method (HCl)	Metals (total or dissolved) List Below (HNO_3)	pH, Cond, Cl, SO_4, F, TDS, TSS Alk (circle) (NP)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle) (H_2SO_4)	Total Organic Carbon TOC (H_2SO_4)	Total Phenols (H_2SO_4)					REMARKS
EB-15 @ 3'	2/6/97		21	Soils				X														
EB-15 @ 5'			22																			
EB-15 @ 10'			23																			
EB-15 @ 15'			24																			
EB-15 @ 20'			25																			
EB-16 @ 3'	2/6/97		26																			
EB-16 @ 5'			27																			
EB-16 @ 10'			28																			
EB-16 @ 15'			29																			
EB-16 @ 20'			30																			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature [signature]	Signature Mark Smolley	Signature	Signature
Printed Name Pete Christian	Printed Name Mark Smolley	Printed Name	Printed Name
Firm EMCON	Firm EMCON	Firm	Firm
Date/Time 2/6/97 0950	Date/Time 2/6/97 9:50	Date/Time	Date/Time

RELINQUISHED BY:	RECEIVED BY:
Signature Mark Smolley	Signature Joanne Brown
Printed Name Mark Smolley	Printed Name Joanne Brown
Firm EMCON	Firm CAS
Date/Time 2-6-97 10:15	Date/Time 2-6-97 10:15

TURNAROUND REQUIREMENTS
___ 24 hr ___ 48 hr ✓ 3-5 day
___ Standard (10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX preliminary Results
Requested Report Date

REPORT REQUIREMENTS
✓ I. Routine Report
II. Report (includes DUP MAS MSD, as required may be charged as samples)
III. Data Validation Report (includes All Raw Data)
RWQCB
(MDLs/PQLs/TRACE#)

SPECIAL INSTRUCTIONS/COMMENTS:
Circle which metals are to be analyzed:
Metals: Al Sb Ba Be B Cd Ca Cr Cu Co Fe Mg Mn Mo Ni K Ag Na Sn V Zn
As Pb Se Tl Hg

A29

97-036

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

FLUOR DANIEL GTI

October 28, 1997

Mr. Ben Hargrove
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, CA 94710

Dear Mr. Hargrove:

The following analysis and discussion of migration of perchloroethylene (PCE) in the vadose zone and groundwater beneath the former dry cleaner site in the Town and Country Village Shopping Center is a follow-up to our previous analysis using the SESOIL model. This additional analysis was completed at the request of DTSC.

In our analysis using SESOIL we simulated the leaching of PCE in soil beneath the site to the groundwater table, approximately 50 feet below ground surface. The initial concentrations of PCE in the vadose zone used in this scenario were based on the maximum concentrations found in soil samples from the site. Under these conservative conditions the results of the modeling showed that PCE would not reach the water table after 99 years. We believe this scenario is realistic.

At the request of DTSC we have evaluated the hypothetical scenario whereby groundwater is impacted by PCE and a dissolved-phase plume is migrating away from the site. This scenario is proposed based on the analytical results for some of the soil samples, notably EB-12, EB-13, and EB-16, that show PCE increasing slightly with depth. The trend of this slight increase was then extrapolated to predict a hypothetical PCE concentration at the water table. This conceptual model of contaminant migration would not be expected to occur because 1) there is no plausible release mechanism which accounts for a continuous, monotonic increase in concentration with depth to the water table, and 2) the natural attenuation which would be expected to occur is disregarded. It should be noted that to date, PCE has not been detected in groundwater beneath the site.

To evaluate this scenario, the solute fate and transport model, BIOSCREEN was used to simulate the migration of a hypothetical dissolved-phase PCE plume in groundwater moving northward along the known direction of groundwater flow, away from the hypothetical source. BIOSCREEN is a USEPA screening-level analytical model that simulates the processes of advection, dispersion, adsorption, and biodegradation. The attached table shows the parameters used in the model simulations and the rationale for parameter selection.

757 Arnold Drive, Suite D / Martinez, CA 94553 USA (510) 370-3990 FAX (510) 370-3991
A:\TOWN&CO.LTR

97-036

Where a range of parameters was available, the most conservative value was selected, i.e., parameters were selected that would simulate the greatest hypothetical plume migration possible. A higher, and therefore more conservative, hydraulic conductivity value of 1×10^{-2} centimeters/second was selected to simulate the permeability of the gravelly sand within the saturated zone beneath the site. The initial hypothetical concentration of the dissolved-phase plume was estimated based upon the increasing concentrations of PCE in soil as indicated in soil borings EB-12, EB-13, and EB-16. As shown in the attached model input, a maximum concentration of 1200 micrograms per liter (1.2 mg/L) was calculated as the point source concentration.

Simulations were run to show the effects of advection, dispersion, and adsorption on plume mobility. The results of the 100-year simulation are illustrated in the attached schematic which shows dissolved PCE concentrations in the plume versus distance from the source area. Simulations of plume migration at 0.5, 10, 20, and 50 fifty years were also completed but show less migration than the 100-year simulation. As an additional element of conservativism, degradation of the plume was not simulated. Simulating degradation resulted in the plume completely disappearing within 10 years.

The 100-year simulation demonstrates the predicted PCE concentration to be zero at a distance of 1,600 to 1,800 feet downgradient of the source area. At this distance the hypothetical plume will not have migrated beyond the Town and Country property boundary. In addition, none of the predicted concentrations exceed acceptable risk thresholds, considering the anticipated future use of the property.

We trust the foregoing analysis provides sufficient information so that no further PCE characterization will be required. Please contact either of the undersigned if there are any final questions.

Sincerely,
Fluor Daniel GTI, Inc.
Submitted by:

Dennis Maslonkowski

Dennis Maslonkowski, R.G.
Principal Hydrogeologist

Fluor Daniel GTI, Inc.
Approved by:

Richard H. Green, R.G.
Project Manager

c: Nancy Herman, FRIT

97 - 036

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BIOSCREEN MODELING PARAMETERS AND RATIONALE

Federal Realty - Town & Country Village Shopping Center
San Jose, California

Input Parameter	Value	Rationale
Simulation period (years)	100	Simulated migration of plume after 100 years to show maximum extent.
Hydraulic conductivity, K (cm/sec)	1.0E-02	Based on site lithology for gravelly sand.
Hydraulic gradient, i (ft/ft)	0.002	Based on March 1997 water levels; gradient to N-NW.
Effective porosity, n_e (dimensionless)	0.24	n_e based on previous SESOIL modeling for site.
Seepage velocity (ft/year)	86.2	Based on gradient, K, and porosity.
Aquifer thickness, b (ft)	20	Estimated thickness of upper aquifer.
Water table elevation (ft below ground surface)	49 - 53	Based on March 1997 water levels.
Longitudinal dispersivity, d_L (ft)	24.5	Range of d_L: 1 ft (for homogeneous aquifers) to 150 ft (for heterogeneous aquifers) (EPRI, 1991).
Ratio of transverse dispersivity, d_T, to longitudinal dispersivity, d_L (dimensionless)	0.1	Ratio range: 0.05-0.20 (Freyberg, 1986).
Soil bulk density of solids, B_d (kg/L)	1.35	Based on previous SESOIL modeling for site.
Partition Coefficient, K_{oc} - PCE (L/kg)	661	Based on HHSE for site.
Fraction organic carbon, foc (dimensionless)	0.2%	Based on previous SESOIL modeling for site.
Retardation factor, R_f (dimensionless)	8.4	Calculated from B_d, n_e, and distribution coefficient, K_d.
Constant source concentration, C_s (ug/l)	1200	Hypothetical PCE source concentration in groundwater based on PCE concentrations in soil.

97-036

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — Version 1.3

Federal Realty
PCE
Run Name

Data Input Instructions:

115 → 1. Enter value directly....or
↑ or
0.02 ← 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	86.2	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	1.0E-02	(cm/sec)
Hydraulic Gradient	i	0.002	(ft/ft)
Porosity	n	0.24	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	24.5	(ft)
Transverse Dispersivity*	alpha y	2.4	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	1000	(ft)

3. ADSORPTION

Retardation Factor*	R	8.4	(-)
or		↑ or	
Soil Bulk Density	rho	1.35	(kg/l)
Partition Coefficient	Koc	661	(L/kg)
FractionOrganicCarbon	foc	2.00E-03	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	1.5E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	4.50	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	2000	(ft)
Modeled Area Width*	500	(ft)
Simulation Time*	100	(yr)

L W

6. SOURCE DATA

Source Thickness in Sat.Zone* 20 (ft)

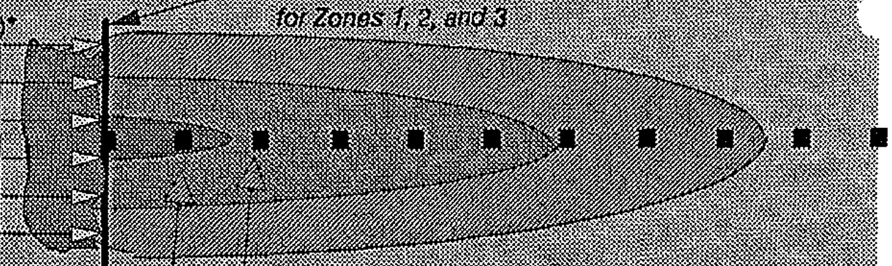
Source Zones:

Width* (ft)	Conc. (mg/L)*
10	0.012
25	0.12
50	1.2
25	0.12
10	0.012

Source Decay (see Help):

SourceHalflife*	<1	(yr)
Soluble Mass	↑ or	
In NAPL, Soil	1	(Kg)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	200	400	600	800	1000	1200	1400	1600	1800	2000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

97-036

DISSOLVED PCE CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	200	400	600	800	1000	1200	1400	1600	1800	2000
250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
125	0.000	0.000	0.000	0.000	0.000	0.008	0.020	0.005	0.001	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.037	0.071	0.014	0.001	0.000	0.000
-125	0.000	0.000	0.000	0.000	0.000	0.008	0.020	0.005	0.001	0.000	0.000
-250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

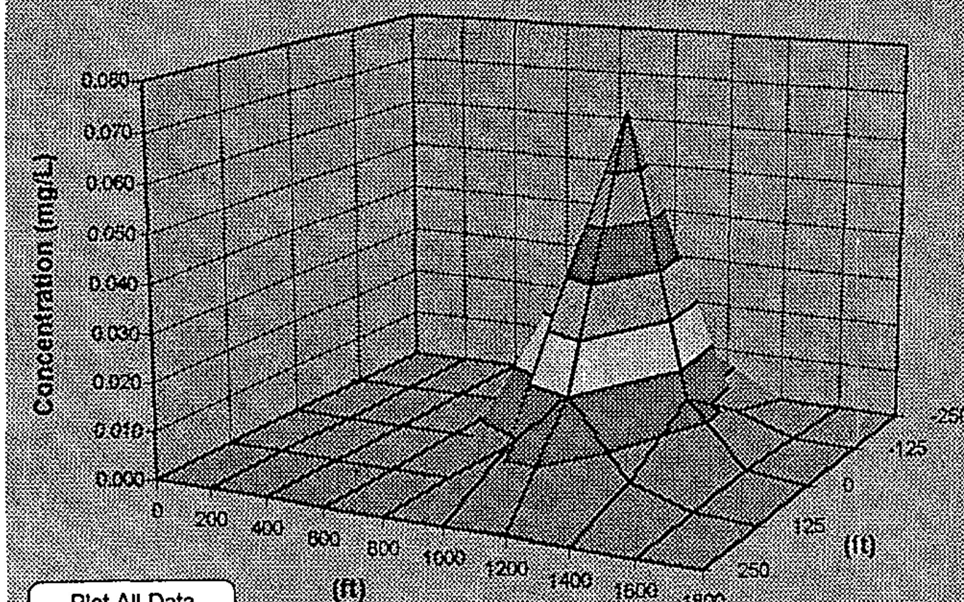
Model to Display:

No Degradation Model

1st Order Decay Model

Instantaneous Reaction Model

Time: **100 Years** Target Level: **0.005** mg/L Displayed Model: **No Degradation**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Original Mass in Source (Time = 0 Years): 1.0 *(Kg)*

Mass in Source Now (Time = 100Years): 0.0 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP

Recalculate

97-036

APPENDIX G

RESPONSES TO THE NOTICE OF PREPARATION

97-036

TECHNICAL SPECIFICATIONS

1. P.C.C. pavement with monolithic curb and gutter shall conform to the provisions in Section 40, "PORTLAND CEMENT CONCRETE PAVEMENT," and Section 90, "PORTLAND CEMENT CONCRETE" of the State Standard Specifications and these special provisions.

2. P.C.C. pavement shall be class A with a compressive strength of 4000 psi at the age of 28 days. Polypropylene fibers (Fibermesh or approved equal), length 1/2", shall be added to the concrete at a rate of 1 1/2 lbs/cy.

3. After spreading and compacting, P.C.C. shall be given a preliminary finish which shall be smooth and true to grade. In advance of curing operations, the pavement shall be given a final rough broom finish with grooves having a depth of 1/8" perpendicular to the curb and gutter.

4. All newly - placed concrete shall be cured in accordance with the provisions in Section 90-7, "Curing Concrete," of the State Standard Specifications. Curing compound to be used shall be applied to the P.C.C. following the surface finishing operations immediately before the moisture sheen disappears from the surface and before any drying, shrinkage or craze cracks begin to appear. Curing compound shall be applied at a nominal rate of one gallon per 150 square feet. At any point, the application rate shall be within +/- 50 square feet per gallon of the nominal rate specified.

5. Sawcutting of the contraction joints must be performed within 24 hours after concrete has received final surface finish.

6. Contractor shall protect P.C.C. pad as specified in Section 90-8.03, "Protecting Concrete Pavement." Where public traffic will be required to cross over new pavement, and if directed by the Engineer, Type III Portland Cement shall be used in concrete. When Type III Portland Cement is used in concrete, and if permitted in writing by the Engineer, the pavement may be opened to traffic as soon as the concrete has developed a modulus of rupture of 550 pounds per square inch. The modulus of rupture will be determined by California Test Method 523.

   No traffic or Contractor's equipment, except as hereinafter provided, will be permitted on the pavement before a period of ten (10) calendar days has elapsed after the concrete has been placed, nor before the concrete has developed a modulus of rupture of at least 550 pounds per square inch. Concrete that fails to attain a modulus of rupture of 550 pounds per square inch within 10 days shall not be opened to traffic until directed by the Engineer.

   Equipment for sawing contraction joints (weakened plane joints) will be permitted on the pavement as specified in Section 40-1.08B, "Weakened Plane Joints," of the State Standard Specifications.

7. Contraction joints, expansion joints and gaps between the P.C.C. pad and the existing pavement section shall be cleaned and sealed prior to permitting traffic on the pad. Removable cap joint shall be placed around the perimeter of the concrete pad excluding curb and gutter. Joint sealing compound shall be type "A" joint seal and shall conform to the provisions of Section 51-1.12F of the State Standard Specifications. The Z component polyurethane sealant shall be State Specification 8030 - 61J - 01 or approved equal.

SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

BUS STOP PAVEMENT DETAILS

ATTACHMENT 1 FOR FIGURE 26

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION
BOX 23660
OAKLAND, CA 94623-0660
(510) 286-4444
TDD (510) 286-4454

RECEIVED
SEP 03 1997
CITY OF SAN JOSE
PLANNING DEPARTMENT

August 28, 1997

SCL-280-7.449
SCL280212

Ms. Lori Neff
Department of Planning, Building & Code Enforcement
City of San Jose
801 North First Street, Room 400
San Jose, CA 95110-1795

Dear Ms. Neff:

Re: Town and Country Village Project

Thank you for including the California State Department of Transportation (Caltrans) in the early stages of the environmental review process. We have reviewed the above referenced application and forward the following comments:

1. We recommend that a complete traffic study be conducted for this project, to determine impacts on SR880 and SR280 and all significantly affected streets, crossroads, and controlling intersections. Traffic impacts should be analyzed in terms of:

   a. Trip generation, distribution and assignment. The methodologies used in compiling the information should be explained. Data needs to be current.

   b. Average Daily Traffic (ADT), and AM ad PM peak hour volumes for SR880, SR280, and all other significantly affected streets and roadways, including crossroads and controlling intersections, for existing and future traffic.

2. Any work or traffic control done within State right-of-way will require an encroachment permit. To apply for a Caltrans permit, the applicant should submit a completed application, environmental documentation and five sets of plans to the following address:

   G. J. Battaglini, District Office Chief
   Caltrans, District 4
   Office of Permits
   P.O. Box 23660
   Oakland, CA 94623-0660

Neff/SCL280212
August 28, 1997
Page 2

We appreciate the opportunity to work with you on this project. Should you require additional information or have any questions regarding this letter, please call James S. L. Jung of my staff at (510) 286-5725.

Sincerely,

HARRY Y. YAHATA
District Director

By: Phillip Badal

PHILLIP BADAL
District Branch Chief
IGR/CEQA

State of California

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

1400 TENTH STREET
SACRAMENTO 95814

PETE WILSON
GOVERNOR

LEE GRISSOM
DIRECTOR

RECEIVED
AUG 01 1997
CITY OF SAN JOSE
PLANNING DEPARTMENT

DATE: July 28, 1997

TO: Reviewing Agencies

RE: TOWN AND COUNTRY VILLAGE PROJECT
SCH# 97072085

Attached for your comment is the Notice of Preparation for the TOWN AND COUNTRY VILLAGE PROJECT draft Environmental Impact Report (EIR).

Responsible agencies must transmit their concerns and comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of this notice. We encourage commenting agencies to respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

LORI NEFF
CITY OF SAN JOSE
~~[illegible] ROOM 400~~
801 N. FIRST STREET
SAN JOSE, CA 95110-1795

with a copy to the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the review process, call Kristen Derscheid at (916) 445-0613.

Sincerely,

ANTERO A. RIVASPLATA
Chief, State Clearinghouse

Attachments

cc: Lead Agency

Historical Resources Information System
Northwest Information Center
Sonoma State University
1801 East Cotati Avenue
Rohnert Park, CA 94928-3609

City of San Jose
Department of Planning
Building & Code Enforcement
Attn: Lori Neff
City Hall Annex, Room 400
801 N. First Street
San Jose, CA 95110-1795

August 7, 1997

File No.: 97-SC-69E

re: Federal Realty Investment Trust.
File # PDC97-06-036

Dear Staff:

Our office has no additional comment on the above referenced document. However, thank you for your continued concern for protecting historical resources.

Sincerely,

Leigh Jordan
Coordinator, NWIC

97-036

August 11, 1997

Cal/EPA

Department of Toxic Substances Control

700 Heinz Avenue
Suite 200
Berkeley, CA
94710-2737

Pete Wilson
Governor

James M. Strock
Secretary for Environmental Protection

Ms. Lori Neff
City of San Jose Department of Planning
Building & Code Enforcement
City Hall Annex, Room 400
801 N. First Street
San Jose, California 95110-1795

RECEIVED
AUG 12 1997
CITY OF SAN JOSE
PLANNING DEPARTMENT

Dear Ms. Neff:

TOWN AND COUNTRY VILLAGE SHOPPING CENTER
RESPONSE TO CEQA NOTICE OF PREPARATION
FILE NO. PDC97-06-036

The Department of Toxic Substances Control (DTSC) has received the California Environmental Quality Act (CEQA) Notice of Preparation for the Town and Country Village Project in San Jose, California (Project). DTSC looks forward to seeing the Project come to fruition and working cooperatively with the planning agencies involved with the Project. As a responsible agency under CEQA, DTSC plans to use the Environmental Impact Report (EIR) prepared by the City of San Jose.

Federal Realty Investment Trust (FRIT) has performed the environmental characterization work. The characterization documents indicate that there are areas of the Project site that require remediation to address soils contaminated with tetrachloroethene (PCE), arsenic, lead, and chlorinated pesticides. DTSC expects the remedy for the Site to consist of a mix of excavation and offsite disposal and consolidation and capping in place.

The EIR must account for potential impacts of the cleanup work on earthen structures, air quality, surface and ground water, animal and plant life, land use, natural resources, risk of upset, public resources, energy, utilities, noise, public health and safety, aesthetics, cultural and paleontological resources, traffic, population, housing, recreation, and cumulative effects.

Since the CEQA documents for the Project should address potential effects of the cleanup work conducted before the development as well as the development itself, DTSC should be brought into the CEQA process early on to ensure that the full scope of effects is addressed. At your earliest convenience, please call Ben Hargrove at (510) 540-3845 to arrange a time to meet with DTSC to discuss these issues.

Printed on Recycled Paper

97-036

Ms. Lori Neff
August 11, 1997
Page Two

Sincerely,

Karen M. Toth, P.E.
Unit Chief
Northern California Coastal
Cleanup Operations Branch

cc: Ms. Tamara J. Gabel
Berliner Cohen
10 Almaden Boulevard, 11th Floor
San Jose, California 95113

Ms. Nancy Herman
Environmental Coordinator
Federal Realty Investment Trust
1626 E. Jefferson Street
Rockville, Maryland 20852

Mr. Guenther Moskat
Department of Toxic Substances Control
Office of Program Audits & Environmental Analysis
Planning and Environmental Analysis Section
400 P Street
Sacramento, California 95814

97-036

County of Santa Clara

Roads and Airports Department
Land Development and Permits

101 Skyport Drive
San Jose, California 95110

August 11, 1997

RECEIVED
AUG 12 1997
CITY OF SAN JOSE
PLANNING DEPARTMENT

Ms. Lori Neff
City of San Jose
Department of Planning
801 North First Street
San Jose, CA 95110

Subject: **Notice Of Preparation Of An Environmental Impact Report (EIR) For The Town And Country Village Project City File No.: PDC 97-06-036**

Dear Ms. Neff:

We have reviewed the subject Notice of Preparation. Our comments are as follows:

1. Under Transportation, the EIR should address the potential traffic impacts and mitigation measures by this project for the County's San Tomas Expressway.

2. The EIR should also address the cumulative traffic impacts and mitigation measures resulting from this project combined with other proposed development in the area.

Thank you for the opportunity to review and comment on this project. If you have any questions, please call me at 573-2460.

Sincerely,

Ed Evangelista

Ed Evangelista
Project Engineer

cc: M. Akbarzadeh
Central File
Project File

epe644

Ref:0523

97-036

THE CITY OF SANTA CLARA

CALIFORNIA

PLANNING DIVISION
CITY HALL
1500 WARBURTON AVE
SANTA CLARA, CA 95050
(408) 984-3111
(FAX) (408) 241-3823

August 25, 1997

Lori Neff
City of San Jose, Dept. of Planning & Code Enforcement
City Hall Annex, Room 400
801 N. First Street
San Jose, CA 95110-1795

Dear Ms. Neff:

We are in receipt of the NOP for the redevelopment of the Town and Country Village Shopping Center at Winchester Boulevard and Stevens Creek Boulevard in the City of San Jose. We understand the project consists of a rezoning from Commercial (C-3) to Planned Development A(PD) to allow construction of a mixed use development, including up to 1,200 new residential units, up to 650,000 square feet of Commercial and retail space, up to 200 new hotel rooms, and eight parking structures with a total capacity of up to 4,500 parking spaces. We further understand that primary access to the site would remain from Stevens Creek Boulevard and Winchester Boulevard, with additional site access to be provided from northeast along Hemlock Avenue and from the south from Dudley Avenue.

The City of Santa Clara requests that a Transportation Impact Analysis (TIA) be prepared, based upon the Santa Clara Valley Transportation Authority's Congestion Management Program Guidelines.

Sincerely,

Art Henriques

Arthur E. Henriques
City Planner

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97-036

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AUG 04 1997
CITY OF SAN JOSE
PLANNING DEPARTMENT

CITY OF CAMPBELL • THE ORCHARD CITY

CITY OF CAMPBELL

Community Development Department · Current Planning

July 30, 1997

Ms. Lori Neff
City of San Jose Planning Office
City Hall Annex, Room 400
801 N. First Street
San Jose, CA 95110-1795

Re: Environmental Documents PDC 97-06-036 & H 97-02-012

Dear Ms. Neff:

The City of Campbell appreciates receiving the notice regarding the preparation of the environmental documents for the Town and Country Village Project and the Valley Fair Expansion Project. We would appreciate having a copy of each EIR sent to the following address:

Tim J. Haley, Associate Planner
City of Campbell
Community Development Department
70 N. First Street
Campbell, CA 95008

Thanks in advance for your assistance with this request. If you have any questions, I can be reached at (408) 866-2144.

Sincerely,

Tim J. Haley
Associate Planner

70 North First Street · Campbell, California 95008.1423 · TEL 408.866.2140 · FAX 408.866.8381 · TDD 408.866.2790

97-036

Santa Clara Valley Water District

5750 ALMADEN EXPRESSWAY
SAN JOSE, CA 95118-3686
TELEPHONE (408) 265-2600
FACSIMILE (408) 266-0271

AN AFFIRMATIVE ACTION EMPLOYER

RECEIVED
AUG 27 1997
CITY OF SAN JOSE
PLANNING DEPARTMENT

August 25, 1997

Department of Planning, Building,
and Code Enforcement
City of San Jose
Attention: Ms. Lori Neff
City Hall Annex,
801 N 1st St Rm 400
San Jose, CA 95110-1704

Dear Ms. Neff:

Subject: Town and Country Village Project, File Number PDC97-06-036

Santa Clara Valley Water District (District) staff have reviewed the Notice of Preparation of the Environmental Impact Report (EIR) for the subject project, received by us on July 28, 1997. It is noted that Drainage and Water Quality issues were not included. District concerns include changes in the quantity and quality of drainage and water quality. Storm water and other runoff will eventually be conveyed to a District facility such as San Tomas Aquino Creek. Redevelopment of this site will result in potential short-term and long-term changes. Please include these issues in the EIR.

The redevelopment of the shopping center will offer opportunities to design storm water quality control measures for the parking lots and other structures. The use of parking structures is generally advantageous from an urban runoff quality standpoint since the area of parking that is exposed to storm water is reduced. However, care should be taken so that maintenance activities, such as cleaning, do not result in pollutants entering the storm drain system and, thus, District facilities. The design of exterior parking should include consideration of parking lot best management practices (BMPs). Recommendations are contained in the *Parking Lot BMP Manual* produced by the Santa Clara Valley Urban Runoff Pollution Prevention Program (Program). Additional recommendations for site design that reduces storm water pollution are presented in the Bay Area Stormwater Management Agencies Association's *Start at the Source*. Both of these are available from the City of San Jose's urban runoff coordinator or from the Program, (800) 794-2482.

According to the Federal Emergency Management Agency's Flood Insurance Rate Map, this area is not subject to flooding during a 100-year, or 1 percent, event.

Our records do not indicate any wells at this site. In accordance with District Ordinance 90-1, any unregistered wells must be located and registered or properly destroyed. For additional information, please call Mr. Dave Zozaya, (408) 265-2607, extension 2650.

recycled paper

SANTA CLARA
Valley Transportation Authority

RECEIVED
AUG 28 1997
CITY OF SAN JOSE
PLANNING DEPARTMENT

August 26, 1997

City of San Jose
Department of Planning and Building
801 North First Street
San Jose, CA 95110

Attention: Lori Neff

Subject: City File No. PDC97-06-036 / Town and Country Village

Dear Ms. Neff:

Santa Clara Valley Transportation Authority (VTA) staff have reviewed the Notice of Preparation of a Draft EIR for the project referenced above to allow redevelopment of a 39-acre site with mixed use development at the southeast corner of South Winchester Boulevard and Stevens Creek Boulevard. The project will include 800-1,200 residential units, 525,000-650,000 square feet of commercial development, 100-200 hotel rooms, and 8 parking structures with a capacity of up to 4,500 spaces. VTA comments follow, and are separated into *Transit Service* and *Congestion Management Program (CMP)* issues to reflect our dual role in reviewing the project.

Transit Service

General

The NOP states that the "*EIR traffic analysis will identify the existing roadway conditions and other elements (bus routes, bike routes, et.)....*" We request that a separate section entitled "Transit Service" be added to the Environmental Setting, Impacts, and Mitigation Measures chapter of this project's Draft EIR.

Bus Service

The project site is served by *Line 60* along Winchester Boulevard. *Line 60* serves the site with 15 minute peak period headways and 30 minute off-peak period headways.

VTA maintains two bus stops on Winchester Boulevard, one north of Olson Drive and another north of Olin Drive, adjacent to the proposed project. There are about 60 daily boardings for these two stops. Winchester Boulevard in the vicinity of the project is a busy 6-lane arterial with a northbound curb lane that varies in width from 16.5 feet at the Olson Drive bus stop to 19 feet at the Olin Drive bus stop. The width of both curb lanes is less than the VTA minimum standard curb lane width of 22 feet.

Therefore, in order to reduce potential traffic conflicts, enhance passenger convenience, and reduce project generated vehicle trips, VTA staff recommend that the City condition the developer to provide the following transit improvements:

- Bus duckouts (modified depth acceptable) with PCC pavement pads at the Olson Drive and Olin Drive bus stops consistent with *VTA Typical Bus Duckout and Bus Stop Pavement Details (Figures 22 and 26 and Technical Specifications*, attached).

- A sidewalk along Winchester Boulevard with a minimum width of 8 feet at the bus duckouts in compliance with *Americans with Disabilities (ADA)* bus stop access standards.

- A 7' X 25' PCC shelter pad with a #5 pull box, 1" conduit, capped stub-up and pull string behind the sidewalk at the Olson Drive bus stop consistent with *Stub-Up Details* in *VTA Bus Stop Configuration (Figure 20*, attached).

- Wheelchair curb ramps at all street and driveway intersections in compliance with *ADA* pedestrian circulation standards.

Site Design

We also recommend that the project incorporate design features to take advantage of the close proximity of this high density, mixed use project to transit service. Specifically, pedestrian networks which enable safe and convenient travel within the facility should be included, along with provisions for well defined, lighted pedestrian links between the project site and the bus stops.

Congestion Management Program (CMP)

CMP staff have the following recommendations concerning the traffic analysis for this project:

- Specific CMP facilities that should be analyzed in the Draft EIR and the Transportation Impact Analysis (TIA) include: I-880, I-280, Stevens Creek Boulevard, and San Thomas Expressway. The proposed project may also have impacts to Saratoga Avenue.
- When evaluating transportation facilities located in adjacent jurisdictions, there should be coordination with staff from these other jurisdictions.
- Also, the analysis of intersections and freeway ramps should include the impact of ramp metering, if metering is present or planned.
- CMP statutes require that a local jurisdiction use a computer model consistent with the designated CMP transportation model when determining transportation impacts of land use decisions on the CMP network. Therefore because the Draft EIR will address transportation

97-036

impacts on the CMP's designated roadway, transit, and bicycle network, the TIA for the Draft EIR should use trip distribution standards and land use projections consistent with the CMA model maintained by the Center for Urban Analysis.

- In addition, the TIA should be coordinated with the traffic analysis being completed for the proposed Valley Fair expansion project. The Valley Fair expansion project should be included in the cumulative impact analysis.

Thank you for the opportunity to review this project. If you have any questions, please call Roy Molseed of my staff at (408) 321-5784.

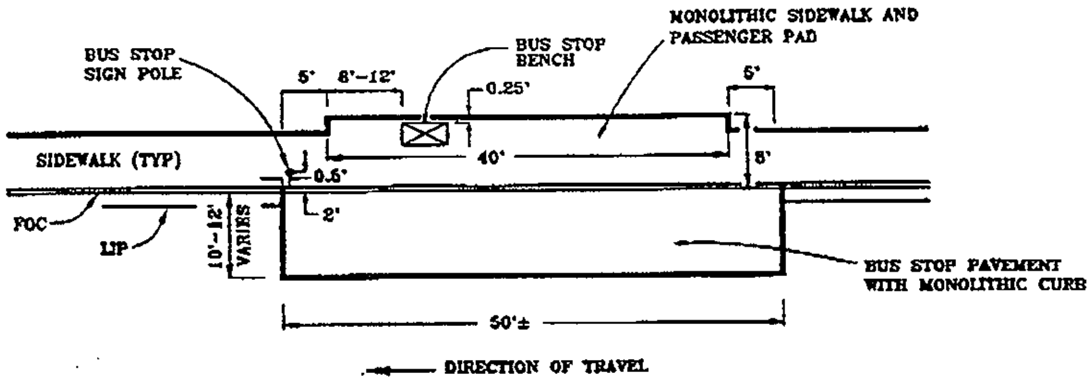
Sincerely,

Thomas Rountree
Environmental Program Manager

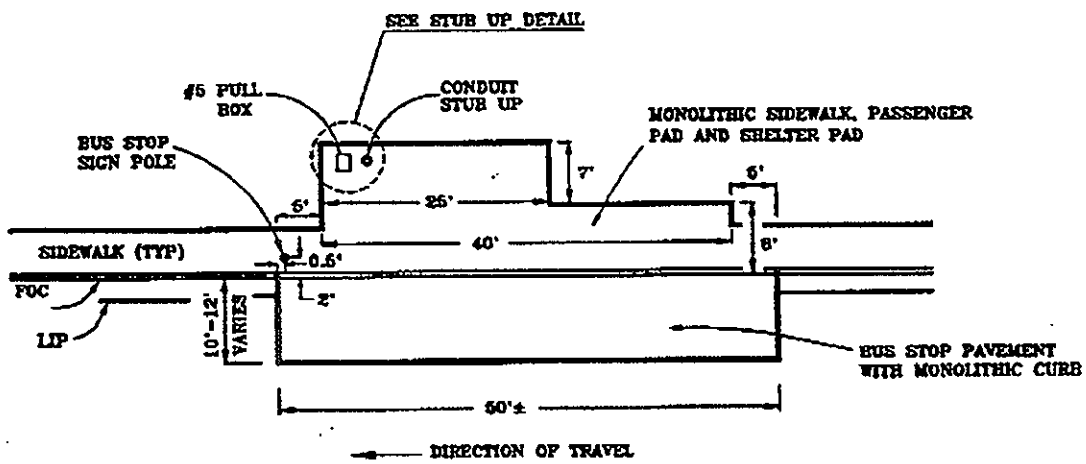
TDR:RM:sr

cc: Ron Conn, San Jose Public Works Department

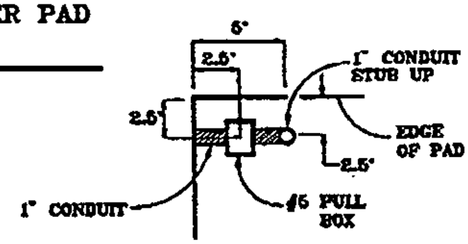
97-036



BUS STOP AND PASSENGER PAD
WITHOUT SHELTER



BUS STOP AND PASSENGER PAD
WITH SHELTER



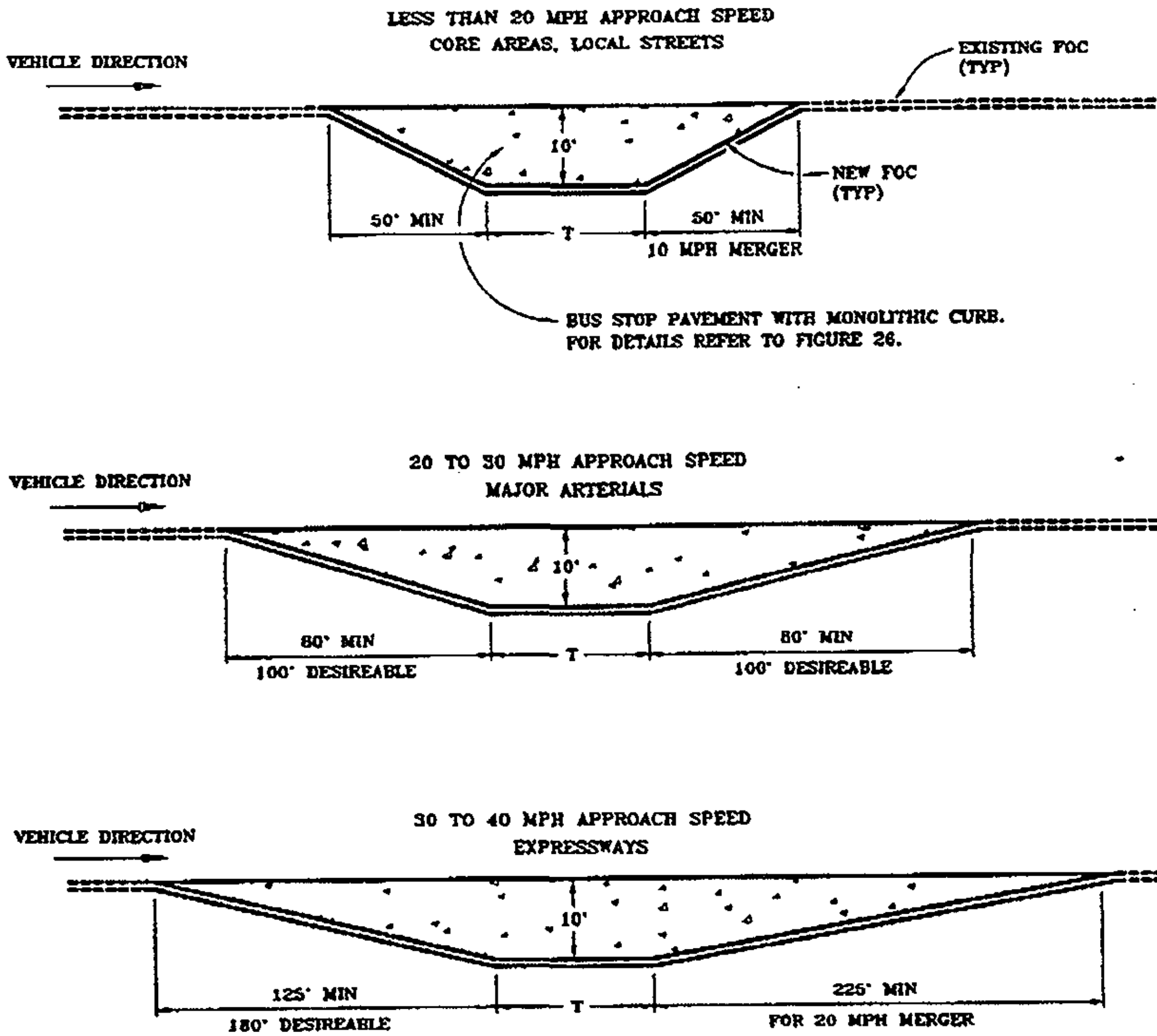
STUB UP DETAIL

SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

BUS STOP CONFIGURATION

FIGURE 20

97-036



PLAN VIEW

NOTE:

T (TANGENT LENGTH) = 55' REQUIRED FOR ONE STANDARD BUS STOP AND 75' FOR ONE ARTICULATED BUS STOP.

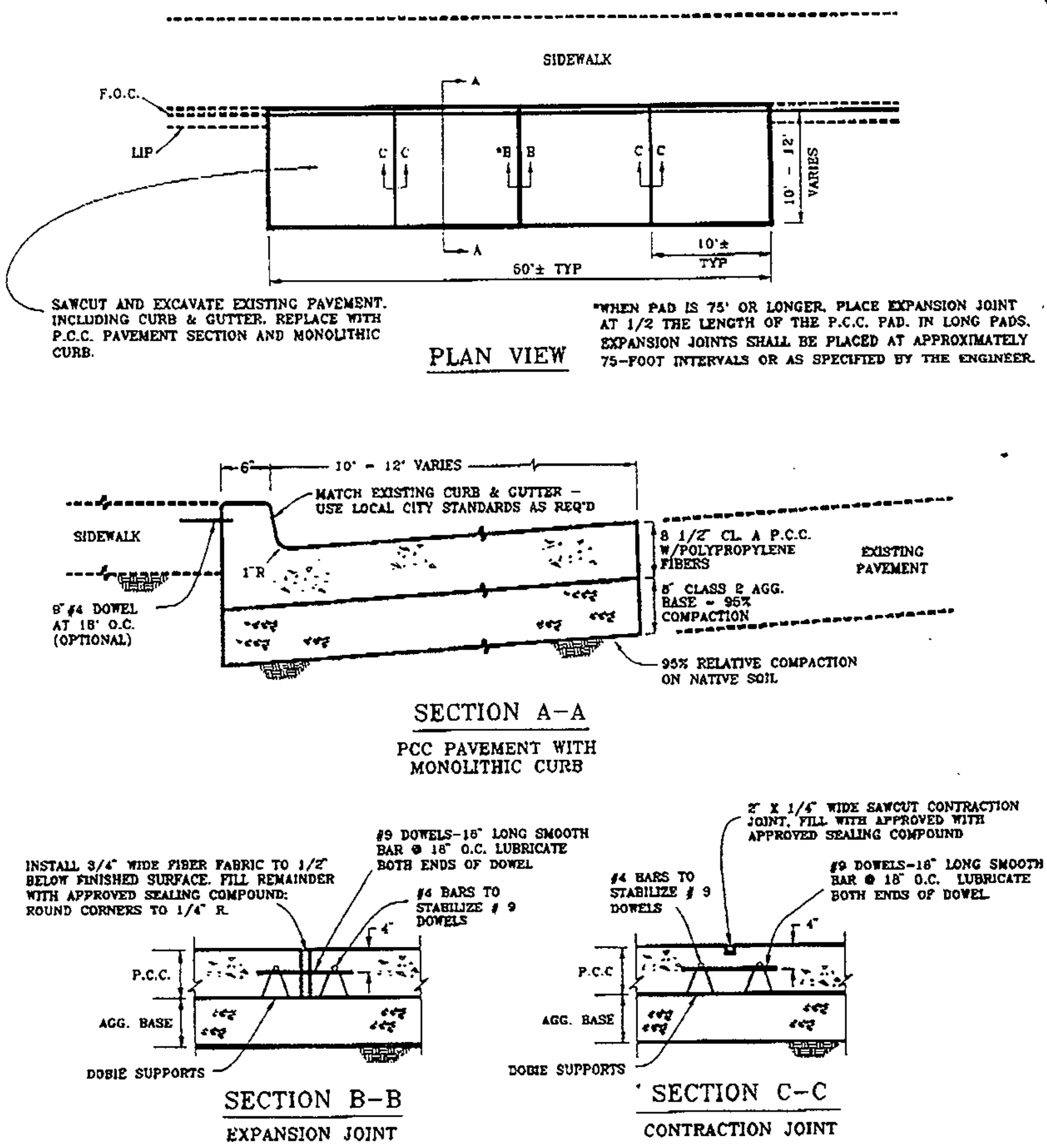
= T + 70' (X-1), WHERE X = # OF BUSES (USE AT MAJOR TRANSFER TERMINAL)

SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

TYPICAL BUS DUCKOUT

FIGURE 22

97-036



NOTE: FOR TECNICAL SPECIFICATIONS REFER TO ATTACHMENT 1.

SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

BUS STOP PAVEMENT DETAILS

FIGURE 26