COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET. 4TH FLOOR. SANTA CRUZ. CA 95060
(831)454-2580 FAX: (831)454-2131 TDD: (831)454-2123
TOM BURNS, PLANNING DIRECTOR

NOTICE OF ENVIRONMENTAL REVIEW PERIOD

SANTA CRUZ COUNTY

APPLICANT: Powers Land Planning. for BK Properties

APPLICATION NO.: **06-0651**

APN: **039-062-05**

The Environmental Coordinator has reviewed the Initial Study for your application and made the following preliminary determination:

XX Neaative Declaration
(Your project will not have a significant impact on the environment.)

XX Mitigations will be attached to the Negative Declaration.

_____ No mitigations will be attached.

_____ Environmental Impact Report
(Your project may have a significant effect on the environment. An EIR must be prepared to address the potential impacts.)

As part of the environmental review process required by the California Environmental Quality Act (CEQA), this is your opportunity to respond to the preliminary determination before it is finalized. Please contact Matt Johnston, Environmental Coordinator at (831) 454-3201, if you wish to comment on the preliminary determination. Written comments will be received until 5:00 p.m. on the last day of the review period.

Review Period Ends: September **24,2007**

Randall Adams
Staff Planner

Phone: **454-3218**

Date: **August 29,2007**

NAME: Haas Drive, BK Properties
APPLICATION: 06-0651
A.P.N: 039-062-05

NEGATIVE DECLARATION MITIGATIONS

A. In order to ensure that the mitigation measures B - H (below) are communicated to the various parties responsible for constructing the project, prior to any disturbance on the property the applicant shall convene a pre-construction meeting on the site. The following parties shall attend: the applicant, grading contractor supervisor, the project arborist, and Santa Cruz County Environmental Planning staff. The temporary construction fencing demarcating the disturbance envelope, tree protection fencing, and silt fencing will be inspected at that time. If disturbance is to occur before August 1st, results of pre-construction bird surveys will also be reviewed at that time.

B. In order to prevent erosion, off site sedimentation, and pollution of creeks, prior to start of site work the applicant shall submit a detailed erosion control plan for review and approval by Environmental Planning staff. The plan shall include a clearing and grading schedule, clearly marked disturbance envelope, revegetation specifications, temporary road surfacing and construction entry stabilization and details of temporary drainage control.

C. To prevent any incursion or disturbance in *the* riparian comdor, prior to land clearing and the pre-construction meeting, temporary orange fencing demarking the edge of disturbance between the project site and the riparian corridor must be in place. This fencing must remain in place until the permanent fencing is installed. This fencing must be shown on the improvement plans.

D. To prevent drainage discharges from carrying silt, grease, and other contaminants from paved surfaces into nearby waterways, the applicant/owner shall maintain the silt and grease traps in the storm **drain** system according to the following monitoring and maintenance procedures:

a. The traps shall be inspected to determine if they need cleaning or repair prior to October 15 each year at a minimum;
b. A brief annual report shall be prepared by the trap inspector at the conclusion of each October inspection and submitted to the drainage section of the Department of Public Works within ***5*** days of inspection. This monitoring report shall specify any repairs that have been done or that are needed to allow the trap to function adequately.

E. In order to prevent impacts to nesting raptors, if the project is underway outside of the time period of August 1 to October 15, *the* project biologist shall perform surveys within *two* weeks of the expected start date. If protected

raptors are nesting within the project area, either disturbance will be avoided until young have fledged, or a radius of "*no* disturbance" shall be implemented after consultation with California Department **of** Fish and Game staff.

F. In order to minimize impacts to air quality:

a. Standard dust control BMPs shall be implemented during all grading and demolition work.
b. In order to ensure that the one hour air quality threshold for the pollutant acrolein is not exceeded during demolition and paving, prior to the issuance **of** the grading permit, the applicant shall modify the grading plans to include notes incorporating the construction conditions given by **the** Monterey Bay Air Pollution Control District (MBAPCD) as follows:

i. All pre-1994 diesel equipment shall be retrofitted with Environmental Protection Agency certified diesel oxidation catalysts ***or*** all such equipment shall be fueled with B99 diesel fuel;
ii. Applicant shall retain receipts for purchases of catalysts or B99 diesel **fuel** until completion **of** the project;
iii. Applicant shall allow MBAPCD to inspect receipts and equipment throughout the project.

Alternatively, the applicant may submit a health risk assessment to the MBAPCD for review and approval. Any recommendations and requirements of the MBAPCD will become conditions of constructing the project.

G. In order to prevent impacts from noise generated by vehicular traffic on Soquel Drive, the applicant shall submit a letter from the acoustical engineer verifying that the plans reflect the recommendations cited in the Noise Study Report by Environmental Consulting Services, dated October 16, 2006.

H. In order to prevent impacts to mature trees that are to be retained, the applicant shall submit a **letter** from the project arborist verifying that the plans reflect the recommendations cited in the arborist report, by James P. Allen & Associates, dated October 5, 2006 and January 31, 2007. The project arborist shall be included in the preconstruction meeting to verify that all tree protection measures have been installed prior to clearing or grading activities. Prior to final inspection on the building permit, the project arborist shall provide the County Environmental Planning Staff with a letter indicating the recommendations of the arborist report have been implemented.

Environmental Review Initial Study

Application Number: 06-0651

Date: 8/27/07
Staff Planner: Randall Adams

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: Powers Land Planning

APN: 039-062-05 (Attachment 1)

OWNER: BK Properties

SUPERVISORAL DISTRICT: 2

LOCATION: Property located on the northeast corner of Soquel Drive and Haas Drive. (6851 Soquel Drive, Aptos) (Attachment1)

SUMMARY PROJECT DESCRIPTION: Proposal to divide a 1.55 acre parcel into 10 residential lots and common area.

Requires a Subdivision, General Plan Amendment from R-UVL to R-UM (and O-U for the riparian area), Rezoning from R-1-1AC to RM-4, Residential Development Permit, Riparian Exception, Roadway/Roadside Exception, Soils Report Review, and Preliminary Grading Review.

ALL OF THE FOLLOWING POTENTIAL ENVIRONMENTAL IMPACTS ARE EVALUATED IN THIS INITIAL STUDY. CATEGORIES THAT ARE MARKED HAVE BEEN ANALYZED IN GREATER DETAIL BASED ON PROJECT SPECIFIC INFORMATION.

X Geology/Soils	X Noise
____ Hydrology/Water Supply/Water Quality	____ Air Quality
X Biological Resources	____ Public Services & Utilities
____ Energy & Natural Resources	____ Land Use, Population & Housing
____ Visual Resources & Aesthetics	____ Cumulative Impacts
____ Cultural Resources	____ Growth Inducement
____ Hazards & Hazardous Materials	____ Mandatory Findings of Significance
X Transportation/Traffic	

DISCRETIONARY APPROVAL(S) BEING CONSIDERED

X	General Plan Amendment	X	Grading Permit
X	Land Division	X	Riparian Exception
X	Rezoning	____	Other:
X	Development Permit	____	
____	Coastal Development Permit	____	

NON-LOCAL APPROVALS

Other agencies that must issue permits or authorizations:

ENVIRONMENTAL REVIEW ACTION

On the basis of this Initial Study and supporting documents:

___ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

X I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the attached mitigation measures have been added to the project. A MITIGATED NEGATIVE DECLARATION will be prepared.

___ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Matt Johnston

Matt Johnston

8/29/07

Date

For: Claudia Slater
Environmental Coordinator

II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS
Parcel Size: 1.55 acres
Existing Land Use: Single family residence (formerly used as office building)
Vegetation: Mixed woodland and riparian
Slope in area affected by project: _X_ 0 - 30% ___ 31 – 100%
Nearby Watercourse: Unnamed tributary to Borregas Creek
Distance To: Adjacent to development (on subject property)

ENVIRONMENTAL RESOURCES AND CONSTRAINTS
Groundwater Supply: N/A
Water Supply Watershed: Not mapped
Groundwater Recharge: Not mapped
Timber or Mineral: Not mapped
Agricultural Resource: Not mapped
Biologically Sensitive Habitat: Mapped riparian woodland
Fire Hazard: Not mapped
Floodplain: Not mapped
Erosion: Not mapped
Landslide: Not mapped
Liquefaction: Low potential
Fault Zone: Not mapped
Scenic Corridor: Mapped scenic resource
Historic: Not mapped
Archaeology: Not mapped
Noise Constraint: Soquel Drive
Electric Power Lines: N/A
Solar Access: Limited (trees)
Solar Orientation: South
Hazardous Materials: N/A

SERVICES
Fire Protection: Aptos/La Selva Fire Protection District
School District: Soquel Elementary School District
Sewage Disposal: Santa Cruz County Sanitation District
Drainage District: Zone 6 Flood Control District
Project Access: Soquel Drive & Haas Drive
Water Supply: Soquel Creek Water District

PLANNING POLICIES
Zone District: R-1-1AC
General Plan: R-UVL
Special Designation: None
Urban Services Line: _X_ Inside ___ Outside
Coastal Zone: ___ Inside _X_ Outside

PROJECT SETTING AND BACKGROUND:

The subject property is approximately 1.55 acres located on the northeast corner of the intersection of Soquel Drive and Haas Drive, in Aptos. An existing single family dwelling, formerly used as an office building, is located at the center of the usable area of the property with a detached garage, outbuildings, and two existing driveway approaches at Soquel Drive. The remaining area of the subject property is partially improved with landscaping and miscellaneous improvements, with a riparian corridor along the eastern side of the project site. The property is wooded with a mixture of oaks, pines, cypress, and acacia trees. Single family residential development exists to the north and east, with detached townhouses to the southeast. Residences, commercial uses, a fire station and public school are located to the west and southwest across Soquel Drive.

DETAILED PROJECT DESCRIPTION:

This application is a proposal to construct 10 townhouses on an approximately 1.55 acre property. (Attachment **2)** The existing single family dwelling and detached outbuildings will be demolished as a component of this proposal. The site will be rezoned from the R-1-1AC (Single family residential - 1 acre minimum) zone district to the RM-4 (Multi-family Residential - 4,000 square feet minimum) zone district. The General Plan land use designation will be amended from R-UVL (Urban Very Low Density Residential) to R-UM (Urban Medium Density Residential) for this area. The R-I-1AC zone district remains from when this area was not served by sanitary sewer facilities. The parcel is now connected to the public sewer and a higher density zone district and General Plan designation are appropriate.

The proposed residential development will be accessed from Soquel Drive and Haas Drive. Seven townhouse units will be accessed from an interior driveway off Soquel Drive and the remaining three units will have vehicular access directly from Haas Drive. The interior roadway will require an exception *to* the County Design Criteria, with a reduced width, and no sidewalks or landscape strips. Haas Drive will require an exception due to a sidewalk on one side of the street (across Haas Drive from the proposed development).

Grading will be required to prepare the site for development and to ensure that the site is properly drained. Grading volumes will be approximately 550 cubic yards (cut) and 220 cubic yards (fill), with the remaining 330 cubic yards to be exported off site. Units 8, 9 & 10 will be constructed with a stepped foundation design due to the slope down from Haas Drive, with rear yard decks to avoid excessive grading. Retaining walls will be constructed behind the trash enclosure and the private yard area for Unit 1. Many of the trees will be removed due to age, condition, and site disturbance due to construction. Replacement trees will be installed in the common areas where space allows.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

III. ENVIRONMENTAL REVIEW CHECKLIST

A. Geology and Soils

Does the project have the potential to:

1.	Expose people or structures **to** potential adverse effects, including the risk of material loss, injury, or death involving:			
	A. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or as identified by other substantial evidence?	____	X	
	B. Seismic ground shaking?	____	X	
	C. Seismic-related ground failure, including liquefaction?		X	____
	D. Landslides?	____	X	

All of Santa Cruz County is subject to some hazard from earthquakes. However, the project site is not located within or adjacent to a county or State mapped fault zone. A geotechnical investigation for the proposed project was performed by Haro, Kasunich & Associates, dated 11/06 (Attachment 3). The report concluded that seismic shaking and potential creek slope failure can be managed through proper structure location and foundation design, and that the potential for liquefaction is low. The report has been reviewed and accepted by Environmental Planning staff (Attachment 4).

2.	Subject people or improvements to damage from soil instability as a result of on- or off-site landslide, lateral spreading, to subsidence, liquefaction, or structural collapse?		X	

See response A-I, above

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Develop land with a slope exceeding 30%?			X	

There are slopes that exceed 30% within the riparian corridor on the subject property. All structures will be set back a minimum of 10 feet from the break in slope above the riparian corridor.

4. Result in soil erosion or the substantial loss of topsoil?		X		

Some potential for erosion exists during the construction phase of the project, however, this potential is minimal because the structures are proposed to be located back from the edge of the slope above the riparian corridor, with drainage to be directed away from the slope to prevent erosion of the stream bank, and standard erosion controls are a required condition of the project. Prior to approval of a grading or building permit, the project is required to have an approved erosion control plan, which will specify detailed erosion and sedimentation control measures. The plan will include provisions for disturbed areas to be planted with ground cover and to be maintained to minimize surface erosion.

5. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code(1994), creating substantial risks to property?			X	

The geotechnical report for the project did not identify any elevated risk associated with expansive soils.

6. Place sewage disposal systems in areas dependent upon soils incapable of adequately supporting the use of septic tanks, leach fields, or alternative waste water disposal systems?			X	

No septic systems are proposed. The project will connect to the Santa Cruz County Sanitation District, and the applicant will be required to pay standard sewer connection and service fees that fund sanitation improvements within the district as a Condition of Approval for the project.

7. Result in coastal cliff erosion?				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

B. Hydrology, Water **Supply** and Water Quality
Does the project have the potential to:

1. Place development within a 100-year flood hazard area?			X	

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated March **2,** 2006, no portion of the project site lies within a 100-year flood hazard area.

2. Place development within the floodway resulting in impedance or redirection of flood flows?			X	

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated March 2, 2006, no portion of the project site lies within a 100-year flood hazard area.

3. Be inundated by a seiche or tsunami?				X

4. Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit, or a significant contribution to an existing net deficit in available supply, or a significant lowering of the local groundwater table?			X	

The project will obtain water from Soquel Creek Water District and will not rely on private well water. Although the project will incrementally increase water demand, Soquel Creek Water District has indicated that adequate supplies are available to serve the project as the project is required to participate in the District's offset program (Attachment 5). The project is not located in a mapped groundwater recharge area.

5. Degrade a public or private water supply? (Including the contribution of urban contaminants, nutrient enrichments, or other agricultural chemicals or seawater intrusion).		X		

Runoff from this project may contain small amounts of chemicals and other household contaminants. No commercial or industrial activities are proposed that would contribute a significant amount of contaminants to ***a*** public or private water supply.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

Potential siltation from the proposed project will be mitigated through implementation of erosion control measures. A silt and grease trap, and a plan for maintenance, will be required to reduce this impact to a less than significant level.

6.	Degrade septic system functioning?			X
7.	Alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner which could result in flooding, erosion, or siltation on or off-site?		X	

The proposed project will not alter the existing overall drainage pattern of the site. Buildings are proposed to be located back from the edge of the slope above the riparian corridor and drainage will be directed away from the slope to prevent erosion of the stream bank. Storm water runoff will be captured, treated, and discharged into existing storm drainage facilities in Soquel Drive to prevent potential impacts.

8.	Create or contribute runoff which would exceed the capacity of existing or planned storm water drainage systems, or create additional source(s) of polluted runoff?		X	

Drainage Calculations prepared by lfland Engineers, revised 1/07 (Attachment 6), have been reviewed for potential drainage impacts by the Department of Public Works (DPW) Drainage Section staff. The calculations show that the net increase in runoff will be 0.33 cubic feet per second for a ten year storm event before considering the detention systems. The runoff rate from the property is proposed to be controlled by on-site detention through a pervious trench drain to a rate that does not exceed the pre-development rate. DPW staff have determined that existing off-site storm water facilities are adequate to handle the increase in drainage associated with the project (Attachment 7). Refer to response B-5 for discussion of urban contaminants and/or other polluting runoff.

9.	Contribute to flood levels or erosion in natural water courses by discharges of newly collected runoff?		X	

See response B-8 above.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
10. Otherwise substantially degrade water supply or quality?		X		

A silt and grease trap, and a plan for maintenance, will be required to minimize the effects of urban pollutants.

C. Biological Resources

Does the project have the potential to:

1. Have an adverse effect on any species identified as a candidate, sensitive, or special status species, in local or regional plans, policies, or regulations, or by the California Department of Fish and Game, or **U.S.** Fish and Wildlife Service?		X		

According to the California Natural Diversity Data Base (CNDDB), maintained by the California Department of Fish and Game, there are no known special status plant or animal species in the site vicinity, and there were no special status species observed in the project area. However, due to the proposed tree removals, it will be necessary to determine the presence of special status bird species in the trees that are proposed to be removed and to adjust the timing of tree removals to avoid nesting periods for these species.

2. Have an adverse effect on a sensitive biotic community (riparian corridor), wetland, native grassland, special forests, intertidal zone, etc.)?		X		

The subject property is mapped as a Riparian Woodland, and contains a riparian corridor on the eastern side of the property. The area adjacent to the top of the bank of the riparian corridor is currently disturbed, with some improvements located at the edge of the bank above the stream. A Riparian Pre-Site (04-0047) was performed by Environmental Planning staff for a different project (Attachment 8). The pre-site determined that the buffer from the riparian corridor will be measured 20 feet from the top of the stream bank with an additional construction setback of 10 feet. A Riparian Exception is required for this proposed development and Environmental Planning staff have indicated that the findings for such an exception can be met (Attachment 7). In order to protect riparian resources, structures are proposed to be located back from the edge of the slope above the riparian corridor and drainage will be directed away from the slope to prevent erosion of the stream bank. Temporary fencing will be installed to prevent impacts to the riparian area during construction. Permanent fencing of the riparian area is proposed to prevent further activity or improvements that may adversely affect riparian resources.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Interfere with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native or migratory wildlife nursery sites?			X	

The proposed improvements are located away from the riparian corridor and the proposed project will not interfere with the movements or migrations of fish or wildlife, or impede use of a known wildlife nursery site.

4. Produce nighttime lighting that will illuminate animal habitats?		X		

The development area is adjacent to a riparian corridor, which could be adversely affected by a new or additional source of light that is not adequately deflected or minimized. The following conditions will be added to the project, such that any potential impact will be reduced to a less than significant level: all lighting in the project will be required to be shielded to prevent fugitive light and directed away from the riparian corridor.

5. Make a significant contribution to the reduction of the number of species of plants or animals?		X		

Refer to C-1 and C-2 above.

6. Conflict with any local policies or ordinances protecting biological resources (such as the Significant Tree Protection Ordinance, Sensitive Habitat Ordinance, provisions of the Design Review ordinance protecting trees with trunk sizes of ***6*** inch diameters or greater)?		X		

Although the project has been designed to preserve as many existing trees as possible, the removal of 31 trees in excess of 6 inches in diameter is proposed. An arborist's report and plan review letter, prepared by James P. Allen & Assoc., dated 10/5/06 & 1/31/07 (Attachment 9) were submitted to evaluate the health of the trees and to identify trees that were suitable for preservation. Per the arborist, many of the trees are in fair to poor health and/or structure. The arborist has identified tree protection measures to protect the trees suitable for preservation that have been incorporated into the project design. Adherence to the tree protection measures and

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

the planting of 28 replacement trees throughout the development (and relocation of 5 trees recently planted along Haas Drive to a more appropriate location) will mitigate for the proposed tree removals.

7.	Conflict with the provisions **of** an adopted Habitat Conservation Plan, Biotic Conservation Easement, or other approved local, regional, or state habitat conservation plan?			X

D. Energy and Natural Resources

Does the project have the potential to:

1.	Affect or be affected by land designated as 'Timber Resources" by the General Plan?			X
2.	Affect or be affected by lands currently utilized for agriculture, or designated in the General Plan for agricultural use?			X

The project site is not currently being used for agriculture and no agricultural uses are proposed for the site or surrounding vicinity.

3.	Encourage activities that result in the use of large amounts of fuel, water, or energy, or use of these in a wasteful manner?			X
4.	Have a substantial effect on the potential use, extraction, or depletion of a natural resource (i.e., minerals or energy resources)?			X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

E. Visual Resources and Aesthetics

Does the project have the potential to:

1.	Have an adverse effect on a scenic resource, including visual obstruction of that resource?		X	

The project is located within a mapped scenic resource area, as designated in the County's General Plan (1994). However, no public scenic resources can be identified on the project site or within the project area. The only views that will be affected by the project are those from private property and from roadways that are not designated as scenic roads in the County General Plan. County visual resource protection regulations only apply to public viewsheds.

2.	Substantially damage scenic resources, within a designated scenic corridor or public view shed area including, but not limited to, trees, rock outcroppings, and historic buildings?		X	

See response E-I above. The project site is not located along a County designated scenic road.

3.	Degrade the existing visual character or quality of the site and its surroundings, including substantial change in topography or ground surface relief features, and/or development on a ridge line?		X	

The existing visual setting is a residential neighborhood with some commercial and public facilities uses. The proposed project is designed and landscaped so as to fit into this setting.

4.	Create a new source of light or glare which would adversely affect day or nighttime views in the area?		X	

See response C-4 above.

5.	Destroy, cover, or modify any unique geologic or physical feature?		X	

There are no unique geological or physical Features on or adjacent to the site that would be destroyed, covered, or modified by the project.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
F. Cultural Resources				
Does the project have the potential to:				
1. Cause an adverse change in the significance of a historical resource as defined in CEQA Guidelines 15064.5?			X	

The existing structure(s) on the property is not designated as a historic resource on any federal, State or local inventory.

2. Cause an adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines 15064.5?			X	

No archeological resources have been identified in the project area. Pursuant to County Code Section 16.40.040, if at any time in the preparation for or process of excavating or otherwise disturbing the ground, any human remains of any age, or any artifact or other evidence of a Native American cultural site which reasonably appears to exceed 100 years of age are discovered, the responsible persons shall immediately cease and desist from all further site excavation and comply with the notification procedures given in County Code Chapter 16.40.040.

3. Disturb any human remains, including those interred outside of formal cemeteries?			X	

Pursuant to Section 16.40.040 of the Santa Cruz County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this project, human remains are discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the sheriff-coroner and the Planning Director. If the coroner determines that the remains are not *of* recent origin, a full archeological report shall be prepared and representatives of the local Native California Indian group shall be contacted. Disturbance shall not resume until the significance of the archeological resource **is** determined and appropriate mitigations to preserve the resource on the site are established.

4. Directly or indirectly destroy a unique paleontological resource or site?				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
G. Hazards and Hazardous Materials Does the project have the potential to:				
1. Create a significant hazard to the public or the environment as a result of the routine transport, storage, use, or disposal of hazardous materials, not including gasoline or other motor fuels?				
2. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
The project site is not included on the 4/16/07 list of hazardous sites in Santa Cruz County compiled pursuant to the specified code.				
3. Create a safety hazard for people residing or working in the project area as a result of dangers from aircraft using a public or private airport located within two miles of the project site?				X
4. Expose people to electro-magnetic fields associated with electrical transmission lines?				X
5. Create a potential fire hazard?			X	
The project design incorporates all applicable fire safety code requirements and will include fire protection devices as required by the local fire agency.				
6. Release bio-engineered organisms or chemicals into the air outside of project buildings?				X

	significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

H. Transportation/Traffic

Does the project have the potential to:

1.	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?		X	

The project will create a small incremental increase in traffic on nearby roads and intersections. However, given the small number of new trips created by the project, this increase is less than significant. Further, the increase will not cause the Level of Service at any nearby intersection to drop below Level of Service D.

2.	Cause an increase in parking demand which cannot be accommodated by existing parking facilities?		X	

The project meets the code requirements for the required number of parking spaces and therefore new parking demand will be accommodated on site.

3.	Increase hazards to motorists, bicyclists, or pedestrians?		X	

A traffic study to evaluate the vehicular sight stopping distance on Haas Drive has been prepared by Higgins Associates, dated 12/22/06 (Attachment 10). According to the traffic engineer, the three townhouses accessed off of Haas Drive will have adequate time and vehicular sight stopping distance to turn into and back out of the proposed driveways. The Department of Public Works, Road Engineering section has reviewed and accepted the traffic study.

The proposed project will include exceptions to the County Design criteria for the interior roadway and Haas Drive. The County standard for new roadways is a 56 foot wide right of way with parking, sidewalks, and landscape strips on both sides. The project design includes an exception to reduce the interior roadway to a 20 foot wide paved surface with 2 foot wide trench drain grates on either side (for a total width of 24 feet) and no parking along the roadway outside of marked stalls. The sidewalk on Haas Drive is located on the opposite side of the roadway from the proposed development and is adjacent to the curb with no landscape strip. On street parking has been limited to marked spaces and driveways, and adequate pedestrian circulation has been provided throughout the site which will prevent potential hazards to motorists, bicyclists, and/or pedestrians. Landscaping is provided throughout the project site.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
4. Exceed, either individually (the project alone) or cumulatively (the project combined with other development), a level of service standard established by the county congestion management agency for designated intersections, roads or highways?			X	

See response H-1 above.

I. Noise

Does the project have the potential to:

1. Generate a permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	

The project will create an incremental increase in the existing noise environment. However, this increase will be small, and will be similar in character to noise generated by the surrounding existing uses.

2. Expose people to noise levels in excess of standards established in the General Plan, or applicable standards of other agencies?		X		

Per County policy, average hourly noise levels shall not exceed the General Plan threshold of 50 **Leq** during the day and **45 Leq** during the nighttime. Impulsive noise levels shall not exceed 65 db during the day or 60 db at night. An acoustic study has been submitted (Attachment 11) which states that traffic noise in portions of the project site adjacent to Soquel Drive can exceed these standards. The project acoustic engineer has recommended construction techniques for the residential buildings and fencing that will attenuate the traffic noise in order achieve compliance with General Plan noise standards.

3. Generate a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	

Noise generated during construction will increase the ambient noise levels for adjoining areas. Construction will be temporary, however, and given the limited duration of this impact it is considered to be less than significant.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Loss than Significant Or No Impact	Not Applicable

J. Air Quality

Does the project have the potential to:
(Where available, the significance criteria established by the MBUAPCD may be relied upon to make the following determinations).

1.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X	

The North Central Coast Air Basin does not meet State standards for ozone and particulate matter (PM10). Therefore, the regional pollutants of concern that would be emitted by the project are ozone precursors (Volatile Organic Compounds [VOCs] and nitrogen oxides [NOx]), and dust.
Given the modest amount of new traffic that will be generated by the project there is no indication that new emissions of VOCs or NOx will exceed Monterey Bay Unified Air Pollution Control District (MBUAPCD) thresholds for these pollutants and therefore there will not be a significant contribution to an existing air quality violation.
Project construction may result in a short-term, localized decrease in air quality due to generation of dust and particulate matter (PM10). Standard dust control best management practices, such as periodic watering, will be implemented during construction to reduce impacts to a less than significant level. Additional measures shall be required to reduce the production of emissions (acrolein) from diesel equipment during the construction phase of the project.

2.	Conflict with or obstruct implementation of an adopted air quality plan?		X	

The project will not conflict with or obstruct implementation of the regional air quality plan. See J-1 above.

3.	Expose sensitive receptors to substantial pollutant concentrations?			X
4.	Create objectionable odors affecting a substantial number of people?			X

K. Public Services and Utilities

Does the project have the potential to:

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
1. Result in the need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
a. Fire protection?			X	
b. Police protection?			X	
c. Schools?			X	
d. Parks or other recreational activities?			X	
e. Other public facilities; including the maintenance of roads?			X	

While the project represents an incremental contribution to the need for services, the increase will be minimal. Moreover, the project meets all of the standards and requirements identified by the local fire agency, and school, park, and transportation fees to be paid by the applicant will be used to offset the incremental increase in demand for school and recreational facilities and public roads.

2. Result in the need for construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	

See response B-8 above.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Result in the need for construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	

The project will obtain water from Soquel Creek Water District and will not rely on private well water. Although the project will incrementally increase water demand, Soquel Creek Water District has indicated that adequate supplies are available to serve the project as the project is required to participate in the District's offset program (Attachment 5).

Sanitary sewer service is available to serve the project, as reflected in the comments from the Santa Cruz County Sanitation District (Attachment 7).

4. Cause a violation of wastewater treatment standards of the Regional Water Quality Control Board?			X	

The project's wastewater flows will not violate any wastewater treatment standards.

5. Create a situation in which water supplies are inadequate to serve the project or provide fire protection?			X	

The water mains serving the project site provide adequate flows and pressure for fire suppression. Additionally, the local fire agency has reviewed and approved the project plans, assuring conformity with fire protection standards that include minimum requirements for water supply for fire protection.

6. Result in inadequate access for fire protection?			**X**	

The project's road access has been approved by the local fire agency assuring conformity with fire protection standards that include minimum requirements for emergency vehicle access.

7. Make a significant contribution to a cumulative reduction of landfill capacity or ability to properly dispose of refuse?			X	

The project will make an incremental contribution to the reduced capacity of regional landfills. However, this contribution will be relatively small and will be of similar

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

magnitude to that created by existing land uses around the project.

8.	Result in a breach of federal, state, and local statutes and regulations related to solid waste management?		X	

L. Land Use, Population, and Housing

Does the project have the potential to:

1.	Conflict with any policy of the County adopted for the purpose of avoiding or mitigating an environmental effect?		X	

The proposed project does not conflict with any policies adopted for the purpose of avoiding or mitigating an environmental effect.

2.	Conflict with any County Code regulation adopted for the purpose of avoiding or mitigating an environmental effect?		X	

The proposed project does not conflict with any regulations adopted for the purpose of avoiding or mitigating an environmental effect.

3.	Physically divide an established community?		X	

The project will not include any element that will physically divide an established community.

4.	Have a potentially significant growth inducing effect, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?		X	

A General Plan Amendment and Rezoning is included with this application to rezone the project site to multi-family residential General Plan and zoning designations as is more appropriate given the location of the project site and the availability of all urban services. The proposed project is designed at the density and intensity of development allowed by the resulting General Plan and zoning designations for the parcel. Additionally, the project does not involve extensions of utilities (e.g., water, sewer, or new road systems) into areas previously not served. Consequently, it is not expected

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
to have a significant growth-inducing effect				
5. Displace substantial numbers of people, or amount of existing housing, necessitating the construction of replacement housing elsewhere?	____	____	X	

The proposed project will entail a net gain in housing units.

M. Non-Local Approvals

Does the project require approval of federal, state, or regional agencies? Yes No X

N. Mandatory Findings of Significance

1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant, animal, or natural community, or eliminate important examples of the major periods of California history or prehistory? Yes ____ No X

2. Does the project have the potential to achieve short term, to the disadvantage of long term environmental goals? **(A** short term impact on the environment **is** one which occurs in a relatively brief, definitive period of time while long term impacts endure well into the future) Yes No X

3. Does the project have impacts that are individually limited, but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, and the effects of reasonably foreseeable future projects which have entered the Environmental Review stage)? Yes ____ No X

4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? Yes No X

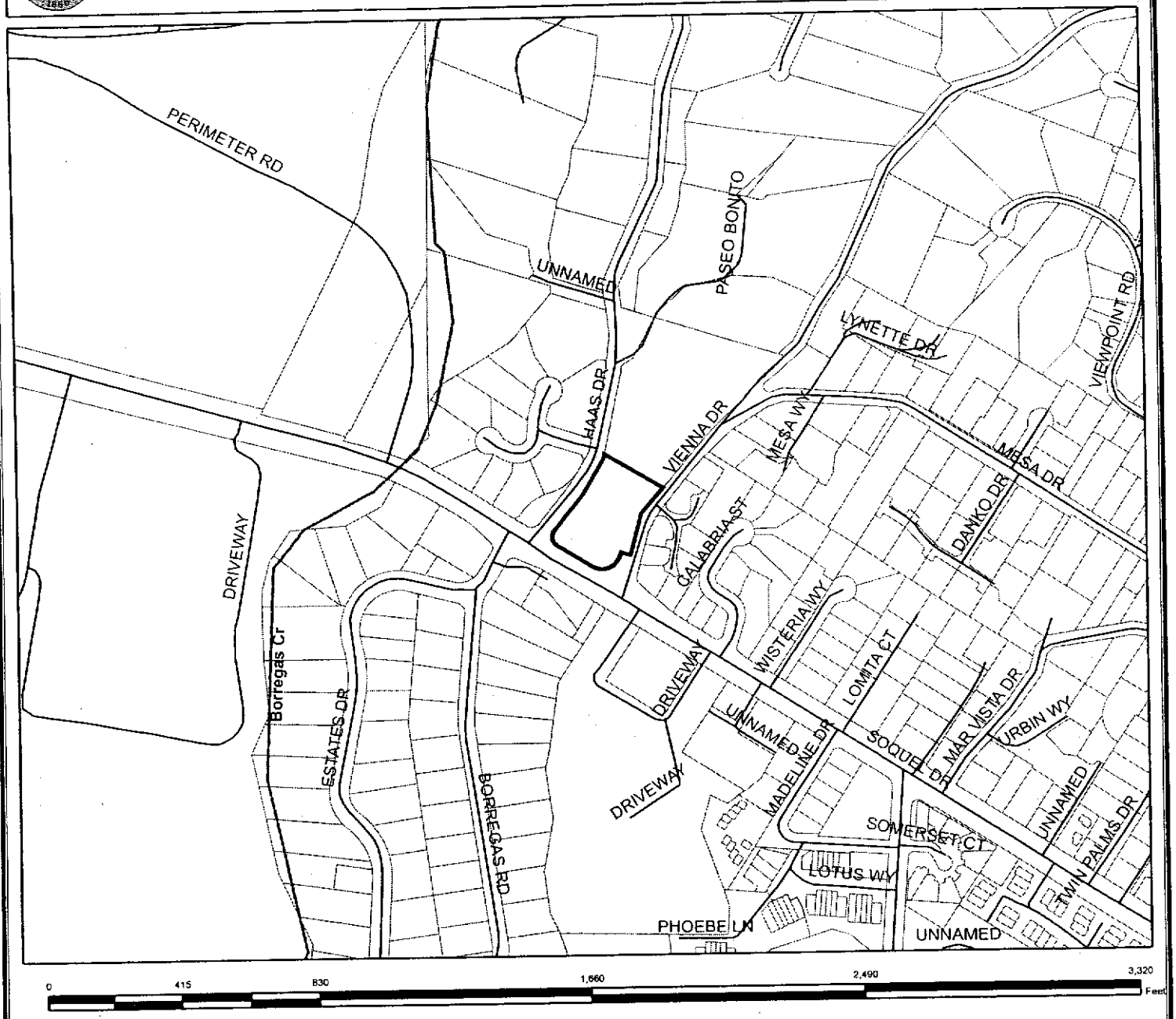
TECHNICAL REVIEW CHECKLIST

	REQUIRED	COMPLETED*	N/A
Agricultural Policy Advisory Commission (APAC) Review			
Archaeological Review			
Biotic Report/Assessment			
Geologic Hazards Assessment (GHA)			
Geologic Report			
Geotechnical (Soils) Report		XXX	
Riparian Pre-Site		XXX	
Septic Lot Check			
Other:			

Attachments:

1. Vicinity Map, Map of Zoning Districts, Map of General Plan Designations, Assessors Parcel Map
2. Tentative Map & Preliminary Improvement Plans prepared by Ifland Engineers, dated 3/23/07; Landscape Plan prepared by Gregory Lewis, revised 3/29/07.
3. Geotechnical Investigation (Conclusions and Recommendations) prepared by Haro, Kasunich & Associates, dated 11/06 & 1/31/07.
4. Geotechnical Review Letter prepared by Kent Edler - Civil Engineer, dated 11/27/06.
5. Letter from Soquel Creek Water District, dated 2/8/06.
6. Drainage calculations (Summary) prepared by Bowman &Williams, revised 1/07.
7. Discretionary Application Comments, dated 5/1/07.
8. Riparian Pre-Site 04-0047, prepared by Robin Bolster, Resource Planner, dated 2/26/04.
9. Arborists Report (Summary and Recommendations) prepared by James P. Allen & Assoc., dated 10/5/06 & 1/31/07.
10. Traffic Study (Conclusions and Recommendations) prepared by Higgins Assoc., dated 12/22/06.
11. Noise Study, prepared by Environmental Consulting Services, dated 10/16/06.

Location Map



Legend

- APN 039-062-05
- Assessors Parcels
- Streets
- INTERMITTENT STREAM

N

W E

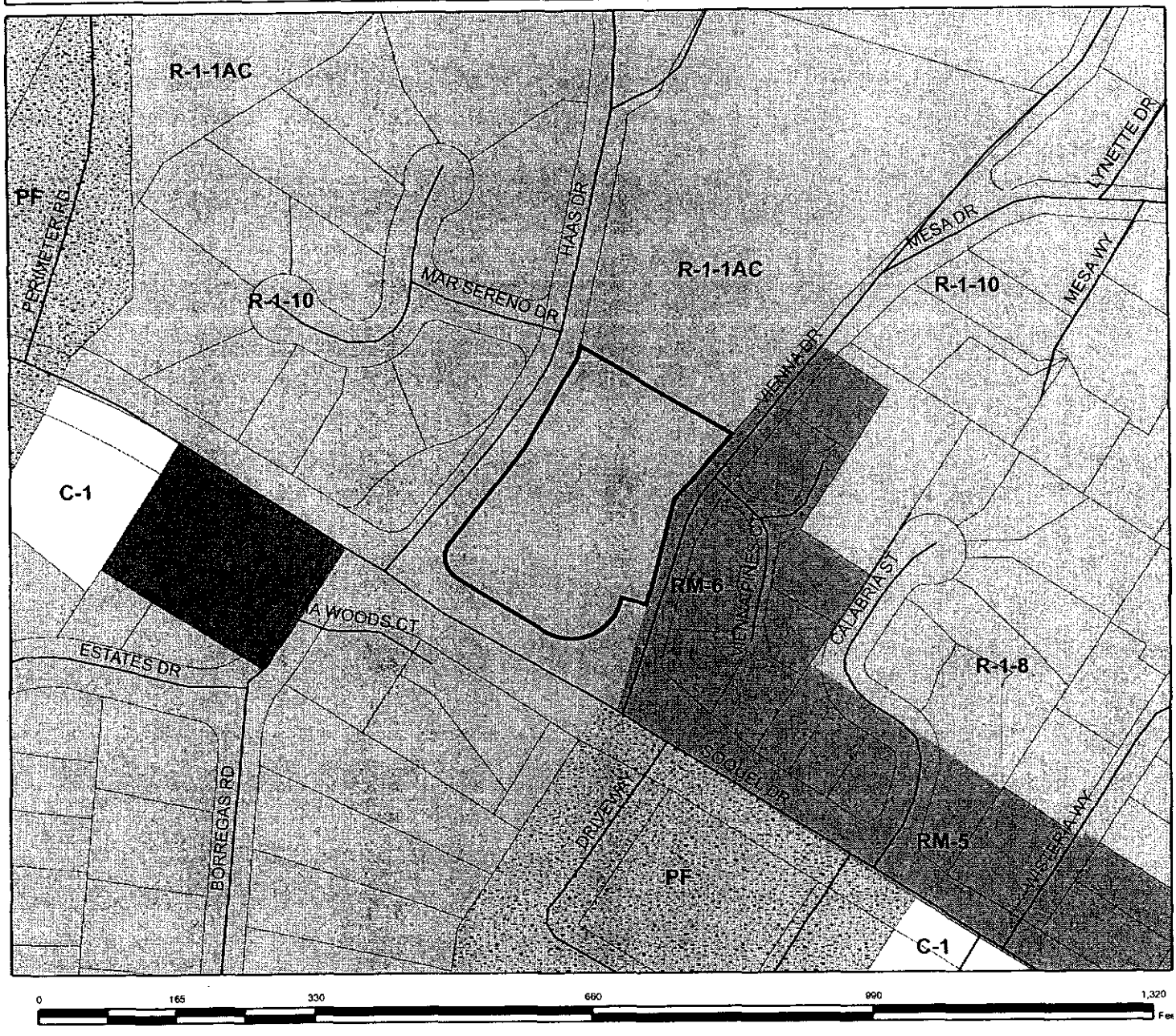
Environmental Review Inital Stud

ATTACHMENT 1, 1 of 7

APPLICATION 06-0651

Map Created by
County of Santa Cruz
Planning Department
December 2006

Zoning Map



Legend

- APN 039-062-05
- Assessors Parcels
- Streets
- RESIDENTIAL-SINGLE FAMILY (R-1)
- RESIDENTIAL-MULTIFAMILY (RM)
- COMMERCIAL-PROF OFFICE (PA)
- PUBLIC FACILITY (PF)
- COMMERCIAL-NEIGHBORHOOD (C-1)

N

W E

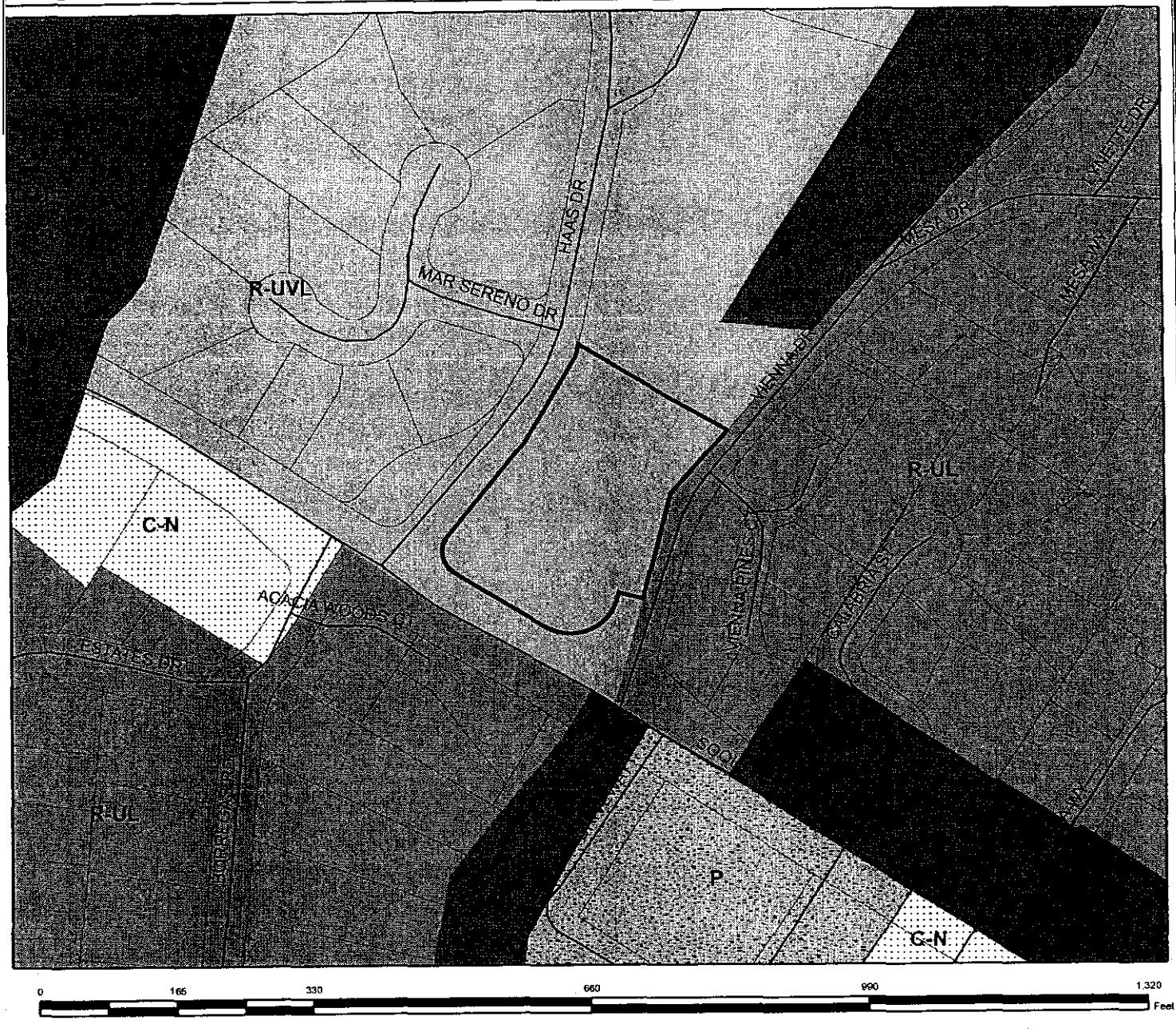
Environmental Review Inital Study

ATTACHMENT 1, 2 & 4

APPLICATION 06-0651

Map Created by
County of Santa Cruz
Planning Department
December 2006

General Plan Designation Map



Legend

- APN 039-062-05
- Assessors Parcels
- Streets
- Residential - Urban Very Low Density (R-UVL)
- Residential - Urban Low Density (R-UL)
- Urban Open Space (O-U)
- Residential - Urban Medium Density (R-UM)
- Public Facilites (P)
- Commercial-Neighborhood (C-N)

N

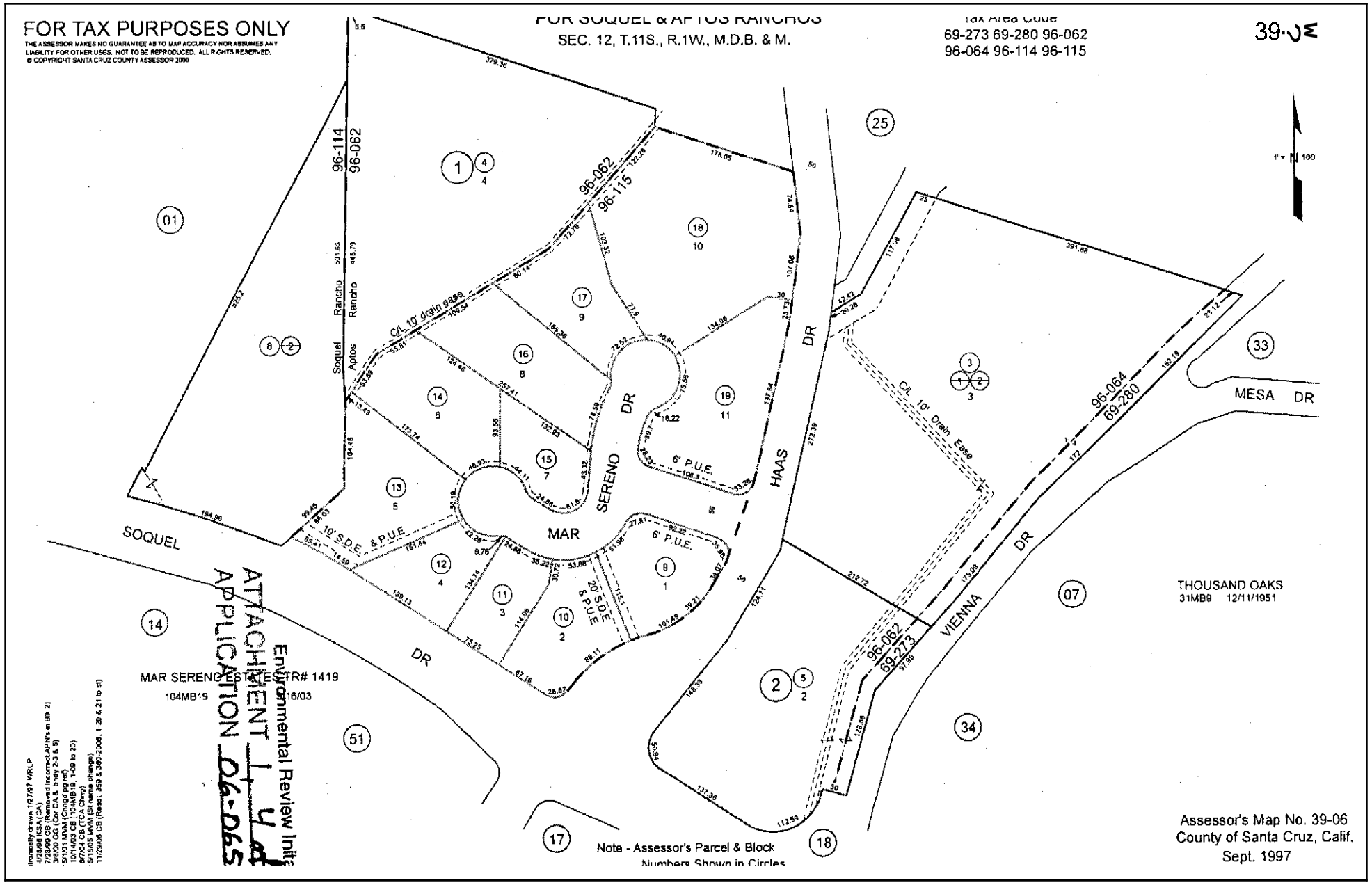
W E

Environmental Review Inital Study

ATTACHMENT 1, 3 of 4

APPLICATION 06-0651

Map Created by
County of **Santa Cruz**
Planning Department
December *2006*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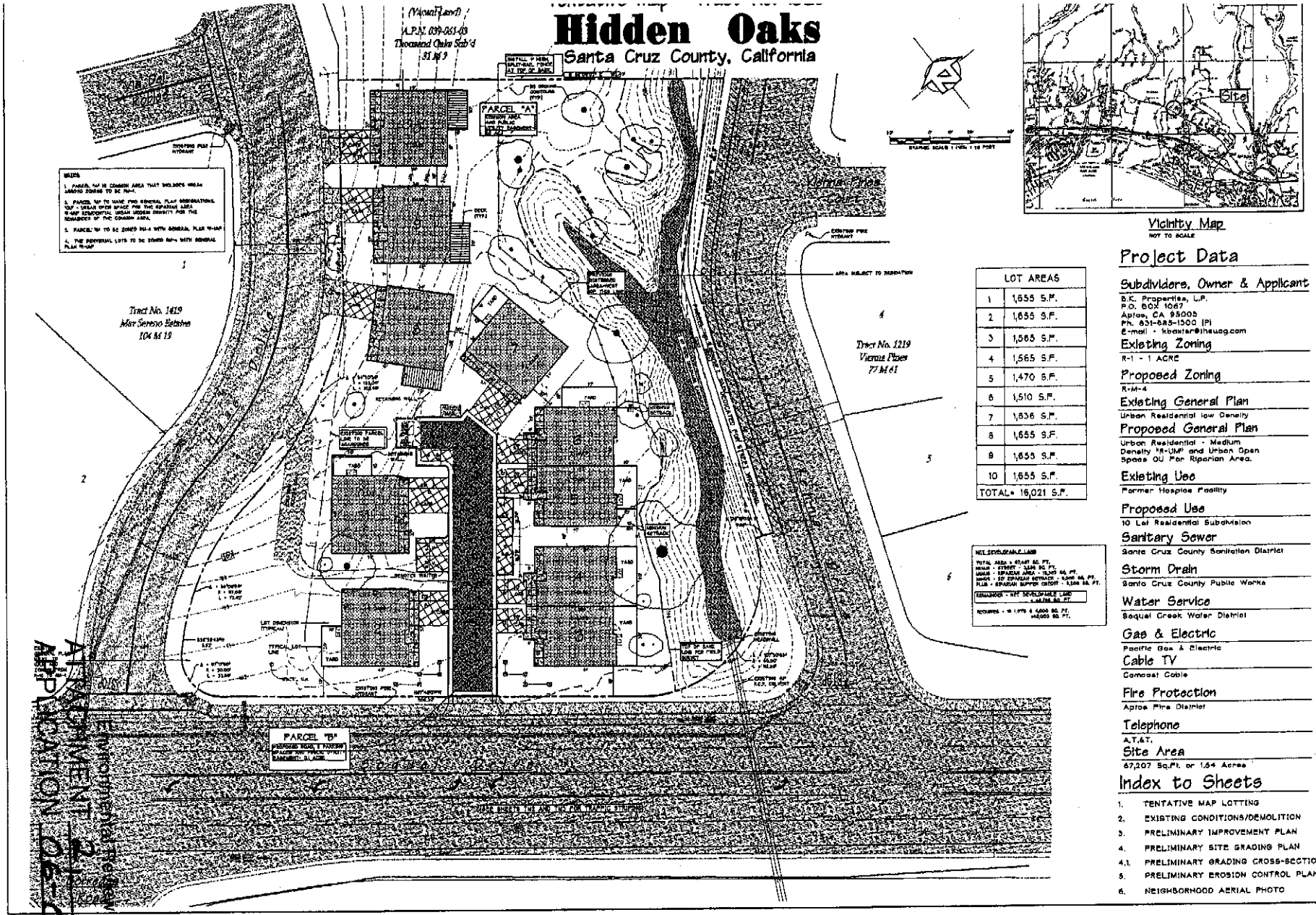
FOR SOQUEL & APTOS RANCHOS
SEC. 12, T.11S., R.1W., M.D.B. & M.
Tax Area Code
69-273 69-280 96-062
96-064 96-114 96-115
39-06
1" = N 100'
SOQUEL
MAR
SERENO
DR
HAAS
DR
MESA DR
VIENNA DR
DR
C/L 10' drain ease.
C/L 10' Drain Ease
10' S.D.E. & P.U.E.
6' P.U.E.
20' S.D.E. & P.U.E.
96-114
96-062
96-115
96-064
69-280
69-273
Soquel Rancho
Aptos Rancho
MAR SERENO ESTATES TR# 1419
104MB19 11/16/03
THOUSAND OAKS
31MB9 12/11/1951
Note - Assessor's Parcel & Block Numbers Shown in Circles
Assessor's Map No. 39-06
County of Santa Cruz, Calif.
Sept. 1997
Environmental Review Initial Study
ATTACHMENT 4
APPLICATION 06-065

Hidden Oaks

Santa Cruz County, California



Vicinity Map
NOT TO SCALE

LOT AREAS	
1	1,655 S.F.
2	1,655 S.F.
3	1,565 S.F.
4	1,565 S.F.
5	1,470 S.F.
6	1,510 S.F.
7	1,636 S.F.
8	1,655 S.F.
9	1,655 S.F.
10	1,655 S.F.
TOTAL=	16,021 S.F.

Project Data

Subdividers, Owner & Applicant
B.K. Properties, L.P.
P.O. BOX 1067
Aptos, CA 95005
Ph. 831-685-1300 (P)
E-mail - kbaxter@hesusg.com

Existing Zoning
R-1 - 1 ACRE

Proposed Zoning
R-M-4

Existing General Plan
Urban Residential low Density

Proposed General Plan
Urban Residential - Medium Density "R-UM" and Urban Open Space OU For Riparian Area.

Existing Use
Former Hospice Facility

Proposed Use
10 Lot Residential Subdivision

Sanitary Sewer
Santa Cruz County Sanitation District

Storm Drain
Santa Cruz County Public Works

Water Service
Soquel Creek Water District

Gas & Electric
Pacific Gas & Electric

Cable TV
Comcast Cable

Fire Protection
Aptos Fire District

Telephone
A.T.&T.

Site Area
67,207 Sq.Ft. or 1.54 Acres

Index to Sheets

1100 WATER STREET
SANTA CRUZ, CA 95062
TEL (831) 426-5313
FAX (831) 426-1763
Bland ENGINEERS, INC.
CIVIL ENGINEERING • LAND SURVEYING • STRUCTURAL DESIGN

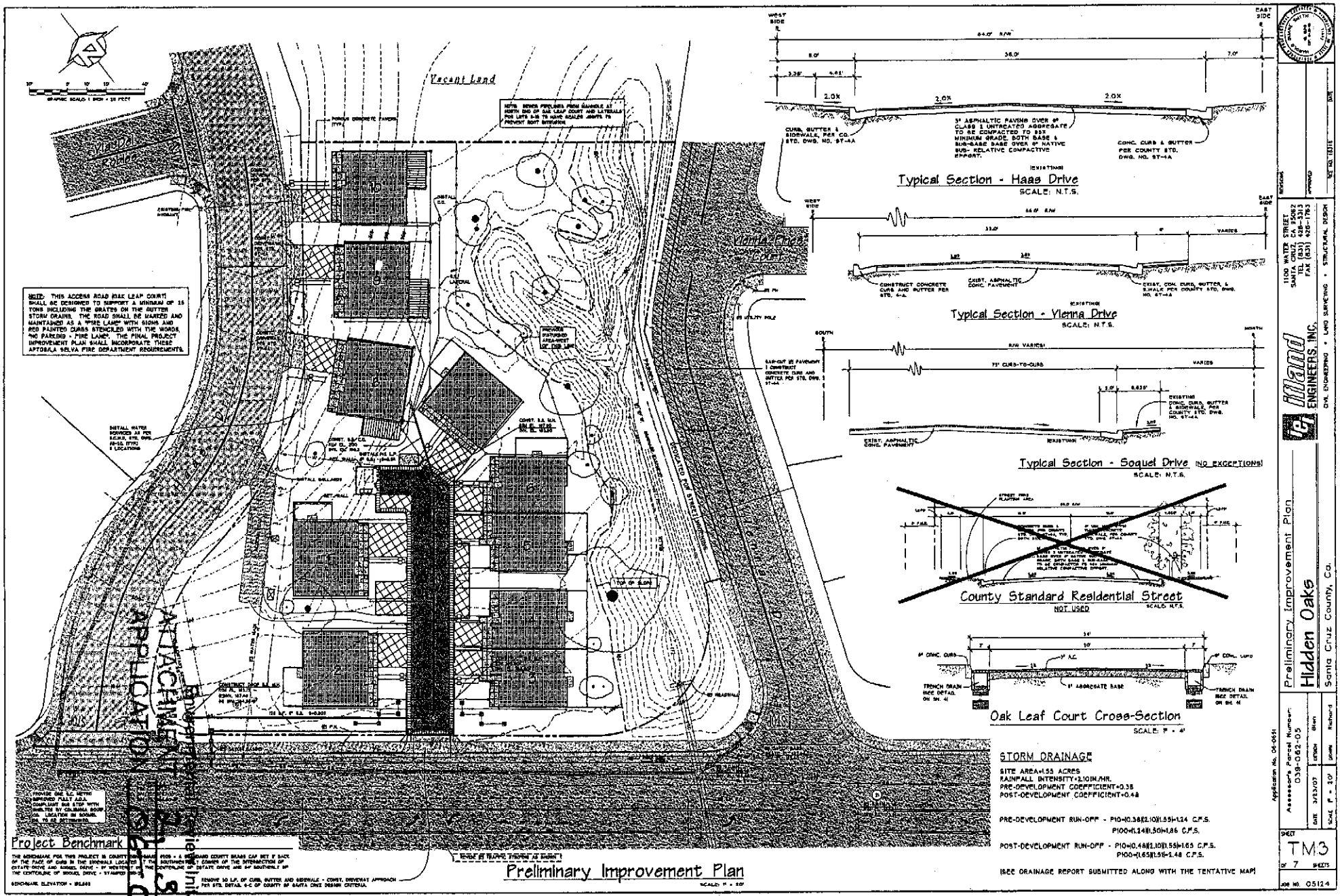
Tentative Map - Tract No. 1529
Hidden Oaks
Santa Cruz County, Ca.

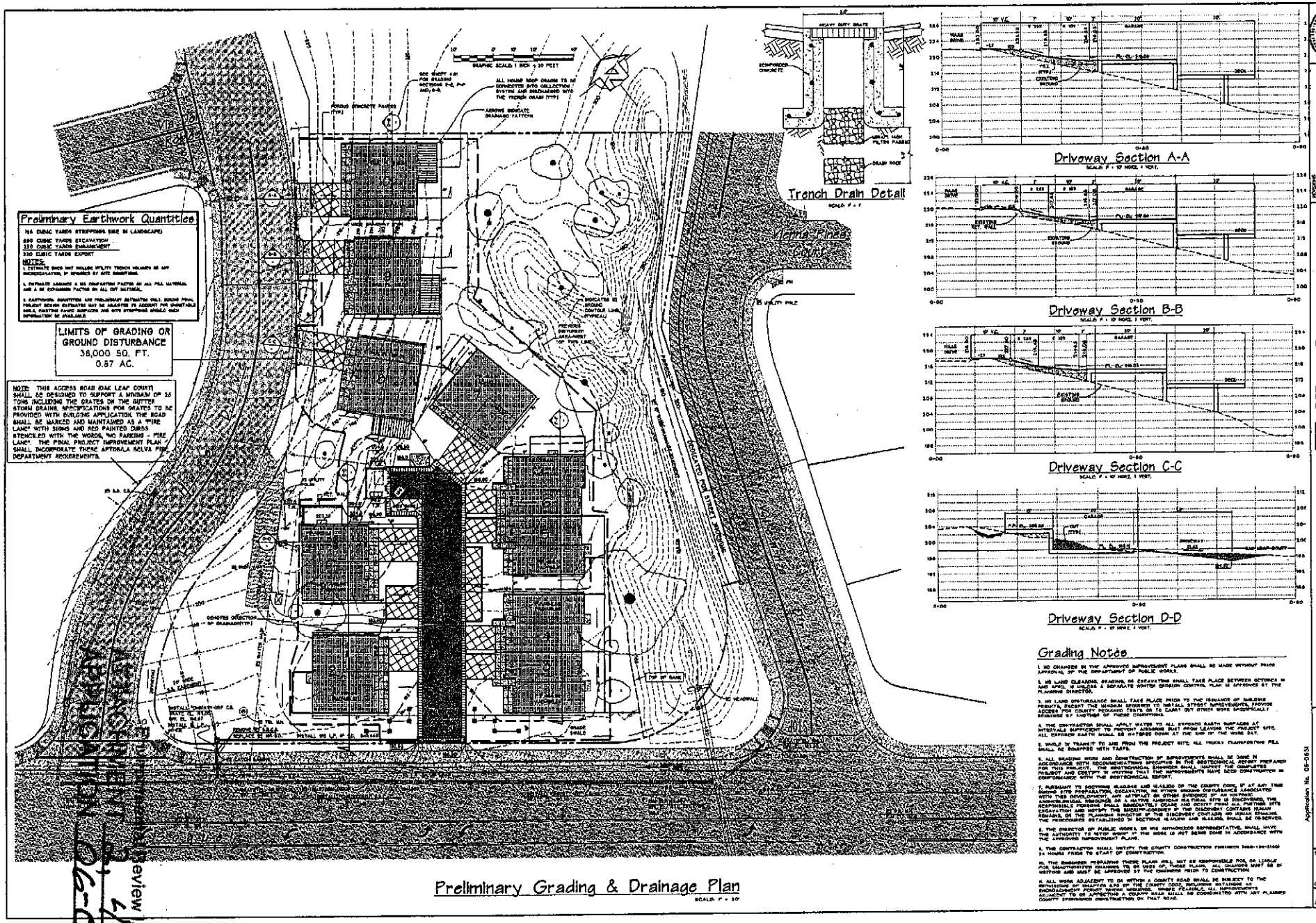
Application No. 04-0651
Assessor's Parcel Numbers
039-062-05
DATE 7/12/07 DESIGN Glen
SCALE 1" = 30' DRAWN Richard

SHEET TM1
of 7 SHEETS
JOB NO. 05124

ATTACHMENT 2
Environmental Review Initial Study
APPLICATION 04-0651
Exhibit I of 13

Environmental Review Inital Study
ATTACHMENT 2 2 of 13
APPLICATION 08-0651


Vacant Land
Vienna Drive
Oak Leaf Court
Typical Section - Haas Drive
SCALE: N.T.S.
Typical Section - Vienna Drive
SCALE: N.T.S.
Typical Section - Soquel Drive (NO EXCEPTIONS)
SCALE: N.T.S.
County Standard Residential Street
NOT USED
SCALE: N.T.S.
Oak Leaf Court Cross-Section
SCALE: 1" = 4'
Preliminary Improvement Plan
SCALE: 1" = 20'
Project Benchmark
STORM DRAINAGE
SITE AREA=1.55 ACRES
RAINFALL INTENSITY=2.10IN./HR.
PRE-DEVELOPMENT COEFFICIENT=0.35
POST-DEVELOPMENT COEFFICIENT=0.48
PRE-DEVELOPMENT RUN-OFF - P10=0.35(2.10)(1.55)=1.14 C.F.S.
P100=1.14(1.50)=1.86 C.F.S.
POST-DEVELOPMENT RUN-OFF - P10=0.48(2.10)(1.55)=1.65 C.F.S.
P100=(1.65)(1.5)=2.48 C.F.S.
(SEE DRAINAGE REPORT SUBMITTED ALONG WITH THE TENTATIVE MAP)
NOTE: THIS ACCESS ROAD (OAK LEAF COURT) SHALL BE DESIGNED TO SUPPORT A MINIMUM OF 15 TONS INCLUDING THE GRATES ON THE GUTTER STORM DRAINS. THE ROAD SHALL BE MARKED AND MAINTAINED AS A "FIRE LANE" WITH SIGNS AND RED PAINTED CURBS STENCILED WITH THE WORDS, "NO PARKING - FIRE LANE". THE FINAL PROJECT IMPROVEMENT PLAN SHALL INCORPORATE THESE APTOS/LA SELVA FIRE DEPARTMENT REQUIREMENTS.
ATTACHMENT 8
Environmental Review Initial Study
APPLICATION 06-0651
Hidden Oaks
Preliminary Improvement Plan
Santa Cruz County, Ca.
Application No. 06-0651
Assessor's Parcel Number: 039-062-05
DATE 3/23/07
SCALE 1" = 20'
SHEET TM3
OF 7 SHEETS
JOB NO. 0512.4



Preliminary Grading & Drainage Plan

Hidden Oaks

Santa Cruz County, Ca.

Assessor's Parcel Number 039-062-05

Application No. 06-0651

SHEET TM4 OF 7 SHEETS

JOB NO. 05124

Alan Engineers, Inc. — Civil Engineering • Land Surveying • Structural Design

1100 Water Street, Santa Cruz, CA 95062, (831) 426-3560, FAX (831) 426-1763

Preliminary Review Initial Study

Application No. 06-0651

APN 039-062-05

Preliminary Grading Cross-Sections

Environmental Review Inital Study
ATTACHMENT 2, 5 of 13
APPLICATION 06-0651

Prelim. Erosion Control Plan

Hidden Oaks

Santa Cruz County, Ca.

Assessor's Parcel Number
038-062-05

SCALE AS SHOWN

TM 5

Preliminary Erosion Control Plan

Temporary Gravel Construction Access

SILT FENCE

STANDARD DETAIL

NOTE:

CONSTRUCTION SPECIFICATIONS

INSPECTION AND MAINTENANCE

Environmental Review Inital Study
ATTACHMENT 2, 6 of 13
APPLICATION 06-0651

Neighborhood Aerial Photo

Hidden Oaks

Santa Cruz County, Ca.

Assessor's Parcel Number
039-062-05

Application No. 06-0651

SHEET TM6 OF 7 SHEETS

ENGINEERS, INC.
CIVIL ENGINEERING • LAND SURVEYING • STRUCTURAL DESIGN

1100 WATER STREET
SANTA CRUZ, CA 95062
TEL (831) 426-5313
FAX (831) 426-1763

Axonometric View By ArchiGraphics

HIDDEN OAKS
6851 Soquel Drive, Santa Cruz County
Owner: BK Properties, LP
Land Use Consultant: Powers Land Planning
Axonometric: ArchiGraphics
January 29, 2007

EXISTING TWO-STORY HOMES

Neighborhood Aerial Photo

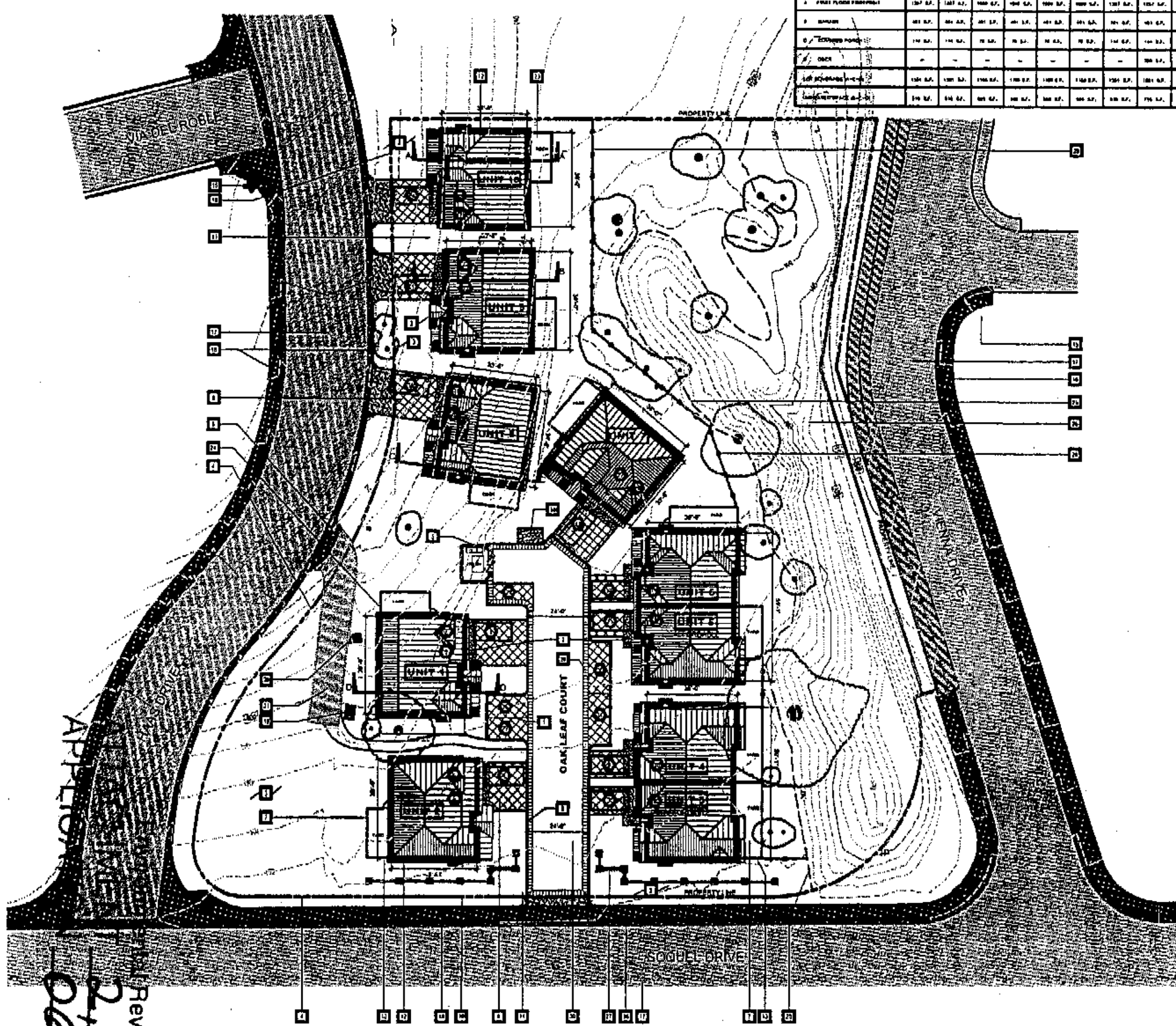
EXISTING FEATURES WITHIN 100' OF SUBDIVISION BOUNDARY

NOTE:
SOME FEATURES ON THIS SHOWN AREA HAVE CHANGED SINCE THIS PHOTO WAS TAKEN

Environmental Review Inita Stud!

EXHIBIT 2J

APPLICATION 06-0651



PROPOSED SITE PLAN

SCALE:

LOT COVERAGE CALCULATIONS BY TYPE OF SPACE	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6	UNIT 7	UNIT 8	UNIT 9	UNIT 10	TOTAL
A FIRST FLOOR FOOTPRINT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
B GARAGE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
C COVERED PORCH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
D DECK	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	
LOT COVERAGE (A+C+D)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
UNHEATED SPACE (B+C+D)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

KEY NOTES

THE KEY NOTES THAT FOLLOW APPLY TO THE DRAWING(S) ON THIS SHEET ONLY. REFER TO FOLLOWING SHEETS FOR NOTES THAT ARE APPLICABLE TO THOSE DRAWINGS.

1. 4" WIDE PAINTED PARKING STALL STRIPING PER SPECS AND CITY STANDARDS.
2. PROVIDE 4" THICK CONCRETE PORCH AND WALKWAYS WITH SLIP RESISTANT FINISH.
3. LANDSCAPED AREA - REFER TO LANDSCAPE DRAWINGS FOR ADDITIONAL NOTATION.
4. PROPOSED NEW PROPERTY LINE
5. PROVIDE CMU TRASH/RECYCLE ENCLOSURE
6. PARKING AND DRIVEWAYS. PROVIDE PERMEABLE PAVING AS PER CIVIL PLANS
7. TYPICAL YARD AREA OF 300 SQ. FT. MIN OUTDOOR OPEN SPACE
8. REMOVABLE GALVANIZED STEEL PIPE BOLLARD, PRIME AND PAINT.
9. PROVIDE 6" HIGH CONCRETE CURB TYPICAL AS SHOWN. REFER TO CIVIL DRAWINGS FOR ADDITIONAL NOTATION.
10. INDICATES PROPERTY LINE.
11. NOT USED.
12. INDICATES RESIDENTIAL UNIT BUILDING FOOTPRINT.
13. INDICATES LOCATION OF 5'-6" HIGH WOOD FENCE, FENCES FOR UNITS 2, 3, 4 TO BE DOUBLE WALL AS PER DETAIL SHEET A002
14. PROVIDE R1 STOP SIGN (24"X24") AT DRIVEWAY EXIT.
15. INDICATES LOCATION OF FIRE HYDRANT. REFER TO CIVIL DRAWINGS
16. EXISTING CONCRETE CURB, GUTTER AND/OR SIDEWALKS TO REMAIN. REPAIR AND/OR REPLACE CURB/GUTTER/SIDEWALK AS REQUIRED TO ACCOMMODATE NEW WORK.
17. EXISTING AC STREET. NO WORK U.O.N. PROTECT FROM DAMAGE.
18. INDICATES MAILBOX LOCATION.
19. EXISTING ELEC. VAULT TO REMAIN.
20. EXISTING CABLE TV. BOX TO REMAIN.
21. EXISTING UTILITY ACCESS ROAD TO REMAIN.
22. NOT USED
23. INDICATES 10'x20' WOOD DECK AT RESIDENTIAL UNIT. 300 SQ FT MINIMUM OUTDOOR OPEN SPACE FOR EACH UNIT.
24. NEW RETAINING WALL, SEE CIVIL DRAWINGS.
25. INDICATES AREA / BOUNDARY OF EXISTING DISTURBANCE, SEE CIVIL DRAWING TM-1.
26. RIPARIAN AREA, SEE CIVIL DRAWINGS.
27. INDICATES ENTRY WALL & TRELLIS. SEE FRONT WALL PLAN & ELEVATION SHEET A003.
28. INDICATES SPLIT RAIL 4'-0" FENCE.
29. TRENCH DRAIN.
30. A/C PAVING.

LOT COVERAGE CALCULATIONS

1. ZONE DISTRICT:	RM-4
2. PARCEL AREA:	67,467 S.F.
3. AREA OF RIGHTS-OF-WAY:	18,671 S.F.
4. NET PARCEL AREA	48,796 S.F.
5. COVERAGE BY STRUCTURES	13,550 S.F.
6. PERCENTAGE OF PARCEL COVERAGE	27.77%

HEATED SPACE CALCULATION

1. TOTAL HEATED SPACE:	18,317 S.F.
2. TOTAL UNHEATED SPACE:	5,966 S.F.

TOTAL FLOOR AREA CALCULATIONS

10. TOTAL FLOOR AREA OF ALL BUILDINGS (SUM OF THE FLOOR AREA OF ALL BUILDINGS ON PARCEL)

EXISTING (TO BE REMOVED)	1,728 S.F.
PROPOSED	20,749 S.F.
TOTAL	20,749 S.F.

11. FLOOR AREA RATIO CALCULATIONS PROPOSED F.A.R. 43.3 %

PARKING CALCULATIONS

UNIT NO.	SPACES REQ.	SPACES PROVIDED
1	2.5	3 (2 in garage, 1 in drive)
2	2.5	3 (2 in garage, 1 in drive)
3	2.5	2 (1 in garage, 1 in drive)
4	2.5	2 (1 in garage, 1 in drive)
5	2.5	2 (1 in garage, 1 in drive)
6	2.5	2 (1 in garage, 1 in drive)
7	2.5	3 (2 in garage, 1 in drive)
8	2.5	3 (2 in garage, 1 in drive)
9	2.5	3 (2 in garage, 1 in drive)
10	2.5	3 (2 in garage, 1 in drive)
SUB TOTAL	25	26
VISITOR	5	5
TOTAL	30	31

WR&D
WALD RUHNKE & DOST ARCHITECTS LLP
2340 GARDEN ROAD, SUITE 100
MONTEREY, CALIFORNIA 93940
PHONE: 831.649.4642
FAX: 831.649.3530
WWW.WRDARCH.COM

PRELIMINARY NOT FOR CONSTRUCTION 1/31/07

A.P.N. 030-062-05

HIDDEN OAKS

B.K. PROPERTIES, L.P.
8651 SOQUEL DRIVE
SANTA CRUZ COUNTY, CA

JOB NO. 06141
PRINT DATE:
PLOT DATE:
DRAWN BY:
CHECKED BY:
SET ISSUED:
SHEET NAME:

SITE PLAN

SHEET NO.: A002

FILE NAME:

Environmental Review Inital Study
ATTACHMENT 2, 8 of 13
APPLICATION 06-0651

WALD RUHNKE & DOST
ARCHITECTS, LLP

PRELIMINARY NOT FOR CONSTRUCTION 1/31/07

APN: 033-062-06

HIDDEN OAKS

B.K. PROPERTIES, L.P.
6851 SOQUEL DRIVE
SANTA CRUZ COUNTY, CA

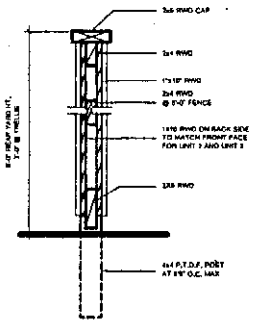
06141

SITE SECTIONS

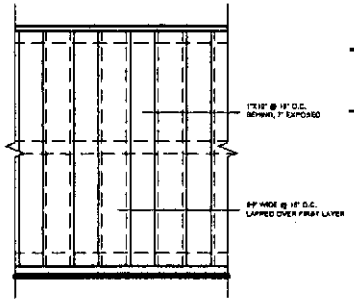
A003

1 SITE SECTIONS
SCALE: 1/8" = 1'-0"

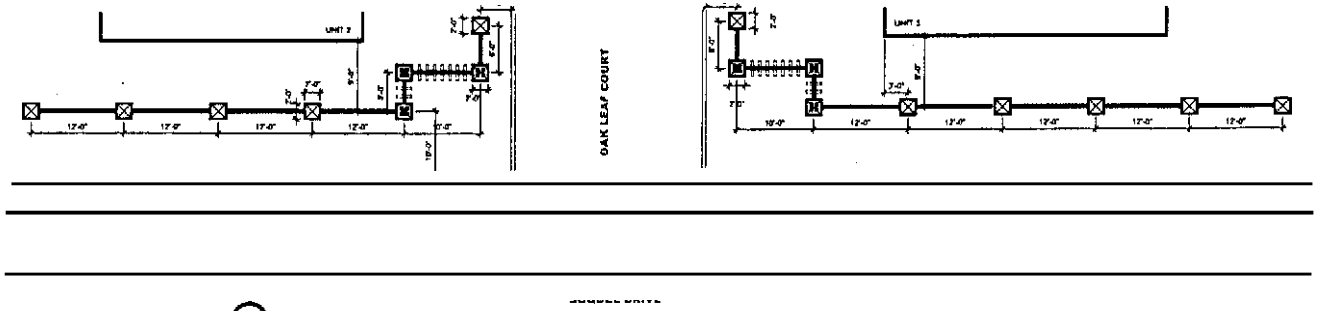
Environmental Review Inital Study
ATTACHMENT 2, 9 of 13
APPLICATION 06-0651



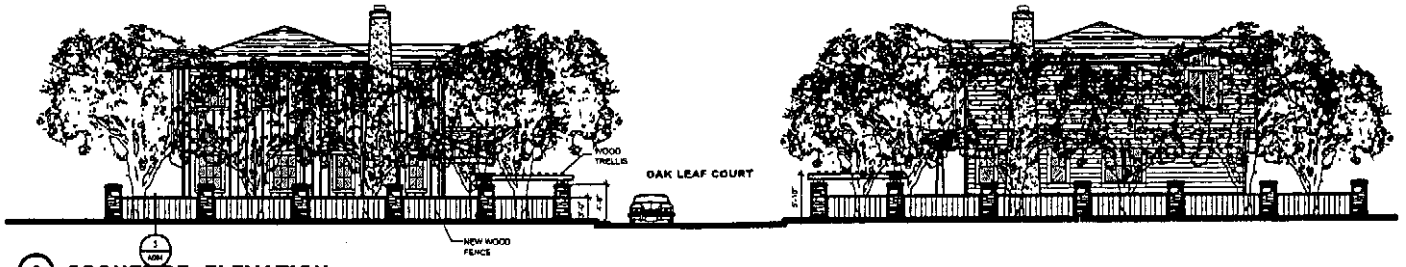
3 REAR YARD FENCE SECTION, UNITS 2 &3



4 REAR YARD FENCE ELEVATION



1 TRELLIS PLAN



2 SOQUEL DR. ELEVATION

Environmental Review Initial St
ATTACHMENT 2 of 13
APPLICATION 06-0651

WR&D
WALD, RUHNKE & DOST ARCHITECTS LLP
3368 GARDEN ROAD, SUITE 100
MONTEREY, CALIFORNIA 93940
PHONE: 831.649.4847
FAX: 831.649.3533
WWW.WRDARCH.COM

PRELIMINARY NOT FOR CONSTRUCTION 1/31/07

A.P.N. 035-042-05

HIDDEN OAKS

B.K. PROPERTIES, L.P.
8851 SOQUEL DRIVE
SANTA CRUZ COUNTY, CA

JOB NO. 06141

PRINT DATE: 2/23/07

PLOT DATE:

DRAWN BY: AF

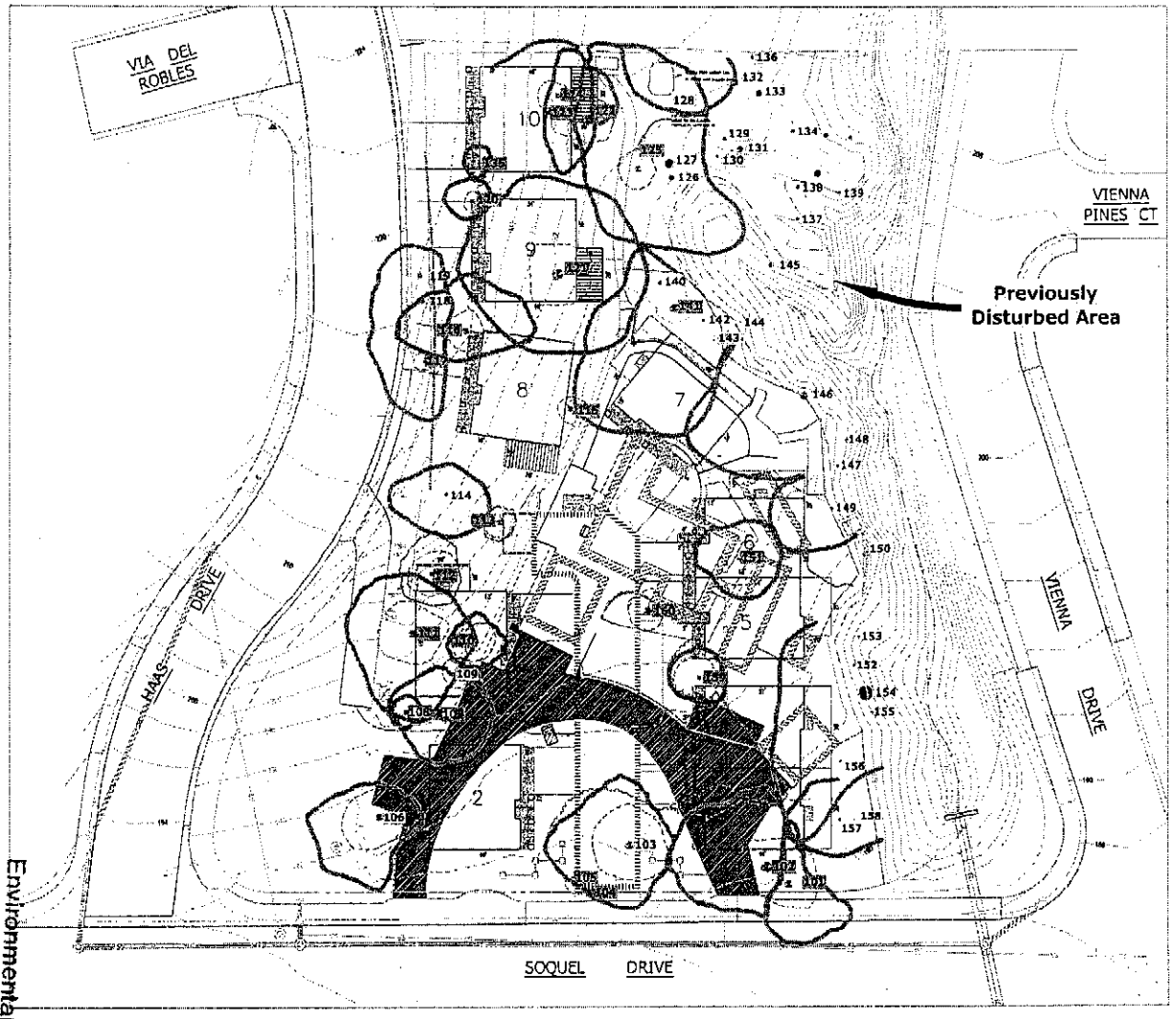
CHECKED BY:

SET ISSUED: 1/31/07

SHEET NAME: SITE DETAILS

SHEET NO: A004

FILE NAME:



ATTACHMENT 2, Unit 13
APPLICATION 06-0651

Environmental Review Initial Study

James P. Allen & Associates
Consulting Arborists

HIDDEN OAKS SUBDIVISION TRACT: 1529
CONSTRUCTION IMPACT ASSESSMENT

B.K. PROPERTIES, L.P.
8051 SOQUEL DRIVE
SANTA CRUZ COUNTY, CA

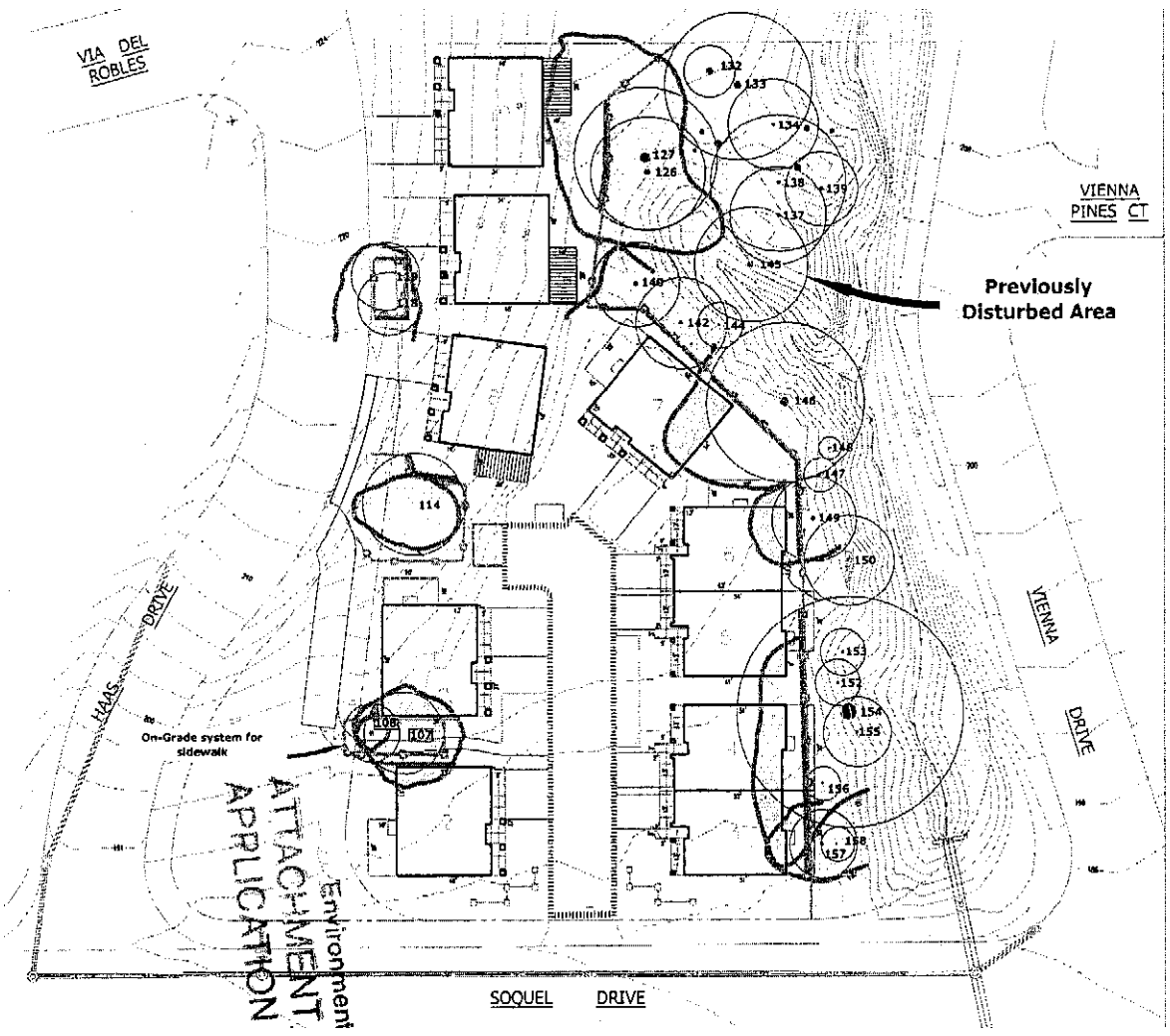
039-062-05

APN: 039-062-05
PREPARED DATE: 01/21/2007
PLOT DATE: 01/21/2007
DRAWN BY: EKH
CHECKED BY: EKH
SCALE: 1" = 20'
SET ISSUED:

SHEET NAME:
TREE LOCATION & REMOVAL MAP

SHEET NO.:
AB01

FILE NAME: 01-AB1



Tree Preservation Specifications
6851 Soquel Drive, APN 039-062-05

Contractors and sub contractors should be aware of tree protection guidelines and restrictions. Contracts should incorporate tree protection language that includes "damage to trees will be appraised using the Guide to Plant Appraisal 9th Edition and monetary fines assessed".

A pre construction meeting with the Project Arborist
A meeting with the Project Arborist, Project Manager and all contractors involved with the project shall take place prior to the onset of grading. Tree preservation specifications will be reviewed and discussed.

Establishment of a tree preservation zone (TPZ)
Chain link fencing, no less than 72 inches in height with metal stakes embedded in the ground, shall be installed in areas designated on the attached map. Bales of hay shall be placed end-to-end outside the perimeter of the fencing toward the construction activities. Bales may be stabilized by driving metal stakes or sections of #5 rebar through the bales 12 to 18 inches into the soil surface. Fencing will be installed prior to the onset of grading, under the supervision of the Project Arborist and shall not be moved.

Restrictions within the Tree Preservation Zone (TPZ)
No storage of construction materials, debris, or excess soil will be allowed within the TPZ. Parking of vehicles or construction equipment in this area is prohibited. Solvents or liquids of any type should be disposed of properly, never within this protected area.

Field decisions
The Project Arborist, Soils Engineer and Grading Contractor will determine the most effective construction methods to maintain tree health.

Alteration of grade
Maintain the natural grade around trees. If trees roots are unearthed during the construction process the consulting arborist will be notified immediately. Exposed roots will be covered with moistened burlap until the Project Arborist makes a determination.

Trenching requirements
Any areas of proposed trenching will be evaluated with the Project Arborist and the contractor prior to construction.

Tree canopy alterations
Unauthorized pruning of any tree on this site will not be allowed. Tree canopy alterations will be performed to the specifications established by the Project Arborist.

Supplemental irrigation
Shall be provided using "soaker" hoses or similar method of delivery. Supplemental irrigation requirements shall be determined by the Project Arborist and will be required prior to and after completion of the grading.

Mulch Layer
A 4-6 inch layer of amended tree chip mulch shall be applied within the Tree Preservation Zones. Tree chips should be amended with 7 pounds Bloodmeal, 13-0-0, per cubic yard of chips.

GRAPHIC SCALE

Legend
- Surveyed tree location
- Field located tree
- 2 Assigned tree number
- Recommended Removal due to Severe Impacts
- Previously disturbed area
- Approximate canopy spread
- Canopy clearance pruning
- Critical Root Zone
- Tree Preservation Zone
- Preservation fencing
- Preconstruction Root Pruning
- "On Grade" system

Environmental Review Initial Study
ATTACHMENT
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2-12-13
26-0651

James P. Allen & Associates
Consulting Arborists

HIDDEN OAKS SUBDIVISION TRACT: 1529
CONSTRUCTION IMPACT ASSESSMENT

B.M. PROPERTIES, L.P.
6851 SOQUEL DRIVE
SANTA CRUZ COUNTY, CA

039-062-05

APN: 039-062-05
PREPARED DATE: 01/11/2007
PLOT DATE: 01/11/2007
DRAWN BY: EKH
CHECKED BY: EKH
SCALE: 1" = 20'
SET ISSUED:

SHEET NAME:
TREE LOCATION & PRESERVATION MAP

SHEET NO.:
AB02

FILE NAME:

Tentative Subdivision Map Submittal

Hidden Oaks

Santa Cruz County APN 039-062-05

L1

Revision
1/31/07
3/21/07
3/29/07

GREGORY LEWIS LANDSCAPE ARCHITECT

Tentative Subdivision Map Submittal
Planting Plan

1"=20'-0"

NORTH

Vienna Drive

Vienna Pines Court

Via Del Robles

Soquel Avenue

Plant Legend

Landscape Notes

Shrub Planting

Tree Planting

Environmental Review Inital Study
ATTACHMENT 2, 13 of 13
APPLICATION 06-0651

GEOTECHNICAL INVESTIGATION
for
10 Unit Condominium Project
APN 039-062-05
6851 Soquel Drive
Aptos, California

Prepared for
BK PROPERTIES
Scotts Valley, California

Prepared By
HARO, KASUNICH &ASSOCIATES, INC.
Geotechnical & Coastal Engineers
Project No. SC9309
November 2006

HARO, KASUNICH AND ASSOCIATES, INC.

CONSULTING GEOTECHNICAL & COASTAL ENGINEERS

Project No. SC9309
1 November 2006

MR. KEITH BAXTER AND
MR. RANDY KANAWYER
c/o BK Properties
561 Hacienda Drive
Scotts Valley, California 95076

Subject: Geotechnical Investigation

Reference: 10 Unit Condominium Project
APN 039-062-05
6851 Soquel Drive
Aptos, California

Dear Mr Baxter and Mr. Kanawyer:

In accordance with your authorization, we have performed a Geotechnical Investigation for a proposed 10 unit condominium project located in Aptos, California.

The accompanying report presents our conclusions and recommendations and the results of the geotechnical investigation on which they are based.

If you have any questions concerning this report, please contact our office.

Very truly yours,

HARO, KASUNICH **&ASSOCIATES,** INC.

Christopher A. George
C.E. 50871

CAG/dk

Copies: 4 to Addressee

Environmental Review Inital Study
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APPLICATION 06-0651

116 EAST LAKE AVENUE ▪ WATSONVILLE, CALIFORNIA 95076 ▪ (831) 722-4175 ▪ FAX (831) 722-3202

Project No. SC9309
1 November 2006

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Project No. SC9309
1 November 2006

GEOTECHNICAL INVESTIGATION

Introduction

This report presents the results *of* our Geotechnical Investigation for a proposed 10 unit condominium project located at 6851 Soquel Drive in Aptos, California. The project will consist of the construction of 10 new detached and attached two-story units on the ½ acre (±) parcel and paved access driveways. An existing residence, detached garage and outbuildings on the parcel will be removed prior to construction of the subdivision.

A Site Plan showing site topography and the proposed building layout for the project was provided by Mr. Baxter. Our Boring Site Plan (see Figure 2) is based on this plan.

Purpose **and** Scope

The purpose of our investigation was to explore and evaluate soil conditions at the site and develop geotechnical criteria and recommendations for design and construction of the new dwellings and improvements. The specific scope of our services was as follows:

1. Site reconnaissance and review of available data in our files regarding the site and vicinity.

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2. **A** field exploration program consisting of logging and interval sampling of soil encountered in nine (9) continuous flight-augered borings to depths of 11½ to 26½ feet deep. The soil samples obtained were sealed and returned to the laboratory for testing

3. Laboratory testing of select soil samples to determine the pertinent engineering properties of the foundation zone soils.

4. Engineering analysis and evaluation of the resulting field and laboratory data to develop geotechnical design criteria and recommendations site grading, building foundations, slabs-on-grade, retaining walls, site drainage and erosion control.

5. Submittal of this report presenting the results of our investigation.

Site Location and Conditions

The referenced parcel is located at 6851 Soquel Drive in Aptos, California (see Site Vicinity Map, Figure 1 in Appendix A). The parcel is bound to the east by Vienna Drive, to the north by a residential lot, and to the west by Haas Drive. Topography on the parcel varies somewhat. The west side of the parcel slopes to the east at a gradient of about 25 percent to the present home site, a level to very gentle south sloping area, 50 to 150 feet wide and 200 feet long. On the east portion of the parcel, a steep slope (average 70 percent

gradient) descends toward a north-south trending drainage channel. The centerline of the channel is about 18 feet below the proposed building area.

Current development on the parcel consists of a one story single family dwelling, a detached garage, sheds, a paved driveway and parking area, and iandscaped areas around the dwelling. The property also has several large oak trees and numerous other trees and brush around the property. All existing structures are planned to be demolished.

Project Description

The proposed I 0 unit project will include the construction of 6 detached two story dwellings and 2 attached 2-unit dwellings and paved access driveways. Units 1,2,8,9 and 10, on the west side of the property will be excavated into the hillside. Units 3,4,5,6 and 7, on the level east side of the property will be setback a minimum of 10 feet from the top edge of the creek bank. The size of the units has not yet been finalized but the building footprints are about 1000 square feet. Seven of the units will be accessed by a driveway off Soquel Drive and three units will be accessed by Haas Drive.

Field Exploration

Subsurface conditions were investigated on 25 August 2006 by drilling nine (9) exploratory borings to depths ranging from 11% *to* 26% feet. The approximate locations of the test borings are indicated on the Boring Site Plan (see Figure 2 in Appendix A). The borings

were advanced with 8-inch diameter Hollow stem continuous flight auger equipment, mounted on a truck. The soil encountered was continuously logged in the field, and described in accordance with the Unified Soil Classification System (ASTM D2488, Visual-Manual Procedure)). The Logs of Test Borings are included in the Appendix of this report.

Representative soil samples were obtained from the exploratory borings at selected depths. These samples were recovered using the 3.0 inch outside diameter (O.D.) Modified California Sampler (L) or the 2.0 inch O.D. Standard Terzaghi Sampler (T).

The penetration resistance blow counts noted on the boring logs were obtained as the sampler was dynamically driven into the in situ soil. The process was performed by dropping a 140-pound hammer 30 vertical inches, driving the sampler 6 to 18 inches, and recording the number of blows for each 6-inch penetration interval. The blows recorded on the boring logs represent the accumulated number *of* blows required to drive the last 12 inches.

The boring logs denote subsurface conditions at the locations and time observed, and it is not warranted that they are representative of subsurface conditions at other locations or times.

Laboratory Testing

The laboratory testing program was directed toward a quantitative and qualitative evaluation of the physical and engineering properties of the underlying soil at the site influenced by the anticipated foundation constructtion and project development.

The natural moisture contents and dry densitieswere determined on selected samples and are recorded on the boring logs at the appropriate depths. Since water has a significant influence on soil, the natural moisture content provides a rough indicator of the soil's compressibility, strength, and potential expansion characteristics. Atterberg Limits tests were performed on foundation zone soil samples for the purpose of evaluating soil plasticity and expansion potential and aid in soil classification. Grain Size Analysis Tests were performed on selected samples to aid in soil classification.

The strength parameters of the underlying earth materials were determined from test values derived from Standard Penetration Testing (SPT) performed during our field investigation and direct shear tests performed in our laboratory. Direct shear test samples were saturated 24 hours prior to testing.

The results of field and laboratory testing appear on the Logs of Test Boring opposite the sample tested.

Subsurface Conditions

Based on our subsurface investigation, the soil conditions at the site vary, depending on the location of the borings. In our borings on the west side of the parcel (Borings 3, 4, 5, and 9), we encountered 1 to 2 feet of loose silty sand, underlain by medium dense silty and clayey sand (terrace deposits) from the surface to depths of 5 to 7 feet. The medium dense soil was underlain by dense silty sand (Purisima Formation sand) to the depths explored (11.5 feet). In our borings on the level portion of the property (Borings 1, 2, 6, and 7), we encountered loose to medium dense silty and clayey sand from the surface to depths of 18 to 25 feet, underlain by dense sand to the depths explored (21.5 to 26.5 feet). In Boring 8, drilled adjacent *to* the garage, we encountered medium dense to dense silty sand from the surface to a depth of 20 feet, underlain by dense sand to the depth explored (21.5 feet).

Groundwater was encountered at depths of 20.5 feet, 18 feet, and 21 feet in Borings 1, 6, and 7, respectively. Water appeared to be perching on the Purisima Formation sand underlying the site. It should be noted that groundwater levels may fluctuate due to variations in rainfall or other factors not evident during our investigation. Groundwater levels at the site may rise during winter and spring months.

Site ***Geology***

Based on a review of the Preliminary Geologic Map *of* Santa Cruz County (Brabb, 1989), the site vicinity is mapped as Tp: Purisima Formation (Pliocene and Upper Miocene) and Qcu: Coastal terrace deposits, undifferentiated (Pleistocene).

The Qcu unit consists of semi-consolidated, moderately well sorted marine sand with thin, discontinuous gravel-rich layers. The terrace deposits may be overlain by poorly sorted fluvial and colluvial silt, sand and gravel. The unit thickness is variable, generally less than 20 feet thick, The deposits may be relatively well indurated in upper part of weathered zone (Brabb, 1989).

The Tp unit consists of very thick bedded yellowish-gray tuffaceous and diatomaceous siltstone containing thick interbeds of bluish-gray, semi-friable, fine-grain andesitic sandstone (Brabb, 1989).

The near surface soil and underlying dense sand encountered in our borings appears to be consistent with the geologic description of the coastal terrace deposits (Qcu) and Purisima Formation (Tp).

Slope Stability

The creek bank slope on the east side of the property is steep (average 70 percent gradient) as it descends about 18 feet to the adjacent creek. There is potential for shallow landsliding of the bank when saturated and/or during strong seismic shaking. Treefalls may also result in loss of the creek bank. However, the proposed dwellings will be setback a minimum of 10 feet from the top of the bank. This will set the dwellings beyond a 2:1 (horizontal to vertical) line from the toe of the bank (based on Topographic Map by Ifland Engineers, dated 8 February 2005). In addition, the buildings on the east side of the site will have pier and grade beam foundations. Provided the buildings are setback a minimum of 10 feet from the top edge of the bank and have pier and grade beam foundations, the potential for landsliding to negatively impact the dwellings will be low. However, there is potential for slope instability to negatively impact the yard area. Any improvements between the dwellings and the top edge of the slope may be undermined and repairs necessary in the future.

There is also potential for creek scour to undermine the toe of the bank and increase the potential for instability of the creek bank. It is important to monitor and maintain the creek channel. If storm debris or treefalls in the creek divert runoff toward the creek bank adjacent to the dwellings, rapid erosion and instability of the creekbank can occur.

Seismicity

The following is a general discussion of seismic considerations affecting the project area Detailed study of seismicity and geologic hazards is beyond the scope of this report.

A review of the Active Fault Near-Source Zones published by the California Department of Conservation Division of Mines and Geology indicates earthquake faults in the vicinity of the proposed project include the active San Andreas Fault (Type A) and the potentially active Zayante Fault (Type B), located 11.4 km, and 5.7km from the project site, respectively.

The San Andreas Fault is major fault zone of active displacement extends from the Gulf of California *to* the vicinity of Point Arena, where the fault leaves the California coastline. Between these points, the fault is about 700 miles long. The fault zone is a break or series of breaks along the earth's crust, where shearing movement has occurred. This fault movement is primarily horizontal.

Historically, the San Andreas Fault has been the site of large earthquakes and consequently, large earthquakes can be expected in the future. The largest of the historic quakes in northern California occurred on 18 April 1906 (mag. 8.3+). The major Loma Prieta earthquake on 17 October 1989 (mag 6.9) was the second largest earthquake in Northern California in the twentieth century. Both of these earthquakes are considered to

have been caused by movement on the San Andreas Fault and caused significant damage in the San Francisco Bay area and Santa Cruz County. The San Andreas Fault has a high potential for surface rupture, with a recurrence interval of 50 to 1,000 years (Hall and Others, 1974). The Working Group on California Earthquakes, *1990,* estimates there *is* a 67 percent chance a large magnitude earthquake (7.0 orgreater) will be experienced in the Bay area within the next 30 years.

Seismic hazards include landsliding, liquefaction, ground rupture and strong seismic shaking.

There is potential for landsliding of the oversteep stream channel bank during strong seismic shaking. However, we recommend the buildings on the edge of the creek bank have pier and grade beam foundations and a minimum foundation setback of 10 feet from the edge of the channel. This setback will put the buildings beyond a 2:1 line from the toe of the channel and the potential for landsliding to negatively impact the buildings will be low.

Documented conditions for soil that has liquefied indicate that from a general standpoint, soil susceptible to liquefaction is sand of low to medium relative density, relatively free of silt and clay, and fully saturated. The predominance of silty and clayey sand in the top 20 feet of our borings and low groundwater level indicates the conditions for liquefaction at the

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site are relatively low. The likelihood of surface rupture of the site appears remote, as no known faults cross the site.

During a major earthquake in the vicinity of the site, ground shaking would probably be severe. Experience following the 17 October 1989 Loma Prieta earthquake indicates that the quality of construction is a primary factor affecting the amount of earthquake damage sustained by wood framed residential structures during strong ground shaking. Most of the structural damage from the Lorna Prieta earthquake was sustained where foundations were not adequately embedded into firm materials; where the wood frame was not well braced for lateral shear; and/or where the wood frame was not securely tied to the building foundations. Conversely, where wood frame structures were supported on foundations embedded into firm material, well braced for lateral shear and securely tied to the foundation, structural damage was generally minor even in areas quite close to the epicenter where very strong to severe ground shaking occurred. Based on these considerations, the risk of substantial structural damage from earthquakes appears relatively low for well built homes which incorporate lateral shear bracing and modern building code requirements into their design and construction

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our investigation, the proposed development appears compatible with the site, provided the geotechnical criteria and recommendations presented in this report are incorporated into the design and construction of the project.

Geotechnical considerations at the site include providing firm uniform support for the new dwellings, the proximity of the steep drainage channel bank on the east side of the property, site drainage, and the potential for strong seismic shaking.

Units 1, 2, 8, 9, and 10, located on the west portion of the property, may be founded on conventional spread footing foundations embedded in the medium dense to dense near surface soil. Units 3, 4, 5, 6, and 7, located on the level east portion of the property, are underlain by loose to medium dense soil. Because of the loose condition of near surface soil and proximity of the adjacent creek bank, we recommend a minimum setback of 10 feet from the top of the creek bank and founding the dwellings on reinforced concrete pier and grade beam foundations.

There is potential for shallow landsliding of the bank when saturated and/or during strong seismic shaking. Treefalls may also result in loss of the creek bank. Trees at the site

should be evaluated by an arborist periodically to determine the health of the trees and determine if trimming is necessary. The proposed dwellings will be setback a minimum of 10 feet from the top of the bank. This will set the dwellings beyond a 2:1 (horizontal to vertical) line from the toe of the bank. In addition, the buildings on the east side of the site will have pier and grade beam foundations. Provided the buildings are setback a minimum of 10 feet from the top edge of the bank and have pier and grade beam foundations, the potential for deep seated landslides to negatively impact the dwellings will be low. However, there is potential for slope instability to negatively impact the yard area. If improvements between the dwellings and the top edge of the slope such as patio slabs or fences are constructed, they may be undermined if shallow slides occur.

There is also potential for creek scour to undermine the toe *of* the bank and increase the potential for instability of the creek bank. It is important to monitor and maintain the creek channel. If storm debris or treefalls in the creek divert runoff toward the creek bank adjacent to the dwellings, rapid erosion and instability of the creekbank can occur, resulting in loss of the creekbank.

Site drainage will be important at the site to maintain long term stability of the creek banks. Concentrated runoff should not be allowed to flow over the slopes. Surface runoff should be directed away from the slopes and conveyed to a storm drain system.

The site will most likely experience strong seismic shaking during the design lifetime of the proposed structures. The foundation and structure should be designed utilizing current Uniform Building Code (UBC) seismic design standards.

The following recommendations should be used as guideiines for preparing project plans and specifications:

Site Grading

1. The geotechnical engineer should be notified at least four (4) working days prior to any site clearing or grading so that the work in the field can be coordinated with the grading contractor, and arrangements for testing and observation services can be made. The recommendations of this report are based on the assumption that the Haro, Kasunich and Associates will perform the required testing and observation services during grading and construction. It is the owner's responsibility to make the necessary arrangements for these required services.

2. Where referenced in this report, Percent Relative Compaction and Optimum Moisture Content shall be based on ASTM Test Designation D1557-01.

3. Areas to be graded should be cleared of all obstructions including loose fill. foundations, septic tanks, trees not designated to remain, and other unsuitable material.

Existing depressions or voids created during site clearing should be backfilled with engineered fill.

4. Cleared areas should then be stripped of organic-laden topsoil. Stripping depth is typically from 2 to 6 inches. Actual depth of stripping should be determined in the field by the geotechnical engineer. Strippings should be wasted off-site or stockpiled for use in landscaped areas if desired.

5. All areas to receive engineered fill should be scarified to a depth of 6 inches, moisture conditioned, and compacted to a minimum of 90 percent relative compaction. Portions of the site may need to be moisture conditioned to achieve a suitable moisture content for compaction. These areas may then be brought to design grade with engineered fill.

6. Engineered fill should be placed in thin lifts not to exceed 8 inches in loose thickness, moisture conditioned, and compacted to a minimum of 90 percent relative compaction. In areas where flexible or rigid pavement will be constructed, the top 8 inches of subgrade soil and all aggregate base should be compacted to a minimum of 95 percent relative compaction.

7. The on-site soil is acceptable for use as engineered fill provided the material is free of organics or other deleterious material. Soil used for engineered fill which must be imported

should consist of a predominantly granular soil conforming to the quality and gradation requirements as follows: The soil should be relativelyfree of organic material and contain no rocks or clods greater than 4 inches in diameter, with no more than 15 percent larger than 2% inches. The material should be predominantly granular with a plasticity index less than 15, a liquid limit less than 35, and not more than 20 percent passing the #200 sieve.

8. We estimate shrinkage factors of 15 to 25 percent for the on-site materials when used as engineered fill.

9. Following grading, exposed soil should be planted as soon as possible with erosion-resistant vegetation.

10. After the earthwork operations have been completed and the geotechnical engineer has finished his observation of the work, no further earthwork operations shall be performed except with the approval of and under the observation of the geotechnical engineer.

Foundations - Conventional Spread Footings

11. Units 1, 2, 8, 9, and 10, located on the west portion of the property, may be supported on conventional continuous spread footings under load bearing walls and isolated spread footings and slabs under floors bearing on undisturbed natural soil One-story footings

should be a minimum of 12 inches deep and 12 inches wide. Two-story footings should be a minimum of 18 inches deep and a minimum of 15 inches wide. Actual footing widths and depths should be determined in accordance with anticipated use and applicable design standards. The footings should be reinforced as required by the structural designer based on the actual loads transmitted to the foundation.

12. Footings designed in accordance with the above may be designed for an allowable soil bearing pressure of 2,000 psf for dead plus live loads. This value may be increased by one third to include short-term wind and seismic loads.

13. Lateral load resistance for structures supported on footings may be developed in friction between the foundation bottom and the supporting subgrade. A friction coefficient of 0.35 is considered applicable.

14. Total and differential settlements under the proposed light building loads are anticipated to be less than 1 inch and ½ inch, respectively

15. The foundation trenches should be kept moist and be thoroughly cleaned of all slough or loose materials prior to pouring concrete. In addition, all footings located adjacent to other footings or utility trenches should have their bearing surfaces founded

below an imaginary 1%:1 plane projected upward from the bottom edge of the adjacent footings or utility trenches.

Pier and Grade Beam Foundation

16. Units 3, 4, 5, 6, and 7, located on the level east portion of the property, should be supported on reinforced concrete pier and grade beam foundations. The dwellings should be located a minimum of 10 feet from the edge of the slope. Piers should penetrate the upper loose topsoil (top 4 feet of soil) and be embedded a minimum of 6 feet into the undisturbed loose to medium dense silty sand.

17. Piers designed in accordance with the above may be designed for an allowable skin friction of 300 psf plus a 1/3 increase for short term wind and seismic loads. All loose fill and topsoil should be neglected when computing skin friction (a minimum of 4 feet of soil should be neglected in pier design).

18. Piers should be designed for an active pressure equivalent to a fluid weight (EFW) of 50 pcf acting in the top 4 feet of the piers within 10 to 20 feet of the top edge of the creek bank. The active pressure should be assumed to act against 1% pier diameters.

19. For passive lateral resistance, an equivalent fluid weight (EFW) of 250 pcf may be used in the silty sand below a depth of 4 feet. The top 4 feet of soil (measured from the ground surface) should be neglected in passive design. Passive pressures should be assumed to act against 1% pier diameters.

20. As a minimum, the piers should be vertically reinforced the full length with at least four Number 4 bars. The vertical reinforcement should be tied to the upper grade beam reinforcement. Actual reinforcement requirements should be determined by the structural designer.

21. The geotechnical engineer should observe the excavations during pier drilling to confirm anticipated subsurface conditions, verify pier depths, and present supplemental recommendations, if necessary.

22. Prior to placing steel reinforcement and concrete, foundation excavations should be thoroughly cleaned and observed by the geotechnical engineer.

Seismic Design

23. The 1997 UBC provides updated guidelines for seismic design of structures. Based on these guidelines, a review of our boring logs indicates the average of soil properties in the top 100 feet of soil at the site is typified by soil type S_D. We provide the following near

source factors (Na and Nv), and seismic coefficients (Ca and Cv) assuming the site is underlain by soil type S_D and selecting the San Andreas Fault and Zayante/Vergeles Fault as the seismic source faults closest to the site:

Soil Type=S_D
Seismic Zone Factor = Z = 0.40

FAULT NAME	DISTANCE TO SITE	R.I. (yr)	Mmax	SLIP RATE (mm/yr)	UBC FAULT TYPE	Na	Nv	Ca	Cv
San Andreas	11.4 km 7.1miles	210	7.9	24.0	A	1.0	1.1	0.44	0.70
Zayante-Vergeles*	5.7 km 3.6 mi	8821	7.0	0.1	B	1.0	1.2	0.44	0.77

* **critical fault**

24. Total and differential settlement resulting under the proposed lightweight building loads is anticipated to be less than **1** inch and ½ -inch respectively.

Retaining Walls

25. Retaining walls should be designed to resist both lateral setback earth pressures and any additional surcharge loads. Spread footing fc ndations are recommended for retaining walls provided the foundations are a minimum of 0 feet from adjacent slopes. For design

of retaining walls up to 10 feet high and fully drained, the following design criteria may be used:

A. Active earth pressure for walls allowed to yield is that exerted by an equivalent fluid weighing 40 pcf for a level backslope gradient; and 55 pcf for a 2:1 (horizontal to vertical) backslope gradient. **This assumes a fully drained condition.**

B. Where walls are restrained from moving at the top (as is the case for basement walls), design for a uniform rectangular distribution equivalent to 28H psf per foot for a level backslope, and 38H psf per foot for a 2:1 backslope, where H is the height of the wall.

C. For seismic design of retaining walls a dynamic surcharge load equal to 10H psf, where **H** is the height of the wall, should be added to the above active lateral earth pressures.

D. A coefficient of friction between base of foundation and native soil of 0.30 may be used. Alternatively, where retaining wall footings are poured neat against dense native soil, a passive resistance of 250 pcf (EFW) may be used. Neglect the upper 12 inches of footing depth when computing passive resistance.

E. In addition, the walls should be designed for any adjacent live or dead loads which will exert a force on the wall (garage and/or auto traffic).

F. Retaining walls that act as interior house walls should be thoroughly waterproofed.

G. The above lateral pressure values assume that the walls are fully drained to prevent hydrostatic pressure behind the walls. Drainage materials behind the wall should consist of Class 1, Type A permeable material complying with Section 68 of Caltrans Standard Specifications, latest edition.

H. The drainage material should be at least 12 inches thick. The drains should extend from the base of the walls to within 12 inches of the top of the backfill. A perforated pipe should be placed (holes down) about 4 inches above the bottom of the wall and he tied *to* a suitable drain outlet. Wall backdrains should be capped at the surface with clayey material to prevent infiltration of surface runoff into the backdrains. A layer of filter fabric (Mirafi 140N or equivalent) should separate the subdrain material from the overlying soil cap.

Concrete **Slabs-on-Grade**

26. Building floor slabs and exterior slabs should be constructed on properly water conditioned and compacted soil subgrade. Soil subgrades should be prepared and compacted as recommended in the section entitled " Site Grading".

27. The project design professional should determine the appropriate slab reinforcing and thickness, in accordance with the anticipated use and loading of the slab. However,

we recommend that consideration be given to a minimum slab thickness of 5 inches and steel reinforcement necessary to address temperature and shrinkage considerations. It is recommended that rebar in lieu of wire mesh be used for slab reinforcement. The steel reinforcement should be held firmly in the vertical center of the slab during placement and finishing of the concrete with pre-cast concrete dobies

28. Where floor dampness must be minimized or where floor coverings will be installed, concrete slabs-on-grade should be constructed on a capillary break layer at least 4 inches thick (exclusive of a 2 inch sand layer) and covered with a membrane vapor retarder. Capillary break material should be free-draining, clean gravel or rock, such as 3/4-inch gravel. The gravel should be washed to remove fines and dust prior to placement on the slab subgrade. The vapor retarder should be a high quality membrane; at least 10 mil in thickness; and puncture resistant (MoistStop or equivalent). A layer of sand about 2 inches thick should be placed between the vapor retarder and the floor slab to protect the membrane and aid in curing concrete. The sand should be lightly moistened prior *to* placing concrete.

29. It should be clearly understood concrete slabs are not waterproof, nor are they vapor-proof. The aforementioned moisture retardant system will help to minimize water and water vapor transmission through the slab. However, moisture sensitive floor coverings require additional protective measures, Floor coverings must be installed

according to the manufacturer's specifications, including appropriate waterproofing applications and/or any recommended slab and/or subgrade preparation. Consideration should also be given to recommending a topical waterproofing application over the slab

30. Exterior concrete slabs-on-grade should be founded on firm, well-compacted ground as delineated above. Reinforcing should be provided in accordance with the anticipated use and loading of the slab. The reinforcement should not be tied to the building foundations. These exterior slabs can be expected to suffer some cracking and movement. However, thickened exterior edges, a well-prepared subgrade including pre-moistening prior to pouring concrete, adequately spaced expansion joints, and good workmanship should minimize cracking and movement.

Flexible Pavement

31. Pavement design was beyond the scope of our services. We understand pavement design will be provided by the project civil engineers prior to submittal of Improvement Plans. For selected pavement sections to perform to their greatest efficiency, it is important that the following items be considered:

A. Properly moisture condition the subgrade and compact it to a minimum relative compaction of 95 percent at a moisture content at least 3 percent over the optimum moisture content. If clay soil is exposed in the subgrade, the clay should

be moisture conditioned to 5 percent over optimum moisture and compacted to a minimum relative compaction of 85 to 90 percent.

B. Provide sufficient gradient to prevent ponding of water.

C. Use only quality materials of the type and thickness (minimum) specified. All base rock, unless otherwise noted, must meet Cal-Trans Standard Specifications for Class 2 Aggregate Base, and be angular in shape.

D. Compact the base rock uniformly to a minimum relative dry density of 95 percent.

E. Place the asphaltic concrete only during periods of fair weather when the free air temperature is within a proscribed limit.

F. Provide a routine maintenance program.

Utility Trenches

32. Underground utility trenches should be backfilled with approved granular import fill. Trench backfill should be placed in lifts not exceeding 6 inches in uncompacted thickness and should be compacted by mechanical means only. The top 5 feet of backfill beneath pavements should be compacted to a minimum of 95 percent relative compaction. Below a depth of 5 feet and in areas not below pavement, backfill should be compacted to a minimum of 90 percent relative compaction.

33. Bedding material should be placed below the planned invert elevation to the depth required, but not less than four inches thick, to provide a stable uniform bearing surface.

The bedding material should extend upwards at least 6 inches above the top of the pipe(s) to provide side support and protection to the pipes during subsequent backfilling and compaction operations. Pipe bedding material should have a sand equivalent of 30 and be graded such that 100 percent passes the %-inch sieve and less than ten percent passes the #200 sieve.

Site Drainage

34. Control of runoff is essential to the performance of the project. Roof, driveway and street surface runoff should be collected and directed to a storm drain system.

35. Surface drainage should include provisions for positive slope gradients so that surface runoff is not permitted to pond adjacent to foundations and pavements. Runoff should be diverted from the top of the creekbank on the east side of the property. A minimum slope gradient of 2 percent should be provided near foundations, slabs, or pavements.

36. Rain gutters should be placed around roof eaves. Discharge from the rain gutters should be conveyed away from the downspouts via buried closed plastic pipe to suitable collection facilities which convey runoff to the storm drain system.

37. We do not recommend on site retention of storm water at the site. Saturation of the soil in the adjacent creek bank will increase the potential for slope instability. We recommend site runoff be directed to the street and existing facilities.

38. The migration of water or spread of extensive root systems below foundations, slabs, or pavements may cause undesirable differential movements and subsequent damage to these structures. Landscaping should be planned accordingly.

Plan Review, Construction Observation, and Testing

39. Haro, Kasunich and Associates must be provided the opportunityfora general review of the final project plans prior to construction to evaluate if our geotechnical recommendations have been properly interpreted and implemented. Haro, Kasunich and Associates should also provide earthwork observation and testing services during the construction phase of the project. Observation and testing of earthwork allows us the opportunity to confirm anticipated soil conditions and evaluate the contractors conformance with project plans and specifications and our geotechnical recommendations. Ifwe are not accorded the opportunity of making the recommended plan review or do not provide earthwork observation and testing services during construction. we assume no responsibility for misinterpretation of our recommendations.

HARO, KASUNICH AND ASSOCIATES, INC.

CONSULTING GEOTECHNICAL & COASTAL ENGINEERS

Project No. SC9309
31 January 2007

MR. KEITH BAXTER AND
MR. RANDY KANAWYER
c/o BK Properties
561 Hacienda Drive
Scotts Valley, California 95066

Subject: Geotechnical Plan Review

Reference: 10 Unit Condominium Project
APN 039-062-05
6851 Soquel Drive
Aptos, California

Dear Mr. Baxter and Mr. Kanawyer:

As requested, we have reviewed Preliminary Grading and Drainage Plans for the Hidden Oaks subdivision, located at 6851 Soquel Drive in Aptos, California. The plans, dated 31 January 2007, were prepared by Ifland Engineers. The reviewed sheets include the Preliminary Grading and Drainage Plan (Sheet TM4) and Preliminary Grading Cross Sections (Sheet TM4.01) for the proposed new dwelling units on APN 039-062-05. Our Geotechnical Investigation for the project is dated October 2006.

The plans indicate IO units will be constructed on the property. Three units will have driveways off Haas Drive and the remaining 7 units will be accessed by a new driveway off Soquel Drive. Minor cut and fill grading will be necessary to complete the project. Surface and roof runoff will be directed to 8 foot deep rock filled drainage trenches installed around the new driveway. The trenches will have reinforced concrete sides from the surface to a depth of 2 feet.

The east side of the property slopes steeply toward the flow line of the drainage channel, about 20 feet below the building area. **In** our report, we recommended runoff from the subdivision be directed to area storm drain facilities which convey storm water to the drainage channel. This would reduce the potential for instabilityof the channel slopes. We understand the Santa Cruz County Public Works Department has required storm runoff from the project be retained on site so the drainage trenches were planned. Since the drains will be located 65 to 100 feet away from the top of the channel, storm water will percolate down as well as horizontally in the silty sand underlying the drain area. Locating the trenches away from, rather than adjacent to, the channel slopes will reduce the potential for instability of the channel slopes.

Environmental Review Inital Study
ATTACHMENT 3, 31 of 32
APPLICATION 06-0651

Based on our review, the referenced plans are in conformance with our geotechnical recommendations.

If you have any questions concerning this letter, please contact our office.

Very truly yours,

HARO, KASUNICH AND ASSOCIATES, INC.

Christopher A. George
C.E. 50871

CAG/sq

Copies: 3 to Addressee
1 to Ifland Engineers

Environmental Review Inital Study
ATTACHMENT 3, 32 of 32
APPLICATION 06-0651

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX (831) 454-2131 TDD: (831) 454-2123
TOM BURNS, PLANNING DIRECTOR

November 27,2006

Powers Land Planning
1607 Ocean Street, Suite 8
Santa Cruz, CA, 95060

Subject: Review *of* Geotechnical Investigation by Haro, Kasunich *8* Associates, Inc.
Dated November **1, 2006;** Project #: **SC9309**
APN **039-062-05,** Application #: **06-0651**

Dear Applicant:

The purpose of this letter is to inform you that the Planning Department has accepted the subject report and the following items shall be required:

1. All construction shall comply with the recommendations of the report.

2. Final plans shall reference the report and include a statement that the project shall conform to the report's recommendations.

3. Prior to building permit issuance a plan review *letter* shall be submitted to Environmental Planning. The author of the report shall write the plan review *letter*. The letter shall state that the project plans conform to the report's recommendations.

After building permit issuance the soils engineer must remain involved ***with*** *the* project during construction. Please review the Notice *to* Permits Holders (attached).

Our acceptance of the report is limited to its technical content. Other project issues such as zoning, fire safety, septic or sewer approval, etc. may require resolution by other agencies.

Please submit two copies of the report at the time of building permit application.

Please call the undersigned at (831) 454-3168 if we can be of any further assistance

Sincerely,

Kent Edler
Civil Engineer

Environmental Review Inital Study
ATTACHMENT 4
APPLICATION 06-0651

Cc: Andrea Koch, Environmental Planning
Haro, Kasunich & Associates, Inc.
BK Properties, Owner
Randall Adams. Project Planner

(over)

SOQUEL CREEK WATER DISTRICT

Board of Directors
Daniels, *President*
Dr. Thomas R. LaHue, *Vice President*
John W. Beebe
Dr. Bruce Jaffe
Daniel F. Kriege

Laura D. Brown, *General Manager*

February 8,2006

Mr. Keith *G.* Baxter
550 Hudson Lane
Aptos, CA 95003

SUBJECT. Conditional Water Service Application – **6851** Soquel Drive, **Aptos, APN 039-062-05**

Dear Mr. Baxter:

In response to the subject application, the Board of Directors **of** the Soquel Creek Water District at their regular meeting of February 7, 2006, voted to grant you a conditional Will Serve Letter for your project so that you may proceed through the appropriate planning entity. An Unconditional Will Serve Letter cannot be granted until such time as you are granted a Final Discretionary Permit on your project. At that time, an Unconditional Will Serve Letter will be granted subject to your meeting the requirements of the District's Water Demand Offset Program and any additional conservation requirements **of** the District prior to obtaining the actual connection to the District facilities subject to the provisions set forth below.

Possible Infrastructure Check List	yes	no
1. LAFCO Annexation required		X
2. Water Main Extension required off-site		X
3. On-site water system required		X
4. New water storage tank required		X
5. Booster Pump Station required		X
6. Adequate pressure	X	
7. Adequate flow	X	
8. Frontage on a water main	X	
9. Other requirements that may be added as a result of policy changes. Not at this time.		X

This present indication to serve is valid for a two-year period from the date of this letter; however, it should not be taken as a guarantee that service will be available to the project in the future or that additional conditions, not otherwise listed in this letter, will not be imposed by the District prior to granting water service. Instead, this present indication to serve is intended to acknowledge that, under existing conditions, water service would be available on condition that the developer agrees to provide the following items without cost to the District:

Environmental Review Inital Study
ATTACHMENT 5, 1 of 3
APPLICATION 06-0651

1) Destroys any wells on the property in accordance with State Bulletin No. 74;
2) Satisfies all conditions imposed by the District to assure necessary water pressure, flow and quality;
3) Satisfies all conditions of Resolution No. **03-31** Establishing a Water Demand Offset Policy for New Development, which states that all applicants for new water service shall be required to offset expected water **use of** their respective development by a 1.2 to 1 ratio by retrofitting existing developed property with the Soquel Creek Water District service area *so* that any new development has a "zero impact" on the District's groundwater supply. Applicants for new service shall bear those costs associated with the retrofit as deemed appropriate by the District up to a maximum set by the District and pay any associated fees set by the District to reimburse administrative and inspection costs in accordance with District procedures for implementing this program:
4) Satisfies all conditions for water conservation required by the District at the time of application for service, including the following:
    a) Plans for a water efficient landscape and irrigation system shall be submitted to District Conservation Staff for approval. Current Water Use Efficiency Requirements are enclosed with this letter, and are subject to change;
    b) All interior plumbing fixtures shall be low-flow and all Applicant-installed water-using appliances (e.g. dishwashers, clothes washers, etc.) shall have the EPA Energy Star label plus **new** clothes washers also shall have a water use factor of 7.5 or less;
    c) District Staff shall inspect the completed project for compliance with all conservation requirements prior to commencing domestic water service;
5) Completes LAFCO annexatioo requirements, if applicable;
6) All units shall be individually metered with a minimum size of 5/8-inch by %-inch standard domestic water meters;
7) **A** memorandum of the terms of this letter shall be recorded with the County Recorder of the County of Santa Cruz to insure that any future property owners are notified of the conditions set forth herein.

Future conditions which negatively affect the District's ability to serve the proposed development include, but are not limited to, a determination by the District that existing and anticipated water supplies are insufficient to continue adequate and reliable service to existing customers while extending new service to your development. **In** that case, service may be denied.

You are hereby put on notice that the Board of Directors of the Soquel Creek Water District is considering adopting additional policies to mitigate the impact of new

Environmental Review Inital Study
ATTACHMENT 5, 2 of 3
APPLICATION 06-0651

development on the local groundwater basins, which are currently the District's only source of supply. Such actions are being considered because of concerns about existing conditions that threaten the groundwater basins and the lack of a supplemental supply source that would restore and maintain healthy aquifers. The Board may adopt additional mandatory mitigation measures to further address the impact of development on existing water supplies, such as the impact of impervious construction on groundwater recharge. Possible new conditions **of** service that may be considered include designing and installing facilities or fixtures on-site or at a specified location as prescribed and approved by the District which would restore groundwater recharge potential as determined by the District. The proposed project would be subject to this and any other conditions of service that the District may adopt prior to granting water service. **As** policies are developed, the information will be made available at the District Office.

Sincerely,
SOQUEL CREEK WATER DISTRICT

Jeffery N. Gailey
Engineering Manager/Chief Engineer

Enclosures: Water Use *Efficiency* Requirements & Sample
Unconditional Water Service *Application*

Environmental Review Inital Study
ATTACHMENT 5, 3 of 3
APPLICATION 06-0651

DRAINAGE STUDY

FOR

HIDDEN OAKS SUBDIVISION

Tract No. 1529

(Revised January 2007)
October. *2006*
Job No 05124

Environmental Review Inital Study
ATTACHMENT 6.1 of 16
APPLICATION 06.0651

IFLAND ENGINEERS, INC.
1100 Water Street. Suite 2
Santa Cruz, CA 95062
(831)426-5313 FAX (831)426-1763
www iflandengineers corn

IFLAND ENGINEERS, INC
1100 Water Street
Santa Cruz, CA 95062
(831) 426-5313 FAX (831) 426-1763
www iflandengineers corn

JOB 05124 **Hiddenoaks**
CALCULATED BY **GHI**
SHEET 1 of 15
DATE 10/12/06 REVISED

STORM DRAINAGE CALCULATIONS

Site Area -67,467 Sq. Ft. (1.55 Acres)

Existing Conditions	**Impervious Surfaces**	
Buildings	4,779	Sq. Ft.
Sidewalks/Patios	2,091	
Driveway	4,779	
Parking (Base rock 50%)	2,300	
Haas Drive Pavement	3,000	
TOTAL	**16,125**	**Sq. Ft. (0.32 Ac)**

Proposed Conditions	**Impervious Surfaces**	
Houses / Garages	12,160	Sq. Ft
Sidewalks/Patios	2,152	
Driveways	3,842	
Parking	1,080	
Road	3,264	
TOTAL	**22,498**	**Sq. Ft. (0.52 Ac)**

Rainfall Intensity

2.10 at 10 min. T.C.

Coefficient of Runoff

Pre-Development $= \frac{(0.90)(0.37) + (0.25)(1.18)}{1.55}$

$= 0.40$ (composite)

$Q_{10} = (0.40)(2.10)(1.55)$

$= \mathbf{1.30\ c.f.s}$

Post-Development Runoff

Coefficient $= \frac{(0.90)(0.52) + (0.30)(1.03)}{1.55}$

$= 0\ 50$ (composite)

$Q_{10} = (0.50)(2.10)(1.55)$

$= \mathbf{4.63\ c.f.s.}$

Environmental Review Inital Study
ATTACHMENT 6, 2 of 16
APPLICATION 06-0651

Net Increase: 1.63 – 1.30 = 0.3%c.f.s *(At 10 Min. T.C.)*

0.74 – 0.59 = 0.15 c.f.s *(At 1 Hour)* = **540 Cubic Feet**

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1100 Water Street
Santa Cruz, CA 95062
(831) 426-5313 FAX (831) 426-1763
www iflandengineers corn

JOB 05124 Hidden Oaks
CALCULATED BY GHI
SHEET 2 of 15
DATE 10/12/06 REVISED

As proposed on the preliminary grading and drainage plans, runoff from the roofs, driveways and private street would collect into the trench drains on both sides of the street, which would be about 0.98 c.f.s. The balance of the site is to be left natural and will drain off to the gulch. The drain-rock-filled trench is to be 1.5' wide x 6.0' deep and a total of 290 feet long. At 40% voids, there would be 977 cubic feet of detention/retention.

This site drains off into an unnamed gulch alongside Vienna Drive. This tributary area of the drainage basin north of Soquel Drive is 90 acres and has a length of 3,500 feet and time *of* concentration *of* 17 minutes. The total runoff of the basin is **160 c.f.s.**, including the increased runoff from the subject site and full build-out of the tributary area. (See below). According to the current zoning and general plan County Planning does not anticipate any density increase.

At Soquel Drive there is a 42" **R.C.P** culvert with a flow capacity of **181 c.f.s**. and further downstream at Highway 1 there is a **48"** x 36" long box culvert with a capacity of **237 c.f.s.** These culverts are adequate **to** handle a 100-year storm event. Both culverts are in deep natural drainage channels under the roadways. The top of the pipe under Soquel Drive is **16'** below the pavement and the top of the box culvert under Highway 1 is 37' below the pavement. Flooding of these roads is not possible at the culvert crossing.

The slight increase in runoff flow from the project site *of* 0.33 c.f.s. is only 0.02% of the flow capacity at Soquel Drive and 0.01% of the flow capacity at Highway 1

DRAINAGE RUNOFF

UNNAMED GULCH AT SOQUEL DRIVE

$Q = C_i C i A$
$= (1.25)(.3)(3.129)(27)$
$+ (1.25)(.52)(3.129)(63)$
$= 160$ c.f.s. – 100-yr. storm

$P_{60} = 1.4$
$I_{10} = 2.1$ in/hr
$i_{100} = (1.49)(2.1) = 3.129$ in/hr

Environmental Review Inital Study
ATTACHMENT 6, 3 of 16
APPLICATION 06-0651

UNNAMED GULCH AT HIGHWAY ONE

$Q = C_i C i A$
$= (1.25)(.3)(2.38)(27)$
$+ (1.25)(.52)(2.38)(63)$
$+ (1.25)(.60)(3.427)(26)$
$= 227$ c.f.s. – 100-yr. storm

$P_{60} = 1.4$
$I_{10} = 2.1$ in/hr
$i_{100} = (1.49)(2.1) = 3.129$ in/hr
$I_{10} = 4.6$ in/hr @ 17 min
$I_{100} = (1.49)(1.6) = 2.38$ in/hr

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1100 Water Street
Santa Cruz, CA 95062
(831) 426-5313 FAX (831) 426-1763
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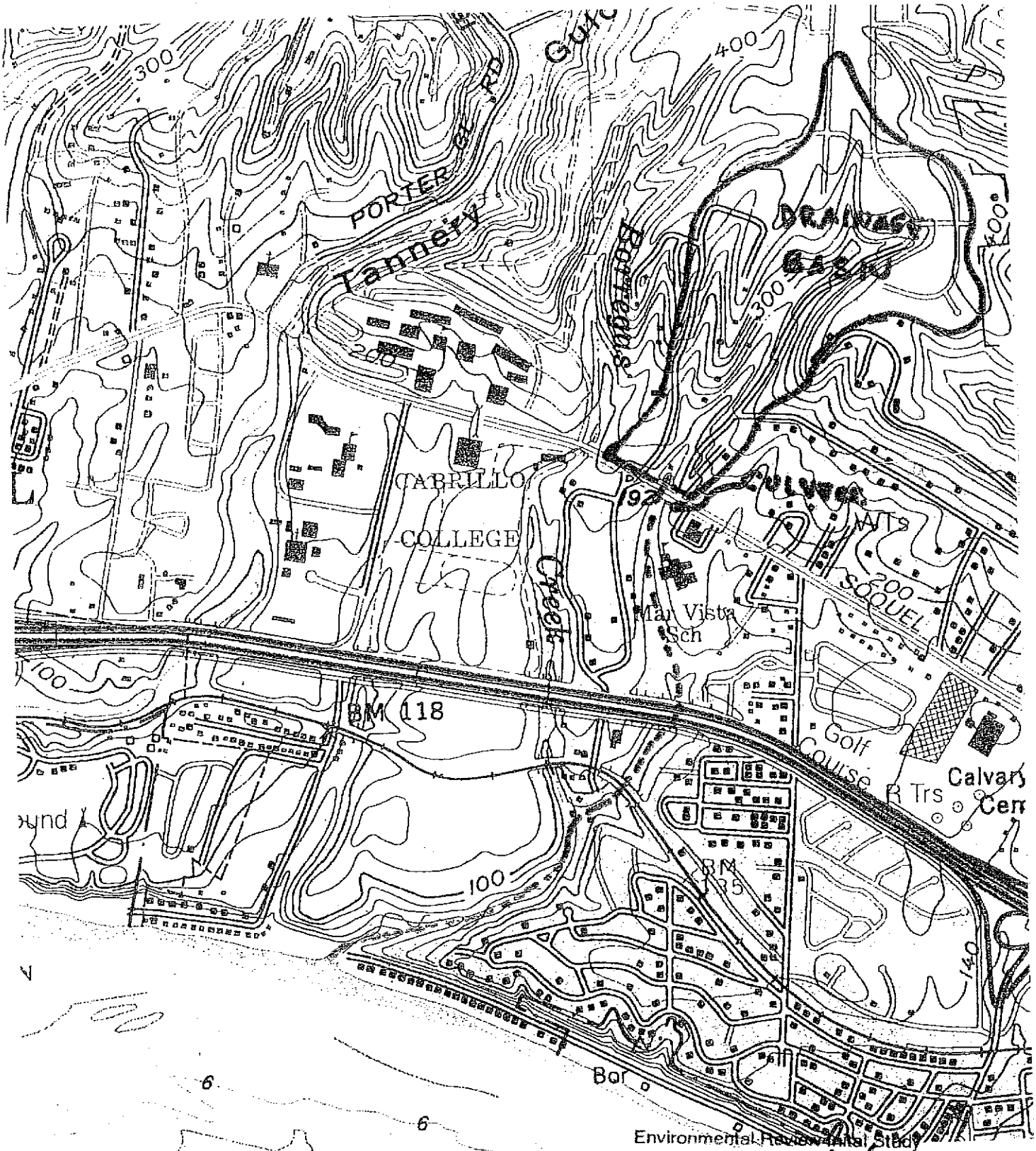
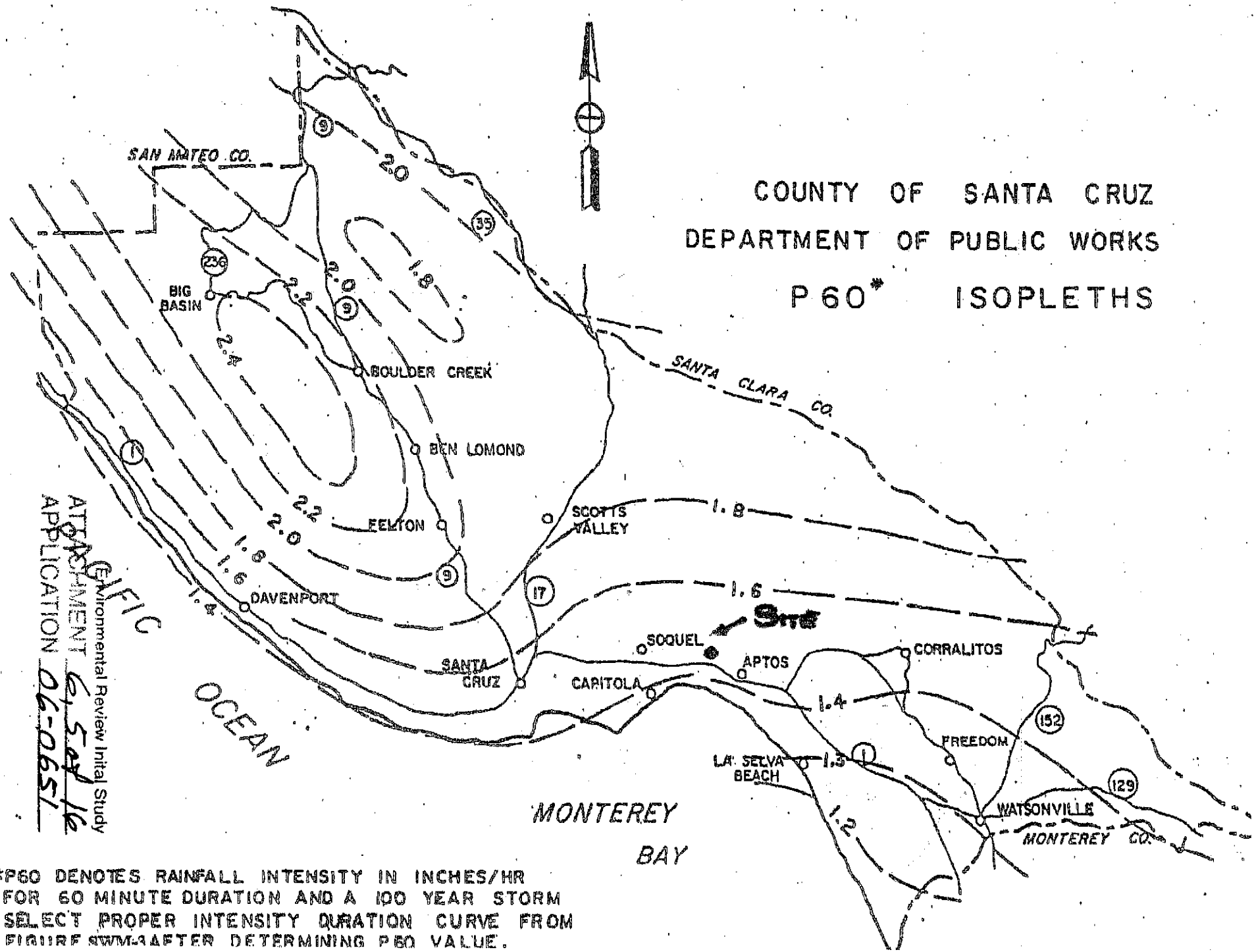
SHEET 3 Of 15
DATE 10/12/06 REVISED



ATTACHMENT 6, 4 of 16
APPLICATION 06-0651



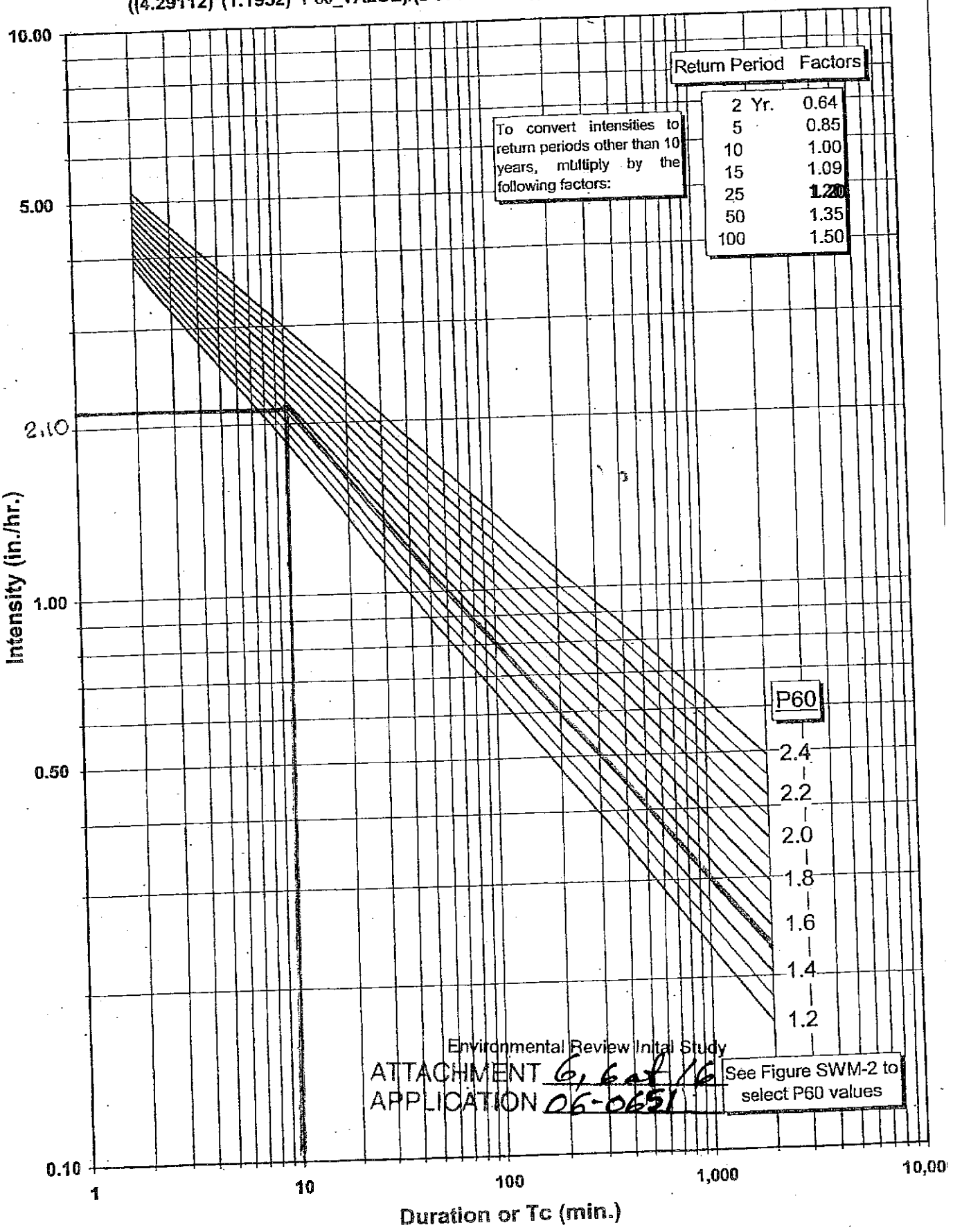
ATTACHMENT 6, Exh 1e
APPLICATION 06-0651

Environmental Review Inital Study

*P60 DENOTES RAINFALL INTENSITY IN INCHES/HR FOR 60 MINUTE DURATION AND A 100 YEAR STORM SELECT PROPER INTENSITY DURATION CURVE FROM FIGURE SWM-3 AFTER DETERMINING P60 VALUE.

Rainfall Intensity - Duration Curves
10 Yr. Return Period

((4.29112)*(1.1952)^P60_VALUE)/(DURATION^((0.60924)*(0.78522)^P60_VALUE))



Environmental Review Inital Study
ATTACHMENT 6, 6 of 16
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FIG. SWM-3

Rev. 11-05

TYPE OF AREA	10- YEAR RUNOFF COEFFICIENTS
Rural, park, forested, agricultural	0.10 - 0.30
Low residential (Single family dwellings)	0.4
High residential (Multiple family dwellings)	0.65 - 0.75
Business **and** commercial	0.80
Industrial	0.70
Impervious	0.90

REQUIRED ANTECEDENT MOISTURE FACTORS
(Ca) FOR THE RATIONAL METHOD*

Recurrence Interval (Years)	Ca
2 to 10	1.0
25	1.1
50	1.2
100	1.25

Note: Application of antecedent moisture factors (Ca) should not result in an adjusted runoff coefficient (C) exceeding a value of 1.00

Environmental Review Inital Study
ATTACHMENT 6, 7 of 16
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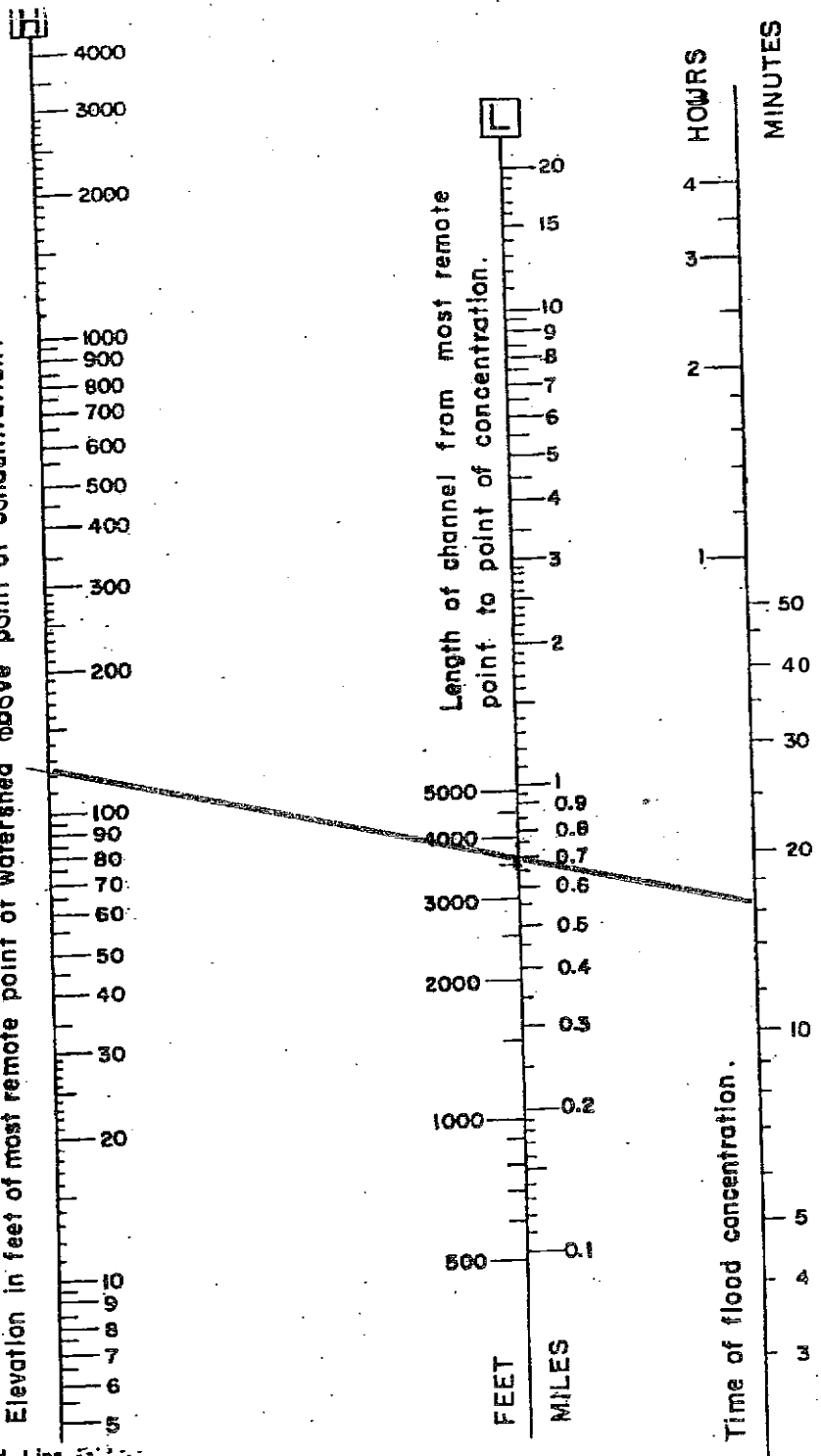
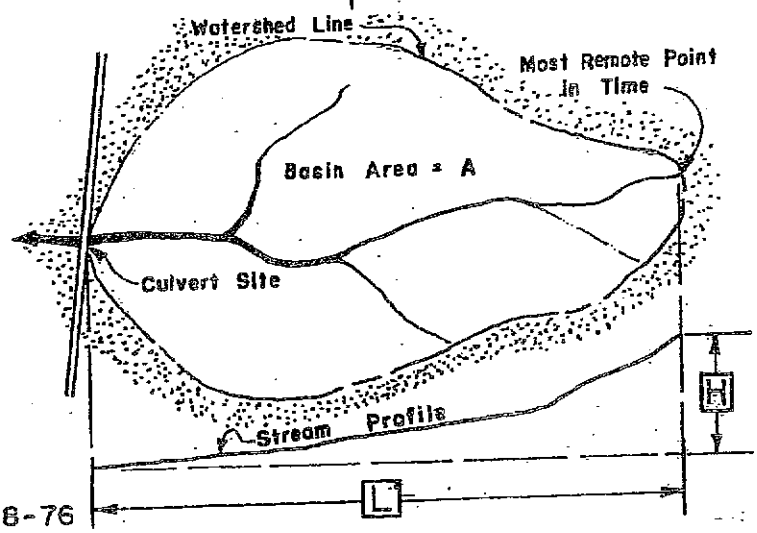
*APWA Publication "Practices in Detention of Stormwater Runoff'

Rev. 4 1-05

FIG. SWM-1





Environmental Review Inital Study
ATTACHMENT 6, Sept 16
APPLICATION 06-0651

TIME of CONCENTRATION NOMOGRAPH for NATURAL WATERSHEDS (pear shaped basins)

FIG. SWM

REV. 8-76

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1100 Water Street
Santa Cruz. CA 95062
(831) 426-5313 FAX (831) 426-1763
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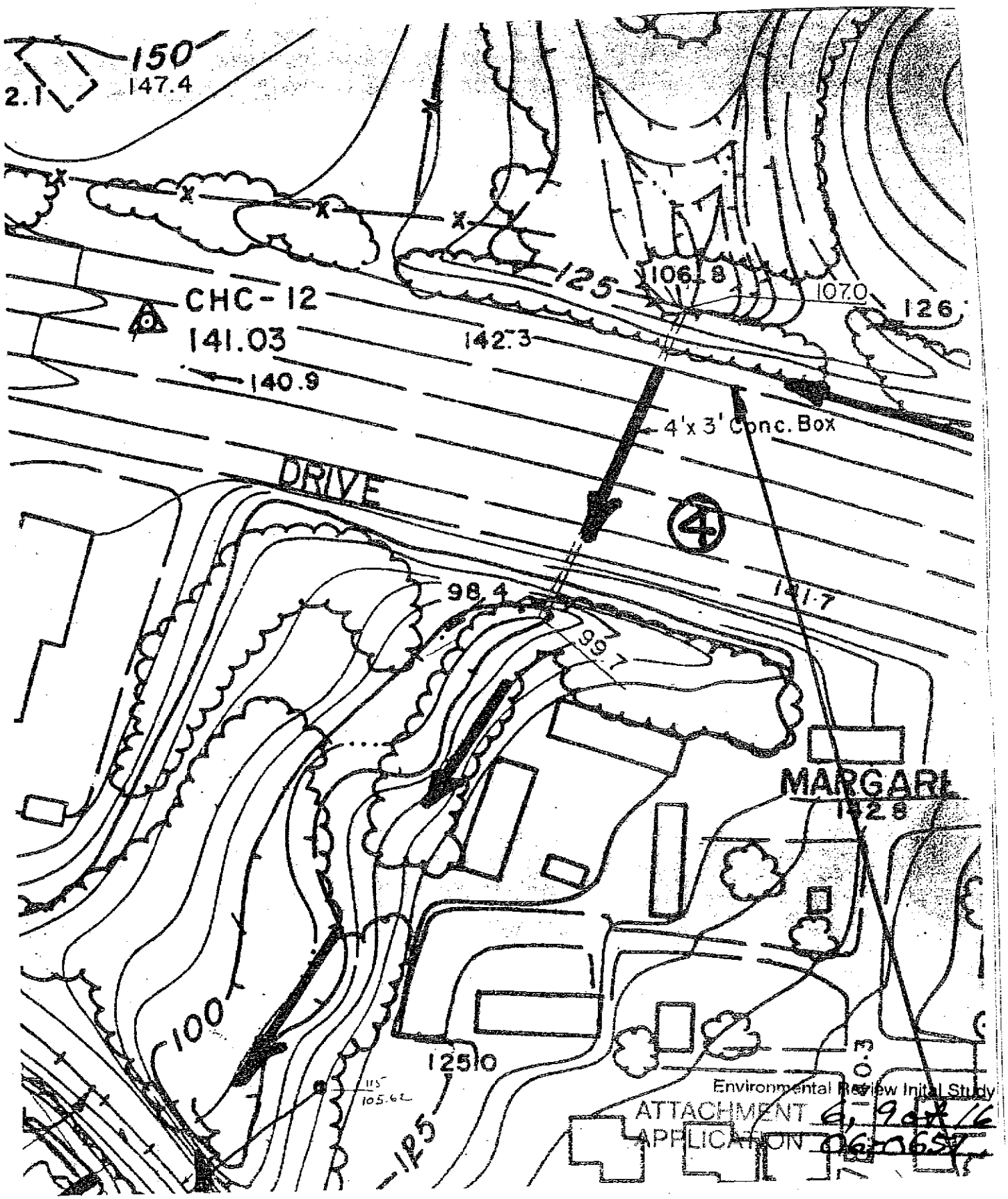
SHEET 9 of 15
DATE 9/15/06 **REVISED**

Culvert Under Highway One



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1100 Water Street
Santa Cruz. CA 95062
(831) 426-5313 FAX (831) 426-1763
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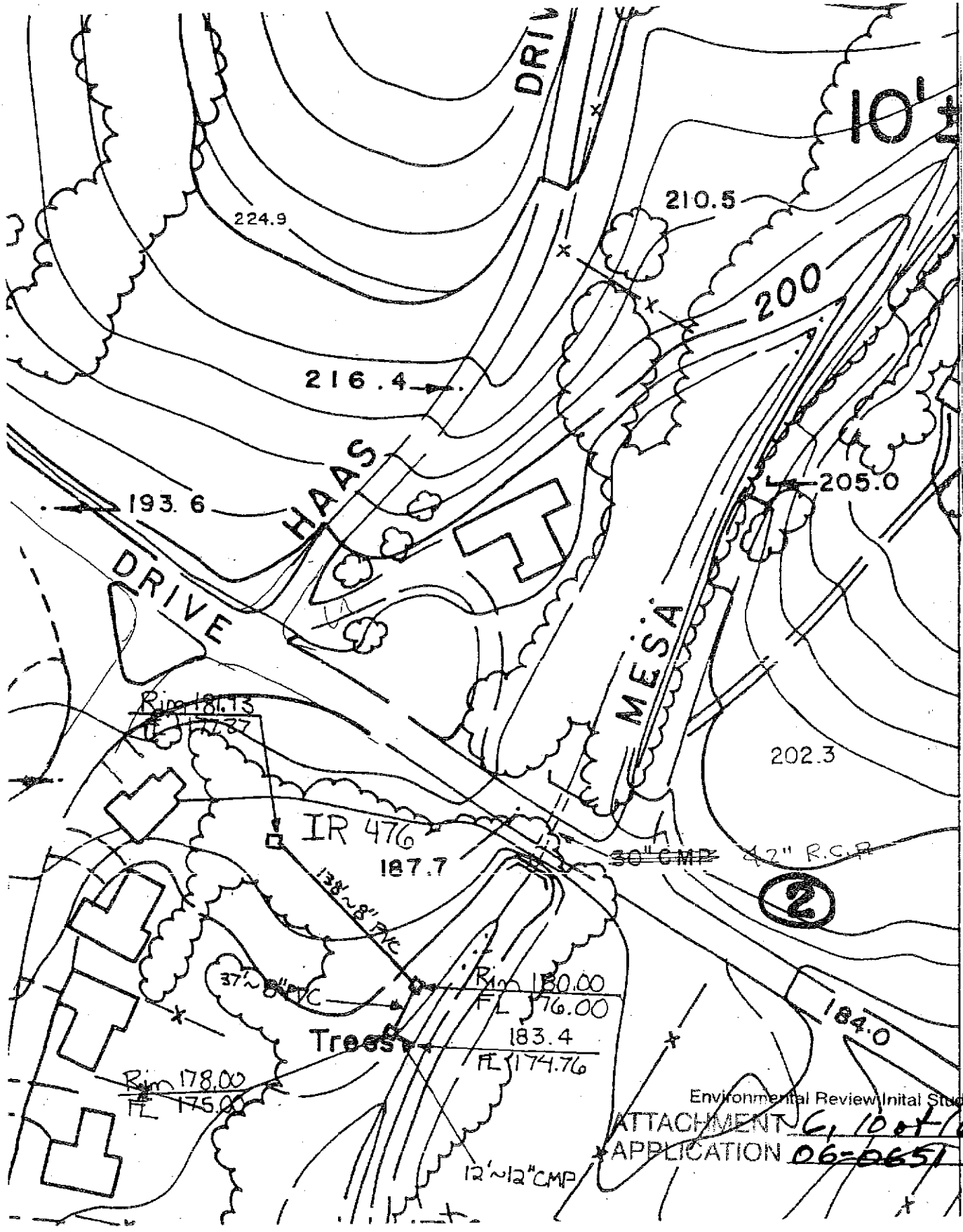
DATE 1/12/07 **REVISED**

Culvert Under **Soquel Drive**



Environmental Review/Inital Study
ATTACHMENT 6, 10 of 16
APPLICATION 06-0651

Manning Pipe Calculator

Unnamed Gulch at Soquel Drive

Given Input Data:

Shape	Circular
Solving for	Flowrate
Diameter	42.0000 in
Depth	40.500 in
Slope	0.0375 ft/ft
Manning's n	0.015

Computed Results:

Flowrate	**181.2258cfs**
Area	9.6211 ft2
Wetted Area	9.2605 ft2
Wetted Perimeter	107.8593 in
Perimeter	131.9469 in
Velocity	19.5697 fps
Hydraulic Radius	12.3635 in
Percent Full	92.0000%
Full Flow Flowrate	168.8526 cfs
Full Flow Velocity	17.5502 fps

Unnamed Gulch at HWY1

Given Input Data:

Shape	Circular
Solving for	Flowrate
Height	48.0000 in
Width	36.0000 in
Depth	47.0000 in
Slope	0.0281 ft/ft
Manning's n	0.0130

Computed Results:

Flowrate	**237.6751 cfs**
Area	12.0000 ft2
Wetted Area	11.7500 ft2
Wetted Perimeter	130.0000 in
Perimeter	168.0000 in
Velocity	20.2277 fps
Hydraulic Radius	13.0154 in
Percent Full	97.9167%
Full Flow Flowrate	207.4812 cfs
Full Flow Velocity	17.2901 fps

IFLAND ENGINEERS, INC
1100 Water Street
Santa Cruz, CA 95062
(831)426-5313 FAX (831)426-1763
www.iflandengineers.com

JOB 05124 Hiddenoaks
CALCULATED BY GHI
SHEET 11 of 15
DATE 1/12/07 REVISED

Drainage along west side of Vienna Drive

The area collecting at the catch basin at the northwest comer of Soquel Drive and Vienna Drive from the gutter flow on the west side of Vienna Drive extends 270 feet north of Soquel Drive The gutter flow above that point is diverted into the gulch along side the street. The pavement width of Vienna Drive is 32 feet and is crowned at the centerline. The drainage area is 16' wide by 270' long or 0.10 acre. A IO-year storm event would produce:

Q_{10} =(0.90)(2.10)(0.10)
= 0.19 cubic foot per second

The gutter slope on Vienna Drive at just above the catch basin is 3.0%. The flow capacity of the 2' wide gutter only (0.17' flow depth) is 0.70 c.f.s. At 0.19 c.f.s. the flow depth would be only 0.08 ±'. No runoff from the project site enters Vienna Drive.

Drainage along east side of Haas Drive

The area collecting at the catch basin at the northeast corner of Soquel Drive and Haas Drive from the gutter flow on the east side of Haas drive extends 350 feet north of Soquel Drive. There is no gutter on the east side of the street above this point and the pavement above this point is sloping to the west side of the street. The pavement on Haas Drive is 36 wide and is crowned at the centerline. The drainage area is 18' wide x 350' long or 0.14 acre. A IO-year storm event would produce:

Q_{10} =(0.90)(2.10)(0.14)
= 0.26 cubic foot per second

The gutter slope on Haas Drive curb return just before the ramp is 4.5%. The flow capacity on the 2 wide gutter with only 0.17 flow depth is 0.85 c.f.s. At 0.26 c.f.s. the Plow depth would be only 0.12'±. No runoff from the project site enters Haas Drive.

(See Maps on following pages.)

Environmental Review Inital Study
ATTACHMENT 6, 12 of 16
APPLICATION 06-0651

Initial Study

13 of 16

ELEVATIONS: MEAN SEA LEVEL

COORDINATE SYSTEM: NAD 1983

CONTOUR INTERVAL: 2'

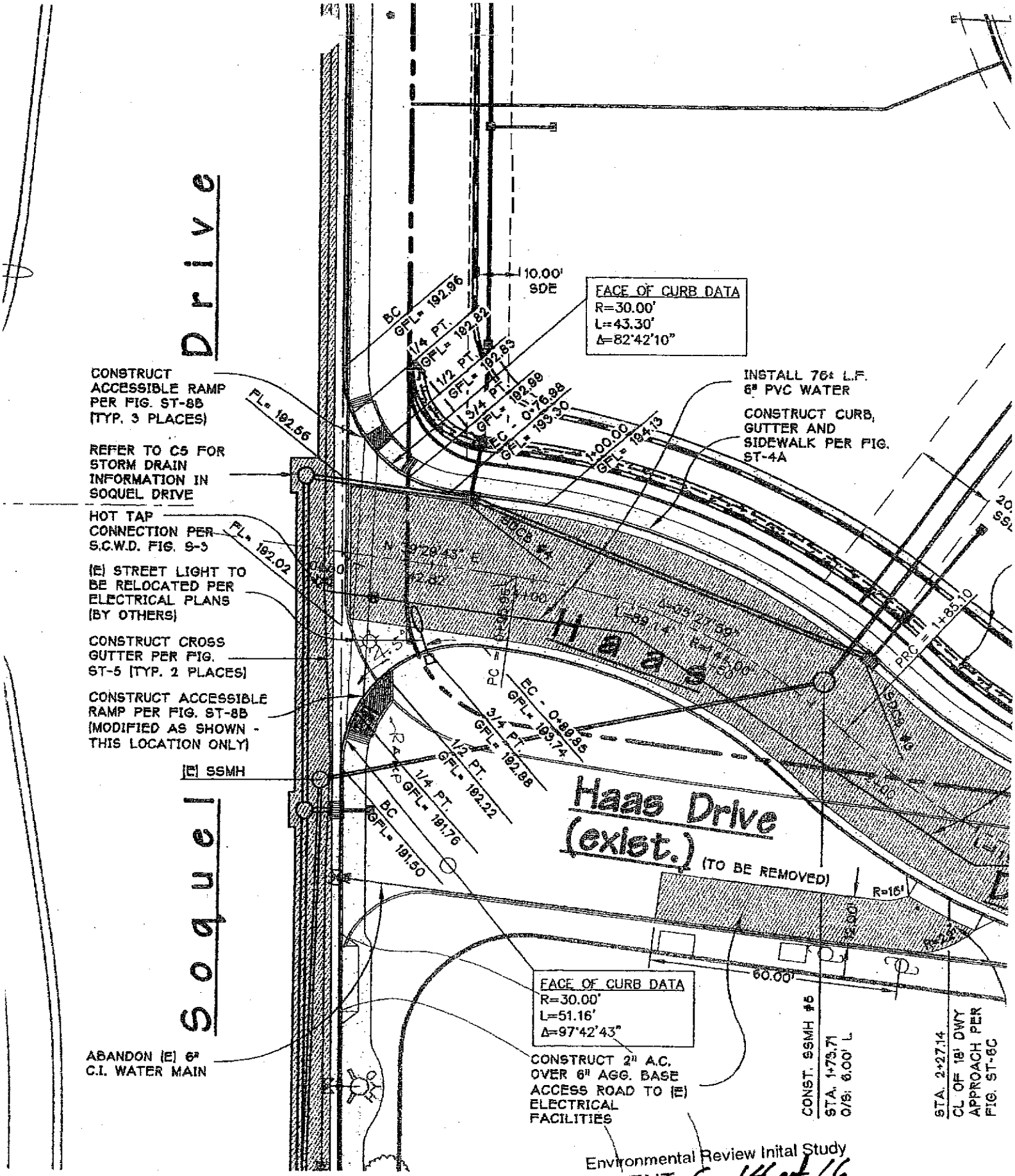
100 200 300

SCALE: 1"=100'

REV

NOTES;

1. *PHOTOGRAPHY FOR TOPOGRAPHIC MAPPING WAS TAKEN AT 4500' ABOVE MEAN TERRAIN ON* NOVEMBER 3, AND NOVEMBER 4, 1993 WITH A RC-10 CAMERA.
   PHOTOGRAPHY FOR ORTHO PHOTO MAPPING WAS TAKEN AT 4200' ABOVE MEAN TERRAIN ON JUNE 20, 1995 WITH A RC-10 CAMERA.
2. CONTOURS OBSCURED BY VEGETATION MAY BE SUBSTANDARD.
3. THE HORIZONTAL CONTROL SURVEY FOR THE MAPPING WAS A FIRST ORDER (1:100,000) GPS NETWORK ESTABLISHED IN DECEMBER 1993. THE HORIZONTAL CONTROL FOR THE SURVEY WAS BASED ON NAD 83 USING MONUMENTS SET BY CALTRANS FOR THEIR HIGH PRECISION GEODETIC NETWORK (HPGN).
4. THE VERTICAL DATUM IS BASED ON NGVD 29. THE VERTICAL CONTROL WAS BASED ON SPIRIT LEVELS FOR POINTS A1, A4, A8, A10, A11, A12, A13, A26, AND HPGN 0402, WITH AN ACCURACY OF PLUS OR MINUS 0.05 FEET. THE REMAINING VERTICAL CONTROL POINT ELEVATIONS WERE DETERMINED BY GPS MEASUREMENTS WITH AN ACCURACY OF PLUS OR MINUS 0.15 FEET.
5. SEE REPORT TITLED "SANTA CRUZ COUNTY GPS CONTROL SURVEY RESULTS OF GPS SURVEY *PREPARED* FOR ROBERT L. DEWITT & ASSOCIATES DECEMBER 1993" BY BESTOR ENGINEERS, INC. FOR ADDITIONAL SURVEY INFORMATION.



Environmental Review Inital Study
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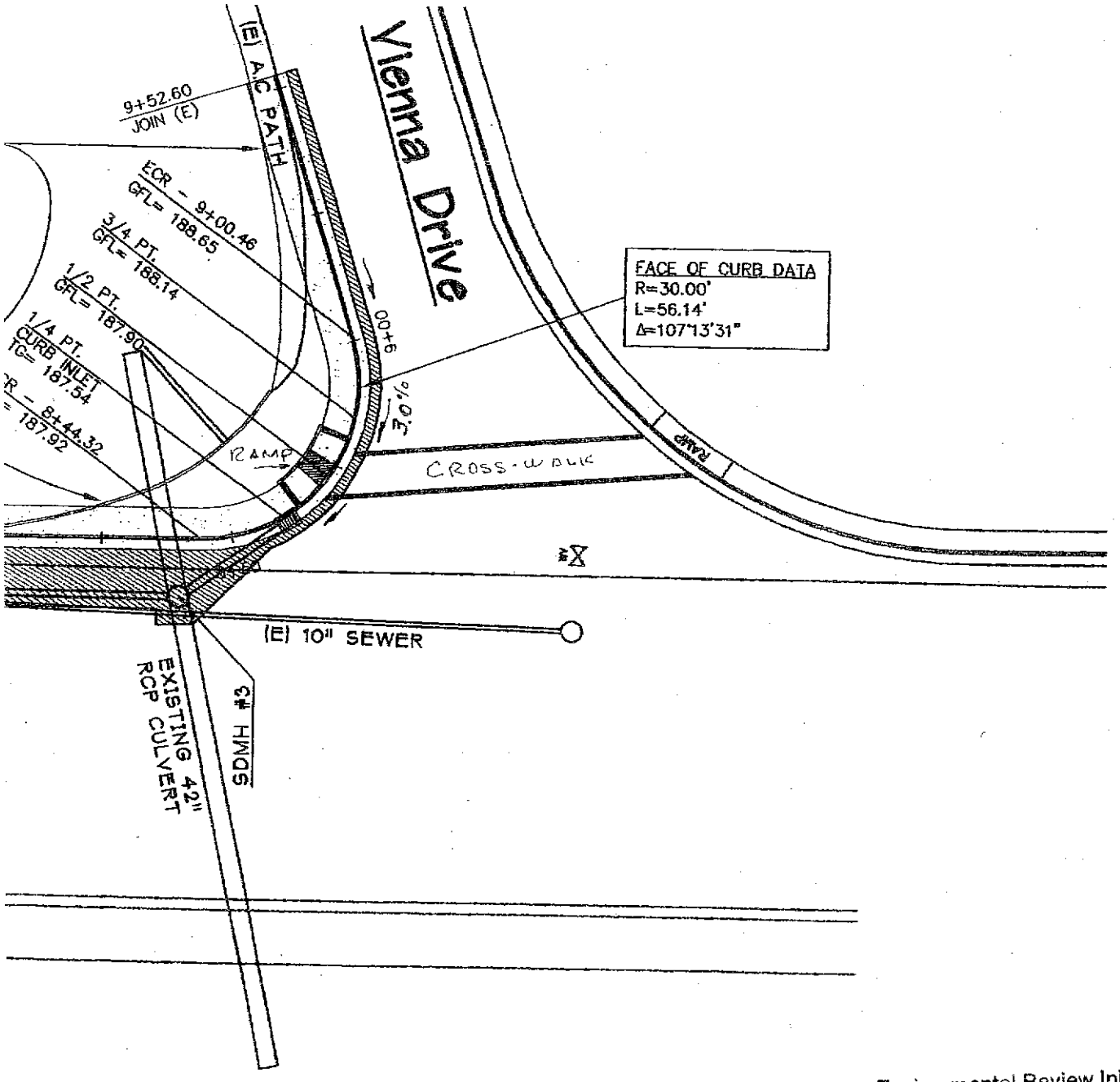
APPLICATION 06-0651 Plan

GRAPHIC SCALE

15 30 60 120

(IN FEET)
1 inch = 30 ft.



Environmental Review Inital Study
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APPLICATION 06-0651

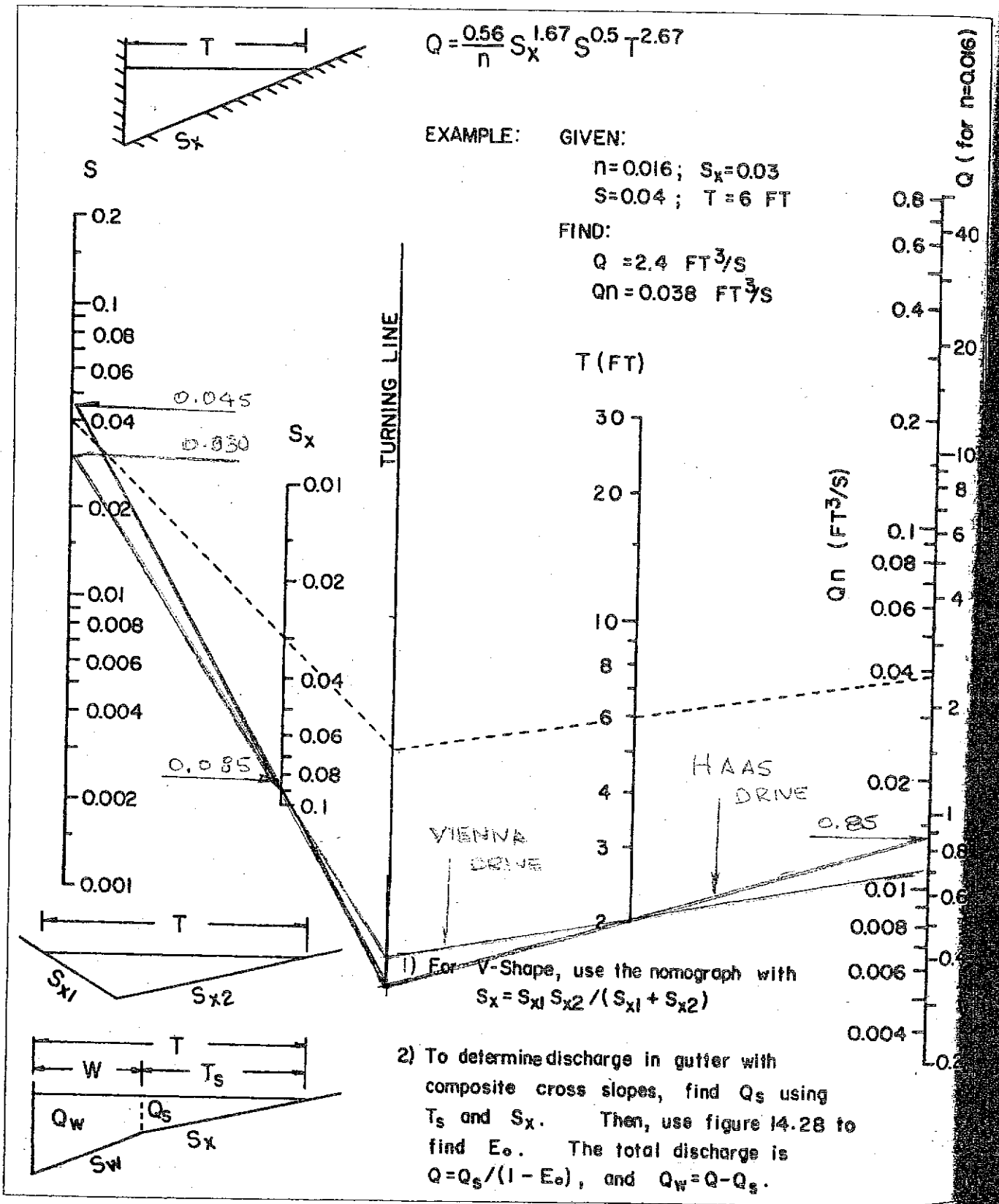

FIGURE 14.24 Nomograph for flow in triangular gutter sections. Reference: USDOT, FHWA, Design Review Initial Study, Environmental Impact of Highway Pavements, HEC-12 (198

ATTACHMENT 6, 16 of 16
APPLICATION 06-0651

COUNTY OF SANTA CRUZ
DISCRETIONARY APPLICATION COMMENTS

Project Planner: Randal1 Adams
Application No.: 06-0651
APN: 039-062-05

Date: May 1. 2007
Time: 09:53:09
Page: 1

Environmental Planning Completeness Comments

========== REVIEW ON NOVEMBER 27. 2006 BY KENT M EDLER ==========

Following are Completeness Comments Related to Grading and Soils:

1. Show proposed grading contours on sheet TM4.

2. Show a grading x-section that runs from bldg 1 to bldg 2

3. Show a grading x-section that runs from bldg 3 to bldg 6

4. Show a grading x-section that runs from bldg 8 to bldg 10.

5. The plan sheets submitted were not plotted to scale. Please submit plan sheets that are plotted to sclae.

6. Clearly show where pad and FF elevations change for building 1 and also building 2. (for example plan view for building 1 shows FF at 198.62, but x-section D-D shows a FF of 202. The FF of 202 must be indicated on plan view)

7. Show top of wall and bottom of wall elevations for all proposed walls

8. Show how roof runoffwill be handled from buildings 1-7

9. Clearly show all onsite drainage patterns

10. A plan review letter from the soils engineer will be required prior to this application being deemed complete. The plan review 'letter must state that the proposed grading and drainage plans are in conformance with their geotechnical recommendations.

========== UPDATED ON DECEMBER 11. 2006 BY ANDREA M KOCH ==========

1) A Riparian Exception (to be processed at an "at-cost'' charge) will be required.

According to Riparian Pre-site 04-0047. the stream that lies adjacent to the proposed development is an unnamed perennial stream that drains to Aptos Creek. For developed parcels within the Urban Services Line that lie a'djacent to an arroyo, the appropriate riparian buffer is 20 feet, as measured from the top of the arroyo. No development may take place within the riparian buffer unless Planning grants a Riparian Exception. There is an additional construction setback of 10 feet from the edge of the buffer, meaning that structures cannot be located closer than 20+10= 30 feet from the top of the arroyo unless a Riparian Exception is obtained.

The Riparian Pre-site stated that the requirement for a 20-foot buffer from the dripline of woody vegetation could be waived due to the many large oaks on the parcel

For this project, proposed yard areas and structures encroach into the 20-foot wide buffer and additional 10-foot wide construction setback

2) On the Preliminary Erosion Control Plan on Sheet TM5, call out on the site plan the location of the silt fence (which appears to be indicated by the dashed line with asterisks).

3) 26 trees are proposed for removal on Sheet TM2.

On Sheet AB01 prepared by James P. Allen & Associates, 33 trees are proposed for removal

It appears that Sheet TM2 represents actual proposed tree removal. while Sheet AB01 represents the arborist's recommendations. It is acceptable, and even encouraged, to remove less trees than recommended by the arborist. However, please clearly indicate on the plans which sheet (Sheet TM2 or Sheet AB01) will dictate the amount of tree removal.

4) Please show on the improvement plans a) the 20-foot wide riparian buffer, as measured from the top of the arroyo, and b) the additional 10-foot wide construction setback for structures.

5) On Sheet L1 (the landscape plan), state the number of trees proposed for removal and the number of new trees proposed.

Also, several plant abbreviations are not defined on the landscape plan. Please define all plant abbreviations. For example, what species are represented by "MC" and "IL"?

Also. the landscape plan shows acacia removal occurring in the grove at the north-east corner of the parcel. If the project arborist finds it feasible, replace each acacia with a new oak tree located in the grove.

The landscape plan does not label the new tree to be planted in between Units 6 and 7. label this as a new coast live oak.

6) Once the final project plans have been prepared, submit a plan review letter from the project arborist. The plan review letter must state that the final project plans are in general conformance with the recommendations in the arborist's report.

========= UPDATED ON FEBRUARY 21, 2007 BY KENT M EDLER ========= Updated Completeness Comments for Grading:

1. The plans are still not to scale. Please revise and re-submit plans.

Note: See compliance issues for unresolved issues with setbacks.
========= UPDATED ON FEBRUARY 21, 2007 BY ANDREA M KOCH =========

1) All Andrea Koch's completeness comments dated December 11, 2006 have been addressed. See Kent Edler's comments for any remaining completeness comments regarding grading and soils.

Note: Please see the compliance comment in the "Miscellaneous Comments" section for information regarding acacia removal and replacement with oaks.

========= UPDATED ON APRIL 17, 2007 BY KENT M EDLER ========= Plans are complete for Env. Planning issues

Environmenta1 Planning Misce11aneous Comments

========= REVIEW ON NOVEMBER 27, 2006 BY KENT M EDLER =========

Following are Compliance Comments Related to Grading and Soils:

1. The soils report states that all structures must be setback 10' from the top of slope. Buildings 5 and 6 are closer than 10' from the top of slope.

2. The top of slope line shown on sheet TM3 is not drawn at the top of slope in all locations.

3. The limits of grading disturbance are not accurate. Include the graded swale south of building 3

4. Roof runoff from buildings 9 & 10 are shown to be concentrated at the top of a large erosional feature. The soils engineer must specifically approve of the dissipator locations in this area.

Following are Permit Condtions / Addtional Information that will be required:

1. Permit Condition: Winter grading will not be allowed on this site

2. Permit Condition: Grading must start by August 15. If grading has not started by August 15. the commencement of grading must wait until the following April 15.

3. Permit Condition: The soils engineer must review the final improvement plans and submit a plan review letter to Environmental Planning.

4. Show details for gabion dissipators

5. Show details of the graded swale south of building 3.

6. The erosion control plan must include means to control runoff during the winter in the event that the permanent drainage system has not been installed.

7. The location of the silt fence must be labelled on the erosion control plan.

Note: The soils report has been accepted. Letter sent on 11/27/06
========= UPDATED ON DECEMBER 11, 2006 BY ANDREA M KOCH =========

1) Planning can make the findings to grant a Riparian Exception. The Exception is necessary to provide enough usable space for the proposed development. In addition, the site is already disturbed, and the proposed project will not further degrade the riparian corridor. In fact, it will improve the riparian area by removing existing development encroaching right up to the top of the arroyo, and by removing invasive. non-native acac'ia trees from .the riparian buffer. Implementation of proper erosion

control and replacement of any removed trees will also help maintain the quality of the riparian area.

2) Grading. construction, tree removal, and other development shall generally conform to the recommendations in the arborist's report.

3) All development must be inspected by the arborist at the points recommended on page 14 of the arborist's report.

4) The project arborist shall submit a final letter after completion of improvements stating that the work performed was in general conformance with the recornmendations in the arborist's report.

========= UPDATED ON FEBRUARY 21, 2007 BY KENT M EDLER ========= Updated Compliance Comments for Grading:

1. Buildings 5 &6 are still not setback 10' from the top of slope. Also th e measurements shown on the plans are to a contour 2' down the slope from the top of slope and are also not drawn at building 5 to the closest location of the top of slope. Revise plans accordingly.

2. Building 7 has been shifted now so that it is also located within 10' of the top of slope. Revise the plans so that building 7 is setback 10' from the top of slope.
========= UPDATED ON FEBRUARY 21, 2007 BY ANDREA M KOCH ═══════

Updated compliance comments for tree removal/replanting:

1) Please show on the plans removal of the 5 acacias at the northeast side of the parcel. These acacias are tree #'s 128. 129. 130. 131, and 136.

Please also show replacement of each acacia with an oak tree.

Permit Conditions:

1) Before grading, install preservation fencing as shown on Sheet AB02 to protect trees to be retained from damage during construction. The project arborist shall inspect this fence prior to grading.

========= UPDATED ON APRIL 17, 2007 BY KENT M EDLER ========= Application is in compliance with grading and soils issues. Note: to Planner: See previous comments dated 11/27/06 for permit conditions.

Environmental Review Inital Study
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Housing Completeness Comments

========= REVIEW ON DECEMBER 5, 2006 BY TOM POHLE =========
COMPLETENESS:This project proposes to divide a single parcel into 10 residential lots and to build 10 townhomes. The developer has proposed designating 2 of the common wall townhomes as affordable housing. The designation of 2 homes exceeds the affordable housing obligation (AHO) for this project.

COMPLIANCE:The developer has proposed to designate 2 of the common wall townhomes as

the affordable homes for the project (units 3 and 5 on sheet A002 of the plans) County Code 17.10.032 requires affordable homes to be consistent with the market rate units being constructed in terms of lot size. number of bedrooms. design and other features. The developer should review the referenced section prior to submit ting an application for a building permit to insure the affordable homes are consistent wiht County Code.

Housing Miscellaneous Comments

========== REVIEW ON DECEMBER 5, 2006 BY TOM POHLE ==========
PERMIT CONDITIONS: Prior to issuance of building permits, the developer must execute and record a Measure J Participation Agreement.

Dpw Drainage Completeness Comments

LATEST COMMENTS HAVE **NOT YET** BEEN SENT TO PLANNER FOR THIS AGENCY

========== REVIEW ON DECEMBER 11, 2006 BY DAVID W SIMS ==========
1st Review Summary Statement:

Prior guidance on development requirements was given to the applicant during a Design Review Group meeting (Applic. 06-0142). The proposal is generally in compliance with drainage policies requiring on-site mitigation measures. The required off-site assessments do not fully meet the County Design Criteria (CDC) Part 3, Stormwater Management. June 2006 edition. Additional information is needed for complete evaluation.

Reference for County Design Criteria: http://www.dpw.co.santa cruz.ca.us/DESIGNCRITERIA.PDF

Policy Compliance Items:

Item 1) The types of mitigation measures proposed generally meet drainage policy requirements and appear sufficient to handle the site runoff impacts successfully. Water quality treatment is proposed to be achieved by the infiltrative character of the on-site mitigations. See information item 5.

Environmental Review Inital Study
ATTACHMENT 7. 5 of 16
APPLICATION 06-0651

Information Items:

Item 2) Incomplete. The offsite hydrology work submitted was not accepted. Please provide complete, detailed and mapped documentation that the assessment evaluates properly for full build-out based on current zoning, and allowed future land use trends for'denser development, such as residential 2nd units. The use of C factors of 0.30 and 0.35 in the calculations does not agree with the allowed ranges provided in the CDC Figure SWM-1 showing 0.45 to 0.60 for low residential zoning. The areas over which these factors were applied were not presented or clear. Additionally. design flood overflow must continue to be shown to pass through the publicly maintained cross-culvert under Soquel Ave. (100-yr.) and not overtop the road surface. See CDC Part 3. Section C. item 1.

Item 3) Incomplete. Assessment of gutter spread, flow depth. rate and velocity is required for the 10-yr event to determine if inlets on the east side of Haas Drive and the west side of Vienna Drive are needed to pick up accumulated runoff coming down these roads prior to its passing as gutter flow across the entrance of the handicap ramps at Soquel Drive. The concern is for safe pedestrian use over the ramps when flows are heavy. Please submit for review evaluation.

Item 4) Incomplete. County policy requires topography be shown a minimum of 50 feet beyond the project work limits. This extent is not currently provided.

Item 5) Incomplete. The geotechnical report includes site drainage recommendations on page 26, 27 that are inconsistent with the requirements of having to provide development mitigation, but which do not appear to have been transferred into the proposed plan. Please have the geotechnical engineer review the proposed plans and submit a stamped letter providing comment/approval on the proposal as it pertains to the development requirements that must be followed, barring a need and formal request for an exception.

Please see miscellaneous comments. ========= UPDATED ON FEBRUARY 21, 2007 BY DAVID W SIMS =========
2ND Review:

Item 1) NO additional comment

Item 2 & 5) Further requirements deferred. See miscellaneous comments

Item 3 & 4) Complete

Dpw Drainage Miscellaneous Comments

LATEST COMMENTS HAVE **NOT YET** BEEN SENT TO PLANNER FOR THIS AGENCY

========= REVIEW ON DECEMBER 11, 2006 BY DAVID W SIMS =========
A) Portions of the pervious pavers on lots 8, 9 and 10 driveways extend over the property boundary into County right-of-way. The County roads section may not approve of this configuration. Please review. The Stormwater section has no objections.

B) Storm drainage calculations are inconsistent between the calculation package and the plans. Please correct for consistency with all revisions.

C) A construction detail of the porous pavers and sub-grade fill will be required prior to acceptance of the improvement plans and final map. The design must maintain permeability

D) It is not shown or noted how roof drainage from lots 1 through 7 will be mitigated. Please clarify.

E) The trench drain detail does not show use of any filter fabric. Please review. It may be advisable to extend the trench drain across the entrance of Oak Leaf Ct. to assure complete capture of pollutants

ATTACHMENT 7, 6 of 16
APPLICATION 06-0651

A drainage impact fee will be assessed on the net increase in impervious area. The fees are currently $0.95 per square foot, and are assessed upon permit issuance. Reduced fees are assessed for semi-pervious surfacing to offset costs and encourage more extensive use of these materials.

A recorded maintenance agreement may be required for certain stormwater facilities.

Please note on the plans provision for permanent bold markings at each inlet that read: "NO DUMPING - DRAINS TO BAY"

Construction activity resulting in a land disturbance of one acre or more, or less than one acre but part of a larger common plan of development or sale must obtain the Construction Activities Storm Water General NPDES Permit from the State Water Resources Control Board. Construction activity includes clearing. grading. excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement. For more information see:
http://www.swrcb.ca.gov/stormwtr/constfaq.html

Because this application is incomplete in addressing County requirements, resulting revisions and additions will necessitate further review comment and possibly different or additional requirements

All resubmittals shall be made through the Planning Department. Materials left with Public Works will not be processed or returned.

Please call the Dept. of Public Works, Stormwater Management Section, from 8:00 am to 12:00 noon if you have questions. ========= UPDATED ON FEBRUARY 21. 2007 BY DAVID W SIMS =========
Please address all of the following items during submittal of the final map and improvement plans

A) Item revised

B) Storm drainage calculations are inconsistent between the calculation package and the plans. Please correct for consistency with all revisions.

C) A construction detail of the porous pavers and sub-grade fill will be required prior to acceptance of the improvement plans and final map. The design must maintain permeability.

Environmental Review Inital Study
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APPLICATION 06-0651

D) Item revised.

E) The trench drain detail does not show use of any filter fabric. Please review

F) Add notes to the plans detailing maintenance requirements for the on-site drainage system and mitigation measures.

G) Submit with the drainage assessment appropriate calculations for the 42" pipe flowing as a culvert under inlet control conditions. The open channel pipe flow calculation submitted does not represent the most restrictive or probable flow condition for the 100-year event.

H) Provide an accurately scaled watershed area ortho-top0 map (~1" = 400') with the drainage area boundary and the runoff coefficient areas used clearly delineated.

I) Watershed elevation change determined when using SWM4 was in error by ap proximately 100%. affecting the time of concentration.

J) Stamp and sign the drainage assessment and calculations.

K) Provide a stamped and signed copy of the geotechnical engineer's letter.

L) Revise the sewer manhole connection at the frontage to avoid conflicts with all utilities. Observe appropriate separations required by each utility. The drainage section does not want a new manhole connection to the storm drain line since it is possible to discharge water to the stream channel by surface overflow through the already proposed vegetated swale behind the sidewalk.

M) The trench grate in front of the dumpster may be a rolling access problem. Perhaps a metal plate could be used. The underground continuity of the trench system should be retained.

N) A new/revised and recorded easement will be required that provides County access to the culvert headwall and perhaps to the embankment along Vienna Drive. Contact Public Works for more information on the desired configuration. Please research the current 10 feet wide easement status and submit documentation showing to whom the easement *is* provided and whether it was ever accepted.

O) Show details of the resurfaced A.C. sidewalk along Vienna Drive showing the gutter flowline, and specifically note and detail any surface drainage outfall configurations occurring along this resurfaced reach.

P) The recent embankment slipout just upstream of the 42" culvert entrance will be required to be stabilized and revegetated, along with minor backfill against the upstream edge of the sac-Crete culvert wingwall. Show this work on the plans.

Q) Please note on the plans provision for permanent bold markings at each inlet that read: "NO DUMPING - DRAINS TO BAY".

Environmental Review Inital Study
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APPLICATION 06-0651

Dpw Road Engineering Completeness Comments

======== REVIEW ON DECEMBER 11. 2006 BY GREG J MARTIN ========
A sight distance analysis will be required for the three driveways proposed on Haas Drive. ----------
---------- Exception requests wi 11 be required for Haas Drive and Vienna Drive since they have not been. or are proposed to be. improved to current standards.

----------The proposed internal roadway is proposed at 24 feet which is less than the minimum local street standard (30 feet paved, 40 feet r/w). OPW cannot support the exception request for the internal road, ----------
---------- The striping for Soquel

Drive needs to be fully shown on the plan view to show the limits of the two-way left turn lane and to identify potential conflicts with any other turn movements at Haas and Vienna. ---------- The access road from Haas Drive is for utility purposes only and is not recommended for use by this development. ---------- The applicant must submit documentation that the road abandonment has been completed for the corner of Soquel Drive/Haas Drive (expected to be before the Board on December 12, 2006). ---------- Pedestrian access on Haas Drive is a concern for the three units proposed. An internal pedestrian access path at the minimum is recommended to access Soquel Drive through the rest of the development. ---------- Transportation Improvement Area fees are required for each new residential lot at the rate in effect at the time of the final map recordation. Please let me know if you have any questions.
========== UPDATED ON FEBRUARY 27, 2007 BY GREG J MARTIN ==========
1. Bus stop location is required to be determined and shown to allow review. ---------- 2. The cross section for the internal road does not show a width of 24 feet as dimensioned. ---------- 3. The sidewalk is recommended to meet County standards. ---------- 4. All access paths need to meet ADA accessibility requirements. ---------- 5. Submit documentation that the corner of Soquel Drive and Haas Drive has been acquired. ---------- 6. Aptos Transportation Improvement Area fees are required. Ten residential lots multiplied by $4,400 per unit equals $44,000. The total TIA fee of $44,000 is to be split evenly between transportation improvement fees and roadside improvement fees. ---------- Contact Greg Martin at 831-454-2811 with questions. ---------- Comments per JRS ========== UPDATED ON APRIL 25, 2007 BY GREG J MARTIN ==========
1. Bus stop location is required to be determined and shown to allow review.

---------- 2. Aptos Transportation Improvement Area fees are required. Ten residential lots multiplied by $4,400 per unit equals $44,000. The total TIA fee of $44,000 is to be split evenly between transportation improvement fees and roadside improvement fees. ---------- Contact Greg Martin at 831-454-2811 with questions. ---------- Comments per JRS

Environmental Review Inital Study
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Dpw Road Engineering Miscellaneous Comments

========== REVIEW ON DECEMBER 11, 2006 BY GREG J MARTIN ==========
========== UPDATED ON FEBRUARY 27, 2007 BY GREG J MARTIN ==========
========== UPDATED ON FEBRUARY 27, 2007 BY GREG J MARTIN ==========

========== UPDATED ON APRIL 25. 2007 BY GREG J MARTIN ==========

Dpw Sanitation Completeness Comments

========== REVIEW ON APRIL 17. 2007 BY DREW BYRNE ==========
NO COMMENT

Dpw Sanitation Miscellaneous Comments

========== REVIEW ON APRIL 17. 2007 BY DREW BYRNE ==========
2nd Review, 1st Review done by memo
Fermit Conditions/Additional Information-

Sewer service is available for the subject development upon completion of the following conditions. This notice is effective for one year from the issuance date to allow the applicant the time to receive tentative map, development or other discretionary permit approval. If after this time frame this project has not received approval from the Planning Department, a new sewer service availability letter must be obtained by the applicant. once a tentative map is approved this letter shall apply until the tentative map approval expires.

All existing public sewer easements shall be shown on the tentative map

A separate public sewer easement shall be granted over the existing public sewer along the western parcel boundary. Said easement shall be shown on the Final Map

All proposed on site sewers shall be privately maintained. All proposed on site collector sewers shall be maintained by the homeowner-s association.

Following completion of the discretionary permit process and prior to obtaining a building permit, the following conditions shall be met during the final plan (Public Works) review process:

1) Department of Public Works and District approval shall be obtained for an engineered sewer improvement plan showing sewers needed to provide service to each lot or unit proposed. This plan shall be approved by the District and the County of Santa Cruz Public Works prior to the issuance of building permits. This plan shall conform to the County of Santa Cruz Design Criteria and shall show any easements necessary. Existing and proposed easements shall be shown on any required Final Map.

2) The applicant shall form a homeowner-s association with ownership and maintenance responsibilities for all on-site sewers for this project. Privately maintained sewers shall be noted on the Final Map and the association CC&R's. Record CC&R'S after District review and approval.

Following completion of the above mentioned engineered sewer plan and Final Map. the following conditions shall be met during the building permit Process.

1) Existing lateral(s) must be properly abandoned (including inspection by District) prior to issuance of demolition permit or relocation or disconnection of structure. An abandonment permit for disconnection work must be obtained from the District.

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APPLICATION 06-0651

2) Proposed location of on site sewer lateral(s), clean out(s), and connection(s) to existing public sewer must be shown on the plot plan of the building permit application.

3) Show all existing and proposed plumbing fixtures on floor plans of building application. Completely describe all plumbing fixtures according to table 7-3 of the uniform plumbing code. ========= UPDATED ON APRIL 17, 2007 BY DREW BYRNE =========

Aptos-La Selva Beach Fire Prot Dist Completeness C

LATEST COMMENTS HAVE **NOT YET** BEEN SENT TO PLANNER FOR THIS AGENCY

========= REVIEW ON JANUARY 3, 2007 BY ERIN K STOW =========
DEPARTMENT NAME:Aptos/La Selva Fire Dept. DENIED
Have the DESIGNER add the appropriate NOTES and DETAILS showing this information on the plans and RESUBMIT, with an annotated copy of this letter:
PROVED VERIFICATION that Oak Leaf Court has been officially submitted for approval by the Addressing Coordinator for Santa Cruz County.
Oak Leaf Court shall be marked and maintained as a Fire Lane. NOTES on the civil drawings shall show the location of the required Fire Lane signs, and shall have a notation that all curbs shall be painted red and be stenciled with the words "NO PARKING - FIRE LANE".
All apparatus access roads shall be able to support a minimum of 25 tons. NOTE and PROVIDE VERFICATION that the gutter drains shown on TM3 and TM4 shall meet this requirement. as they are a paret of the required apparatus access road.
NOTE on the plans that these plans are in compliance with California Building and Fire Codes (2001) and District Amendment.
NOTE on the plans that the building shall be protected by an approved automatic fire sprinkler system complying with the currently adopted edition of NFPA 13D and Chapter 35 of California Building Code and adopted standards of the authority having jurisdiction.
NOTE on the plans that installation of water meters shall meet the requirements set forth by Soquel Creek Water District Standard #S-20. This standard shall replace the notations about 3/4" services
NOTE ON the plans that a 100 foot clearance will be maintained with non-combustible vegetation around all structures or to the property line (whichever is a shorter distance). Single specimens of trees, ornamental shrubbery or similar plants used as ground covers, provided they do not form a means of rapidly transmitting fire from native growth to any structure are exempt.
========= UPDATED ON FEBRUARY 22. 2007 BY ERIN K STOW =========
DEPARTMENT NAME:Aptos/La Selva Fire Dept. APPROVED
All Fire Department building requirements and fees will be addressed in the Building Permit phase.
Plan check is based upon plans submitted to this office. Any changes or alterations shall be re-submitted for review prior to construction.

Environmental Review Inital Study
ATTACHMENT 7, 11 of 16
APPLICATION 06-0651

Aptos-La Selva Beach Fire Prot Dist Miscellaneous

LATEST COMMENTS HAVE **NOT YET** BEEN SENT TO PLANNER FOR THIS AGENCY

========= REVIEW ON JANUARY 3, 2007 BY ERIN K STOW =========

NO COMMENT
========== UPDATED ON FEBRUARY 22, 2007 BY ERIN K STOW ==========
NO COMMENT

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COUNTY OF SANTA CRUZ

DEPARTMENT OF PUBLIC WORKS

INTER-OFFICE CORRESPONDENCE

DATE: April 5, 2007

TO: Randall Adams, Planning Department

FROM: Carl Rom, Department of Public Works, Survey/Development Review

SUBJECT: APPLICATION 06-0651, APN 039-062-05, TRACT NO. 1529, HIDDEN OAKS, THIRD SUBMITTAL

I have no further comments on this application.

If you have any questions or need any clarification of the information in this memo, please call me at extension 2806.

CDR:cdr

Environmental Review Inital Study
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APPLICATION 06-0651

COUNTY OF SANTA CRUZ | Planning Department

INTEROFFICE MEMO

APPLICATION **NO: 06-0651** (third routing)

Date: April 3, 2007

To: Randall Adams. Project Planner

From: Larry Kasparowitz, Urban Designer

Re: Design Review for minor land division at 6851 Soquel Drive, Aptos

GENERAL PLAN / ZONING CODE ISSUES

Design Review Authority

13.11.040 Projects requiring design review.

(d) All minor land divisions, **as** defined in Chapter **14.01,** occurring within the Urban Services Line or Rural Services Line, as defined in Chapter **17.02;** all minor land divisions located outside of the Urban Services Line and the Rural Services Line, which affect sensitive sites; and, all land divisions of 5 parcels (lots) or more.

Desian Review Standards

13.11.072 Site design.

Evaluation Criteria	Meets criteria In code (✔)	**Does** not meet criteria (✔)	Urban Designer's Evaluation
Compatible Site Design			
Location and type of access to the site	✔		
Building siting in terms of its location and orientation	✔		
Building bulk, massing and scale	✔		
Parking location and layout	✔		
Relationship to natural site features and environmental influences	✔		
Landscaping	✔		
Streetscape relationship	✔		
Street design and transit facilities			N/A
Relationship to existing structures			N/A
Natural Site Amenities and Features			
Relate to surrounding topography	✔		
Retention of natural amenities	✔		
Siting and orientation which takes advantage of natural amenities	✔		

Environmental Review Inital Study
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Ridgeline protection			N/A
Views			
Protection of public viewshed	✔		
Minimize impact on private views	✔		
Safe and Functional Circulation			
Accessible to the disabled, pedestrians, bicycles and vehicles	✔		
Solar Design and Access			
Reasonable protection for adjacent properties	✔		
Reasonable protection for currently occupied buildings using a solar energy system			N/A
Noise			
Reasonable protection for adjacent properties	✔		

13.11.073 Building design

Evaluation Criteria	Meets criteria In code (✔)	Does not meet criteria (✔)	Urban Designer's Evaluation
Compatible Building Design			
Massing of building form	✔		
Building silhouette	✔		
Spacing between buildings	✔		
Street face setbacks	✔		
Character of architecture	✔		
Building scale	✔		
Proportion and composition of projections and recesses, doors and windows, and other features	✔		
Location and treatment of entryways	✔		
Finish material, texture and color	✔		
Scale			
Scale is addressed on appropriate levels	✔		
Design elements create a sense of human scale and pedestrian	✔		
Building Articulation			
Variation in wall plane, roof line, detailing, materials and siting	✔		

Environmental Review Inital Study
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Solar Design			
Building design provides solar access that is reasonably protected for adjacent properties	✔		
Building walls and major window areas are oriented for passive solar and natural lighting	✔		

Environmental Review Inital Study
ATTACHMENT 7 16 of 16
APPLICATION 06-0651

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT

701 OCEAN STREET, SUITE 410, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDO: (831) 454-2123
TOM BURNS, DIRECTOR

February 26,2004

Ann Pomper
Hospice Caring Project
6851 Soquel Dr.
Aptos, CA 95003

Re: Riparian Pre-Site for 6851 Soquel Dr., Aptos APN 039-062-05

Dear Ms. Pomper,

I have performed a Riparian Pre-site study at your request in order to establish the location of riparian resources on the subject parcel. The study included doing background research on available files in the Planning Department and performing a site visit.

For this parcel, the watercourse that lies adjacent to the proposed development is an unnamed perennial stream that drains to Aptos Creek. The stream is deeply incised and heavily vegetated with both native and non-native species, including several large coastal oaks.

For developed parcels within the Urban Services Line that lie adjacent to an arroyo, the appropriate riparian buffer is twenty (20) feet, plus a ten (10) foot development setback, for a total riparian setback of thirty (30) feet, measured from the top of the arroyo. Additionally, the Riparian Protection Ordinance requires a 20-foot buffer from the dripline of any woody vegetation associated with the stream. Because the dripline of the many large *oaks* on your parcel virtually cover the parcel, this requirement *can* be waived in this instance.

The site map submitted with this application is not of a sufficient scale to accurately depict the riparian setback, however an attempt was made to delineate the *estimated* setback. Please note than there are several existing buildings that already encroach into the riparian setback. The Riparian Protection Ordinance allows replacement of existing structures that encroach into the riparian setback without a Riparian Exception, as long as the new structure does not extend any further into the setback.

Environmental Review Inital Study
ATTACHMENT 8, 1 of 3
APPLICATION 06-0652

In my opinion, your options for the expansion of the current facility include:

- ☐ Replacement/upgrade of the existing buildings, which would be exempt from the Riparian Protection Ordinance
- ☐ Limiting any expansion to the western and northern portions of the property
- ☐ Applying for a Riparian Exception to encroach further into the 30-foot riparian setback

The question of whether or not the findings can be made for a Riparian Exception cannot be fully addressed at this time. However, such findings *cannot* be made unless it is demonstrated that less environmentally damaging alternatives do not exist. Please review the enclosed copy of the Riparian Comdor Protection Ordinance paying particular attention to the highlighted section that addresses *all* of the required findings necessary for approval of **a** Minor Riparian Exception.

Before submitting an application for a Minor Riparian Exception, please consider design alternatives that may reduce and/or eliminate encroachment into the riparian corridor buffers/setbacks. Please include this analysis in the application.

Please note: This letter does not address issues related to any Environmental Planning issues (e.g., grading, soils, geology) aside from the riparian pre-site.

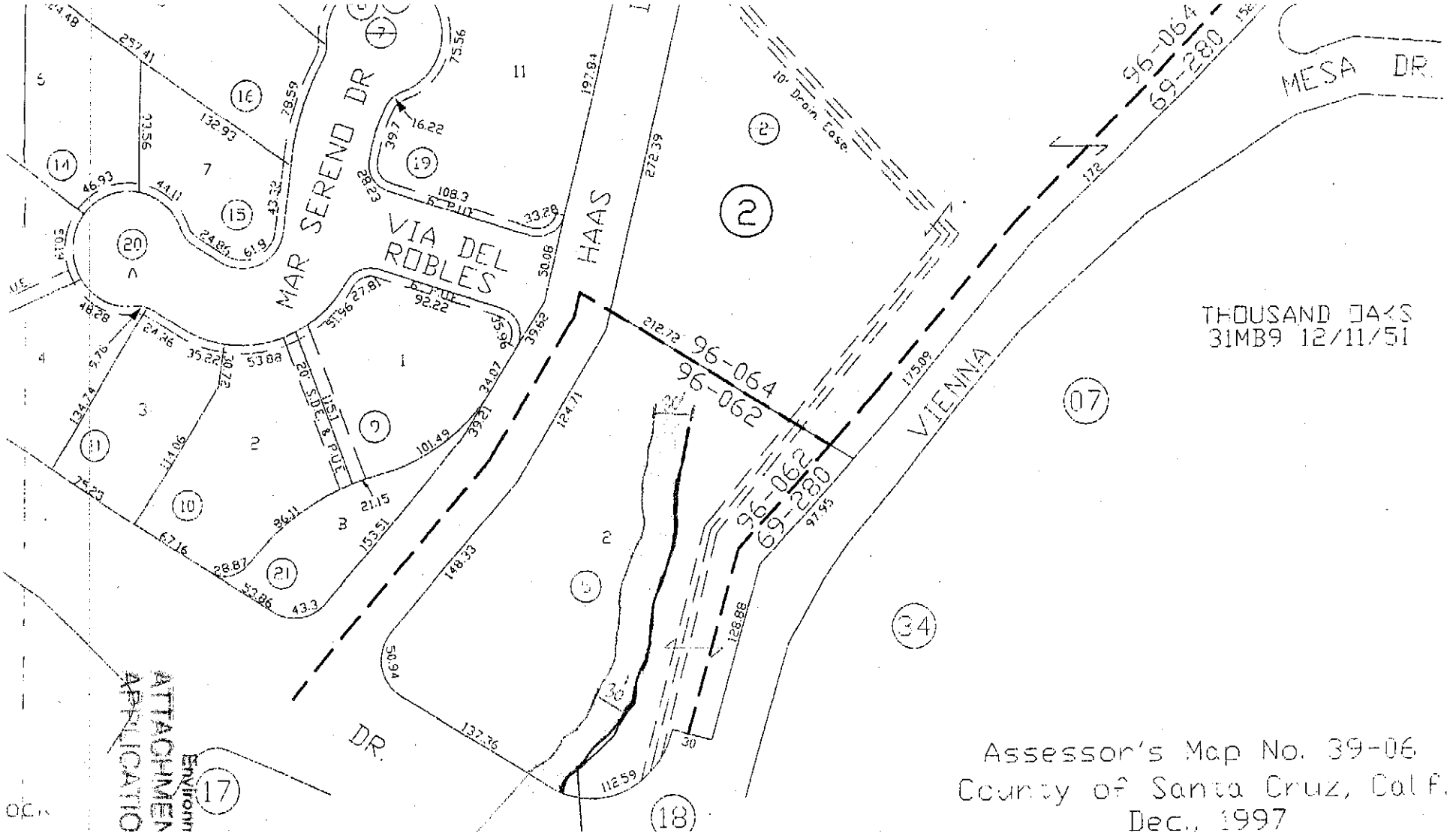
If you have questions regarding this riparian pre-site, please call me at (831) 454-3164 or e-mail me at robin.bolster@co.santa-cruz.ca.us

Sincerely,

Robin M. Bolster
Resource Planner

Enclosure

Environmental Review Inital Study
ATTACHMENT 8, 2 of 3
APPLICATION 06-0651



APPROXIMATE LOCATION OF THE TOP OF CREEK BANK. NOT TO SCALE

ESTIMATED RIPARIAN BUFFER/ SETBACK OF (30 FEET)

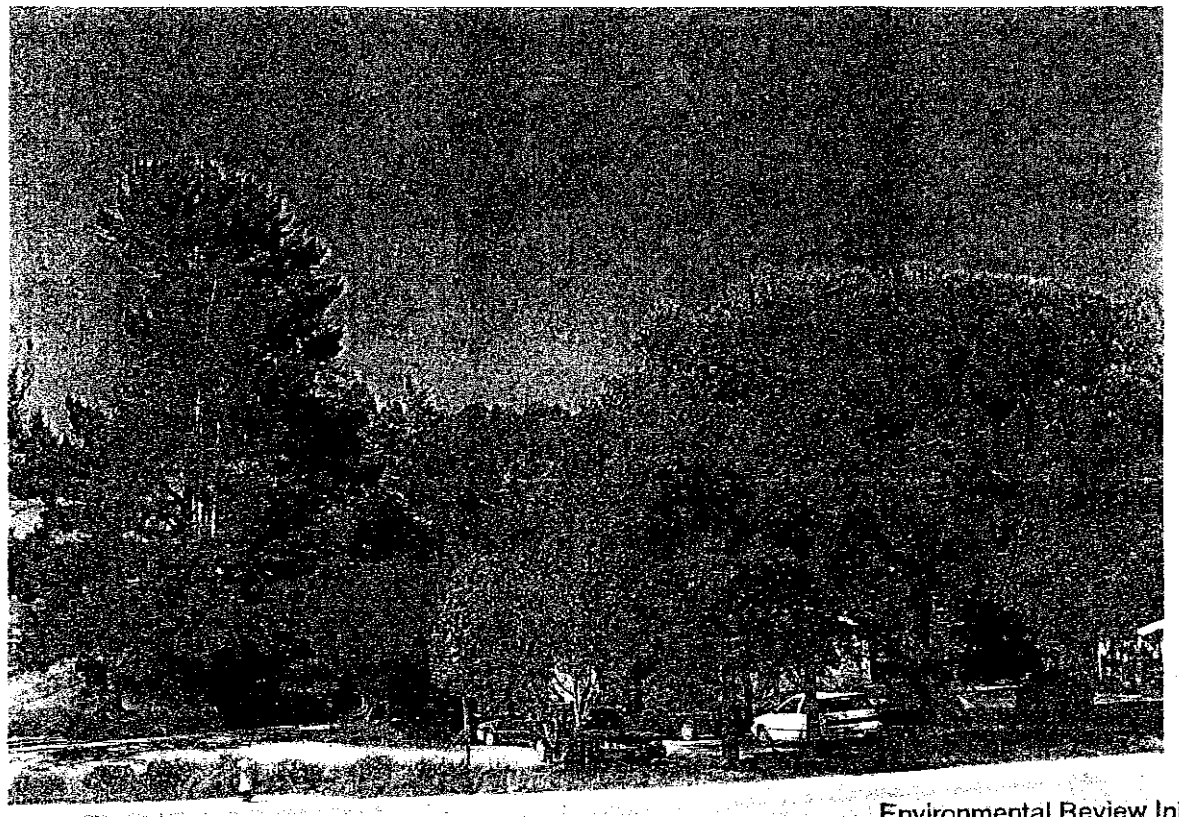
ATTACHMENT
APPLICATIO
Environm
tal Review Initial Study
Ex. 3 of 3
06-0651

James P. Allen & Associates

Dedicated to the Preservation of Trees

Tree Resource Evaluation/ Construction Impact Assessment

Hidden Oaks Subdivision
6851 Soquel Drive, Aptos, CA
APN 039-062-05, Tract #1529



Consulting Arborists

611 Mission Street
Santa Cruz, CA 95060

831.426.6603 office
831.234.7739 mobile
831460.1464 fax
jpallen@consultingarborists coni
www.consultingarborists.com

Prepared for
Keith Baxter and Randy D. Kanawyer
BK Properties

ASSIGNMENT/SCOPE OF SERVICES

The demolition of existing structures and construction of a residential development is proposed for a site located 6851 Soquel Drive, APN 039-062-05. This property is populated with mature native and non-native trees that will be impacted by the proposed development of this site. To ensure the protection of the tree resources on this site, Keith Baxter and Randy D. Kanawyer, of BK Properties, L.P. have requested our firm provide a Tree Resource Evaluation and Construction Impact Assessment. To accomplish this assignment, the following **tasks** have been completed:

- Evaluate condition and preservation suitability for each tree ≥ 6 inches in diameter.
- Review development plans as provided by Ifland Engineers Inc, to evaluate potential impacts.
- Make recommendations for alternative construction methods and preconstmction treatments to facilitate tree retention.
- Map approximate tree locations on an AutoCAD base map provided by Ifland Engineers.
- Create preservation specifications, including a Tree Location/Preservation Map.
- Determine the quantity of trees to be removed.
- Define appropriate replacement strategy for trees cited for removal.
- Document findings in the form of a report

This assignment is limited to assessing the potential construction influences upon trees within the property boundary

Environmental Review Inital Study
ATTACHMENT 9, 2 of 28
APPLICATION 06-0651

SUMMARY

Plans for this proposed project have been reviewed and the impacts to 60 inventoried trees have been assessed. The construction of plans as presented will require the removal of 22 trees. ***An*** additional 11 trees are recommended for removal due to their poor structural condition, high level of risk they will present or severe level of construction impacts.

Tree removal will occur only within previously disturbed areas and not within the Urban Arroyo.

One, 24-inch box or 15 gallon replacement tree will be planted per tree removed as components of the planned landscape.

The implementation of the procedures as defined within this document, including Demolition/Preconstruction Treatment Sequence, alternative construction methods and adherence to the Tree Preservation Specifications are required to safeguard trees proposed for retention.

Monitoring, by the Project Arborist, should occur at the intervals defined within this report to assure tree protection guidelines are adhered to and unforeseen impacts are resolved prior to damage occurring.

BACKGROUND

This project involves the demolition of existing buildings and construction of 10 residences, associated parking lots and landscaped areas.

A preliminary site inspection with the Project Developers took place on February 2, 2006. During this inspection the general health of the existing forest system was discussed and the most appropriate position for the buildings was determined. A more thorough inspection took place on March 15, 2006, where all single trunk trees ≥ 6 diameter inches or multi-bunk trees with a combination of diameters ≥ 10 inches were inventoried. Sixty trees in proximity to areas proposed for improvements were inventoried and assessed. Numbered metal tags were attached to the each tree/tree group's trunk at six feet above grade. The corresponding numbers and tree locations are documented on attached Tree Location Map.

Construction impacts were evaluated in the field using site plans provided by Project Engineers, Ifland Engineers Inc.

Tree health and structural integrity were evaluated visually from the root crown (where the trunk meets natural grade) to the foliar canopy.

Neither aerial inspection nor root crown excavation inspections were performed

OBSERVATIONS

Site Description

Formerly the site of The Hospice Caring Center, this site has an existing home, support structures, driveways and parking. The site spans approximately 1.25 acres, located on the east of the Soquel and Haas Drive intersection, APN 039-062-05. It is bound to the east by Vienna Drive, to the south by Soquel Drive, to the west by Haas Drive and to the north by an undeveloped parcel.

This parcel is varied in terrain, the eastern property boundary is a steep downward sloping drainage corridor classified as an "Urban Arroyo." The top-slope is the edge of a predominantly level midsection with a slight upslope in the northeastern section and a more dramatic slope towards Haas Drive.

Previous encroachment into the typical Urban Arroyo" buffer zone" has occurred. Structures have been built and landscaping has been performed within this area defined as a "Previously Disturbed Area" on the attached maps.

Tree Descriptions
Majority of the trees are mature specimens, components of the original landscape. Trees present on site are composed of a California natives (Monterey cypress ***Cupresseus macrocarpa*** and Monterey pine *Pinus radiata,* redwood *Sequoia* ***sempervirens,*** Coast live oak ***Quercus agrifolia***) as well as non-natives *(Acacia spp.* and *Pittosporum spp.).* This area has a large population of mature and immature acacia, a highly aggressive/invasive species.

The acacia trees on this site have a history of failure. In the past 12 months several acacia trees have uprooted or broken trunks, stems and branches. This is **an** opportunistic species with rapid growth rates that compete with surrounding vegetation. Trunks and stems develop in long, arching or leaning configurations. These structural components reach toward light and space. The weight of the foliage in addition to the dynamic mass of the wood results in a significant load that stresses structural components and root anchorage. Trees with these formations are predisposed to failure independent of site disturbance.

TREE **INVENTORY METHODOLOGY**

The appended inventory lists information on 60 individual trees growing in close proximity to proposed building locations within the property boundary, shown on the attached Tree Location Map.

The tree inventory lists species, trunk diameter, Critical Root Zone (CRZ) radius, tree condition, construction impacts, observations, recommended procedures and mitigation suggested by the County of Santa Cruz Ordinance section 16.34.

This parcel is outside of the Coastal Zone but within the Urban Services Line. Trees meeting certain size criteria are not identified as "Significant" in this geographic region as defined by Santa Cruz County Code Title **16** section 16.34.030. Conversations, with Santa Cruz County Environmental Planning staff indicated that **these** trees were outside of the Coastal Zone and within the previously disturbed areas of the Urban Arroyo. **As** a result of this investigation, it was determined that none of the trees proposed for removal meet "Significant", criteria.

Diameter is the width of the trunk measured at 4 5 feet above natural grade (ground level). This inventory comprises of individuals with diameters ≥ 6 inches and groups (sum of diameters) with diameters ≥ 10 inches at 4 ***5*** feet above natural grade For trees that were unable to be measured at 4 ***5*** feet above natural grade, measurement heights were provided

Environmental Review Inital Study
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Critical Root Zone: Individual tree root systems provide anchorage, absorption of water/minerals, storage of food reserves and synthesis of certain organic materials necessary for tree health and stability. The Critical Root Zone (CRZ) is the species-specific amount of roots necessary to continue to supply these elements essential for each tree to stand upright and maintain vigor. This distance reflects the minimum footage from the trunk required for the protection of the tree's root zone. Construction activities proposed within these areas are subject to specific review and the implementation of recommended special treatments.

Health, Structure and Preservation Suitability Inventory ratings are based on the following criteria:

Tree health and structure are separate issues that are related since both are revealed by tree anatomy. **A** tree's vascular system is confined in a thin layer of tissue between the bark and wood layers. This thin layer is responsible for transport of nutrients and water between the root system and the foliar canopy. When this tissue layer is functioning properly a tree **has** the ability to produce foliage (leaves). **As** long as the tree maintains a connected vascular system it may appear to be in good health.

When conditions conducive to decay are present, fungi, bacteria or **poor** compartmentalization, wood strength is degraded. As decay advances, the tree's ability to continue standing is compromised. Thus, a tree can appear to be in good health, but have poor structure.

Tree Health: This rating is determined visually. Annual growth rates, leaf size and coloration are examined. Indications of insect activity, decay and dieback percentages are also used to define health ratings.

Trees in **"good** health are full canopied, with dark green leaf coloration. Areas of foliar dieback or discoloration are less than 10% of the canopy. Dead material in the tree is limited to small twigs and branches less than one inch in diameter. There is no evidence of insects, disease or decay.

Trees with a "fair" health rating have from 10% to 30% foliar dieback, with faded coloration, dead wood larger than one inch, and/or visible insect activity, disease or decay.

Trees rated **as** having **"poor"** health have greater than 30% foliar dieback, dead wood greater than two inches, severe decay, disease or insect activity.

Tree Structure: This rating is determined by visually assessing the roots, root crown (where the trunk meets the ground), supporting trunk, and branch structure. The presence of decay can affect both health and structural ratings.

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Trees that receive a **"good"** structural rating are well rooted, with visible taper in the lower trunk, leading to buttress root development. These qualities indicate that the tree is solidly rooted in the growing site. No structural defects such as codominant stems (two stems of equal sizes that emerge from the same point), poorly attached branches, cavities, or decay are present.

Trees that receive a "fair" structural rating may have defects such as poor taper in the *trunk,* inadequate root development or growing site limitations. They may have multiple trunks, included bark (where bark turns inward at an attachment point), or suppressed canopies. Decay or previous limb loss (less than 2 inches in diameter) may be present in these trees. Trees with fair structure may be improved through proper maintenance procedures.

Poorly structured trees display serious defects that may lead to limb, bunk or whole tree failure due to uprooting. Trees in this condition may have had root loss or severe decay that has weakened their support structure. Trees in this condition can present a risk to people and structures. Maintenance procedures may reduce, but not eliminate these defects.

Suitability for preservation: This rating evaluates tree health, structure, species characteristics, age, and potential longevity.

Trees with a "good" rating have adequate health and structure with the ability to toleratk moderate impacts and thrive for their safe, useful life expectancy.

A "fair" rating indicates health or structural problems have the ability to be corrected. They will require more monitoring and intense management with an expectation that their lifespan will be shortened by construction impacts.

Trees with a **"poor"** rating possess health or structural defects that cannot be corrected through treatment. Trees with poor suitability can be expected to continue to decline regardless of remedies provided. Species characteristics may not be compatible with redefined use of the area. Species, which are non-native and unusually aggressive, are considered to have a poor suitability rating.

DESCRIPTION OF DEVELOPMENT IMPACTS

Site inspections and review of the plans' as presented identified numerous construction impacts to individuals.

The impacts to the trees are based on the development plans provided. The exact locations of the proposed improvements must be reviewed and evaluated once the site staking is in place. There is a possibility that tree classification and inferred impacts will change once grade staking is in place.

The construction of this project as presented requires the following procedures:

- Demolition of existing structures, hardscape and utility lines entails the dismantling and disposal of all buildings, hardscape and utility lines. Large wrecking equipment, such as an excavator, is used for building demolition. There is a possibility that the surrounding trees will be damaged: The unearthing and removal of old utility lines as well as the building foundation within defined Critical Root Zones often shatters woody roots. Mechanical damage to above ground tree parts and roots allow for the onset of decay, compromising tree health and structural stability.

  Building clearance is needed where branches of trees encroach upon parking areas, sidewalks or structures will need to be pruned to gain required clearance

- Grading for the parking lot, trenching for foundation construction, retaining wall and building construction as well as trenching for foundation construction. These procedures require alteration of natural grade in the form of cut and/or fill (described below) at the defined "Limits of Grading". Roots impacted during this process provide openings for opportunistic decay causing organisms degrading tree support systems and vigor.

  - Alteration *of* natural **grade**
    - Cuts, lowering of natural grade, require the removal of soil until the desired elevation is reached. A cut within the trees Critical Root Zone can remove non-woody and woody roots. Non-woody (absorbing) roots are responsible for transporting moisture and nutrients necessary for maintaining tree health. More significant cuts remove woody roots that provide structural support, compromising the tree's ability to stand upright.

    - Fill, .increasing natural grade, often requires an initial cut to "knit in" and stabilize the material. This material is applied in layers and compacted in the process. Compaction breaks down soil structure by removing air and adding moisture. Anaerobic conditions may develop, promoting decay. Absorbing roofs can suffocate from lack of oxygen. Structural roots may be compromised as a result of the decay.

- Parking lot construction Require a "cut" to a depth of six to 18 inches below the existing grade. Soils are then stabilized and by applying base materials and compacted. Asphalt chip seal, decomposed granite or concrete are then applied to create the surface.

- Drainage structures and Utility line placement. Necessary drainage structures and utility lines are to be consciously placed to avoid the Critical Root Zone of the preserved trees or brought to the attention of the Project Arborist to allow preconstmction root severance along placement lines.

Attachment to allow review Inital Study
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APPLICATION 06-0651

- Planned Landscape Installation typically requires the import of topsoil, rototilling the top 8 inches of native soils, digging planting holes, trenching for irrigation lines and increased water supply for establishing new plantings. Increased disturbance in the Critical Root Zone and elevated water levels will stress mature trees. It is recommended that landscape features planned within Critical Root Zones avoid the above-described procedures,

RECOMMENDED PROCEDURES

The following section discusses the recommended procedures to construct the project as planned to increase tree vigor and reduce stress from demolition/construction impacts. Potential construction impacts that dramatically reduce the lifespan of existing trees can be abated with the implementation of pre-demolition/construction treatments, modifications to construction methods and needed maintenance pruning.

- Preconstruction **root** pruning is recommended for Trees # **114,118,119,126, 127, 140, 142, 146, 149, 150, 154, 156** and **157.** This procedure is to be performed by skilled labor. Roots **are** to be pruned cleanly. Bark should adhere to the wood without tearing. Wood fibers should remain intact without shattering. The following tools should be used:
  - Hand-pruners
  - Loppers
  - Handsaw
  - Reciprocating saw
  - Chainsaw

  When completed, the pruned portions should be covered with burlap or similar material and kept moist.

- **'A** backhoe may also be used on this site for preconstruction root severance treatments under the direction of the Project Arborist if the distance between the trees and the building line is not decreased. This procedure is defined below:
  - Establish a "final line of disturbance" with field staking. This line represents the furthest distance from the trees trunk that will allow the proposed construction.
  - Determine the depth of the cut required.
  - Begin digging 8 to 10 feet from the established line in **a** "spoke in wheel" pattern, using the tree trunk as the hub.
  - Dig to the required depth.
  - Dig toward the trees trunk to determine where roots are located.
  - Begin pruning roots using the techniques defined above.
  - Upon reaching the final line of disturbance make the final root pruning cuts.
  - Install Tree Preservation fencing with straw bales to allow maximum distance from the tree while allowing space to construct the buildings.

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Maintenance procedures are those, which are necessary to decrease risk of falling branches, provide reenforcement for weak trunk/stem attachments and improve tree health/stability.

- **Cabling** has been recommended for **Tree #107. A** triangular cable system should be installed between the weakly attached stems using the following or comparable hardware:
  - 5/8 inch "eye" lag bolts
  - **1/4** inch Extra High Strength cable
  - Pre-formed grips with thimbles

- **Pruning** to remove dead branches has been recommended to reduce potential health and safety hazards that persisting dead branches pose, such as decay, attracting harmful insects and injury from falling branches. Preconstruction canopy clearance pruning will allow vertical space for equipment access and building construction.

  - Each tree to be preserved should have dead/broken branches greater than 1-inch diameter removed

  - **Trees #107, 108,119,127,146,149,154 and 157** will require pruning to allow building clearance. Pruning should not remove more foliage than absolutely necessary to accommodate proposed construction as determined by the Project Arborist.

Tree Removal is to be performed in a sectional manner in order to avoid damaging surrounding trees and landscape. Locations of trees to be removed are documented on the attached map (Tree Location Map #AB01).

Removal due to Construction Impacts (Trees #101,102, 104, 105, 110, 111, 112, 113,115,116,117,120,121,122,123,124,125,135,141,151,159 and 160) is required for trees that are in direct conflict with the proposed building footprints where plans cannot be modified

- **Trees recommended for removal due to Condition (Trees #103, 106, 109,128, 129,130,131,136 and 143)** Recommendations are based upon the combination of health, structural, preservation suitability ratings **and** general species characteristics

These trees are recommended for removal as they are either dead or structurally unsound They are currently at risk of failure and present extreme hazards to people and property and should not be preserved

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Trees recommended for removal due to a severe level **of** impacts

Trees **#107** and **108** will require severe canopy and root pruning to accommodate the proposed construction. These required procedures will destabilize these trees and possibly lead to premature mortality. It is recommended, but not necessary that they be removed due to this high level of impacts.

The project development team has expressed interest that these trees be retained. To decrease the level of impacts, procedures have been defined to moderate these impacts including of preconstmction treatments, alternative construction methods, clearance pruning, mechanical support systems and tree protection fencing to assist in tree retention.

It is expressed that there is probability of tree failure; loss of vigor or mortality is high Should these trees survive and remain standing they may damage adjacent structures/sidewalk in the future. These associated risks are to be understood and accepted by the County and the project development team.

Stump removal will be performed on each tree removed by "grinding" them *to* **a** depth of 24 inches or digging **them** out with the backhoe or an excavator when in conflict with proposed grading. When stump removal will cause undue damage to surrounding trees, they are to be left in place. Acacia stumps left in place will need to have regrowth managed mechanically or chemically.

A qualified certified arborist, using the most current version of the following industry guidelines should be contracted to perform the above-described work.

- American National Standards Institute, ***A300 for Tree Care Operations-Tree, Shrub*** *and* ***Other*** *Woody* ***Plant Maintenance-Standard Practices***
  (Part 1)-2001 Pruning
  (Part 3)-2000 (Support Svstems a Cabling. Bracing. and Guying)
- International Society of Arboriculture: ***Best Management Practices***
- American National Standards Institute ***2133.1-I994for Tree Care Operations-Pruning, Trimming, Repairing, Maintaining, and Removing Trees*** *and* ***Cutting Brush-Safety Requirements***

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ATTACHMENT 9, 10 of 28
APPLICATION 06-0651

Demolition/Preconstruction Treatment Guidelines Sequence

1. Tree and stump removal

2. Cabling, clearance, and maintenance pruning, recommended providing demolition/construction area access, building/driveway/walkway clearance and improving tree structure. Pruning should not remove more foliage than necessary to accommodate proposed construction as determined by the Project Arborist. The required pruning is specified for each individual tree to be preserved in the Recommended Procedure pruning section..

3. Install Tree Preservation Fencing **and** straw bales. The fencing is to be chain link, 72 inches in height and secured with metal stakes driven at least 18 inches into the soil. Straw bales may be secured by driving metal or wooden stakes through the bales to a depth of **12** to 18 inches below natural soil grade. **This** barricade will prevent damage to the fencing and prevent excess soil from grading and trenching from encroaching into the Tree Preservation Zone of the retained tree. Tree Preservation Zone fencing locations are documented on an attached map (AB02).

4. Demolition of existing structures, foundations, utility lines and other. hardscape in proximity of trees may be performed by equipment set up outside or at the perimeter of Critical Root Zone. **A** backhoe or excavator may reach toward trees gently pulling debris outward, away from tree trunks. Existing improvements set on or below natural grade shall be removed with minimal disturbance to natural grade. Debris is to be hauled out though designated avenues outside of the Critical Root Zones.

   Woody roots damaged during the removal of underground portions of existing building components should be properly pruned following the pre-construction root pruning guidelines.

5. Preconstruction root pruning is recommended for Trees # **107, 108** (if retrained), **114, 118, 119, 126, 142, 146, 149, 154** and **157** are suitable for retention and are in close proximity to trenching activities. Areas in which root pruning is necessary are designated on the attached Tree Location/Preservation Map. All root pruning should be performed by skilled labor. Roots are to be pruned cleanly and bark intact. The following tools should be used:
   - Hand-pruners/loppers
   - Handsaw
   - Reciprocating saw
   - Chainsaw

   When completed, the pruned portions should he covered with burlap or similar material and kept moist

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APPLICATION 06-0651

6. Provide Invigoration Treatments for Trees #107, **108** (if retained), **118** and **119.**
   - Amended tree chip mulch, **4-6** inch layer, shall be applied within the Tree Preservation Zones. Mulch should not be applied within 12 inches of tree trunks. Tree chips should be amended with 7 pounds Bloodmeal, 13-0-0, per cubic yard of chips.

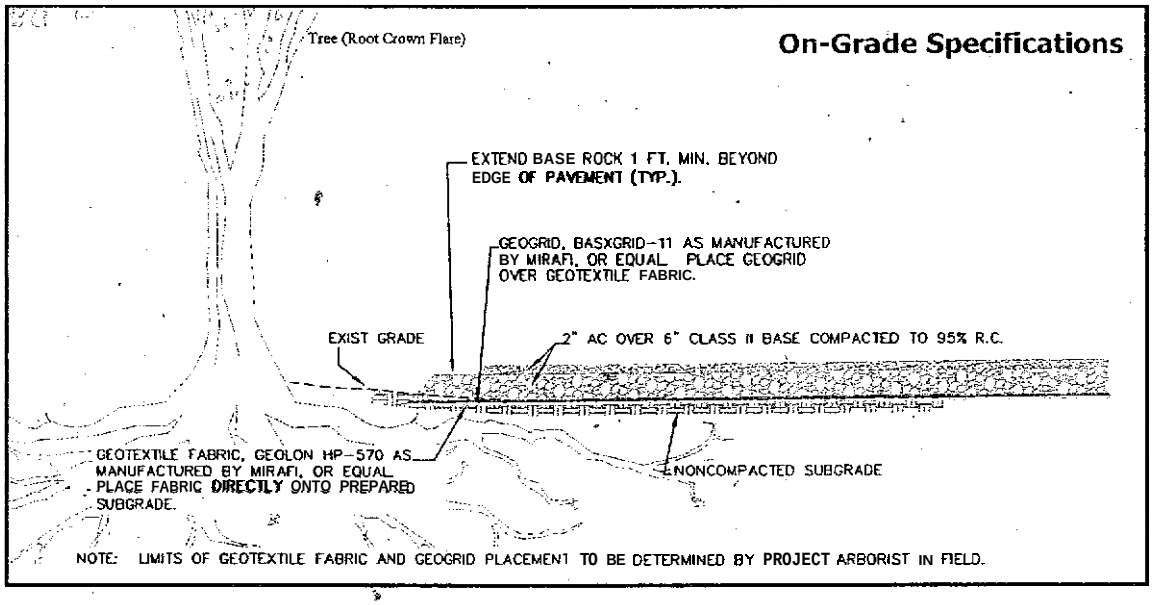
   - Supplemental Irrigation should be provided by a soaker hose delivery method within the designated Tree Preservation Zones. The Project Arborist will determine supplemental irrigation levels.

7. **Realign/Repair** fencing to protect Tree Preservation Zones depicted on the Tree Location/Preservation Map, AB02.

Alternative Construction Methods ·

"On-Grade'' System

This procedure is recommended for sidewalk features in close proximity to Trees **#107 and 108.** This system eliminates the need for excavation and the resulting root loss. These areas are defined on the attached map.



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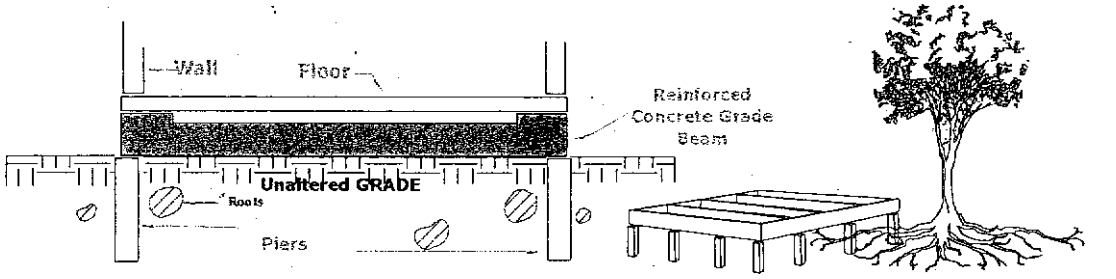
Pier and Above **Grade Beam** System will be used for the construction of the foundations supporting buildings #5, 6 and 7 in close proximity to preserved trees Locations are noted on the attached Tree Location and Preservation Map.

Piers will be placed in locations that avoid roots greater than two inches in diameter. Placement can be determined by preconstruction root exploration. **As** the locations are determined pier layout can be adjusted to allow for appropriate spacing as per the Project Engineer.

Grade beams will be placed or constructed with minimum disturbance to natural grade This alternative method of construction will decrease the impacts of the building foundations.



Pier and Above Grade Beam Foundation Detail

Diagram adapted from Clark and Mathany, Trees and Development (1998)

Tree Replacement: Thirty-three trees are cited for removal, *two* of these trees are dead New trees will be planted as components of the planned landscape at a ratio of one-24 inch box or one fifteen-gallon tree per tree removed

Replacement trees planted on this site should be provided an appropriate amount of area to allow adequate space for future growth.

Nursery stock selected shall be standard (single trunk). Trees planted should be well formed without co-dominant, poorly, attached stems. Trees shall be disease free and absent of swirling or girdling roots.

Qualified professionals adhering to the following guidelines shall plant the replacement trees:

- Prepare the planting site by excavating 3 times the width and 2 inches less than the exact depth of the nursery container.
- Prune any visible matted or circling roots to remove or straighten them. Cut the root ball vertically on opposite sides at least half the distance to thetrunk.

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- Free roots from the root ball breaking away some of the soil to provide better contact between the root hall and the backfill soil.
- Backfill with native soil,
- After backfilling a two-inch layer of aniended tree chip mulch should be applied to the soil layer. Chips should be amended with "Blood meal 13-0-0 at a ratio of 7 pounds per cubic yard of chips. Chips should not be applied within 8 inches of the trunk.
- Stakes, for support, should be installed on opposite sides of the root bali and driven into the soil. The tree can be secured to the stakes using "Arbortape" or by using the "ReadyStake" system.

Supplemental irrigation will be provided the new trees by means of a temporary ''drip'' emitter system for a period of two **(2)** years. This system shall be designed, installed and maintained by a qualified professional to provide necessary irrigation at least twice per week to maintain appropriate moisture levels. Appropriate irrigation levels are to be determined by the Project Arborist.

Success Criteria To ensure the survivability and proper growth of the replacement trees success criteria will be defined to meet an 80% survival rate and implemented as follows.

A qualified professional will monitor the newly planted tree at six ***(6)*** month intervals for a period of five years.

- Tree health and growth rates will be assessed
- **Trees** suffering poor growth rates or declining health will be identified.
- Invigoration treatments will be provided .-
- Dead trees or trees in an irreversible state of decline will be replaced.
- At the end of the five-year period the status of the new plantings will be assessed to make certain that success criteria has been met and all mitigation trees planted are performing well.

Implementation of these success.criteria shall be a condition of project approval.

TREE PRESERVATION

Tree Preservation Specifications included in this report, outline specifics for tree protection fencing and other procedures that will provide the best opportunity for their long-term survivability. The exact locations for these procedures are documented on the attached map.

Tree Preservation Zone: This area is the protected area that allows the majority of the Critical Root Zone to be undisturbed while still facilitating the construction of buildings and associated construction related activities. Tree Preservation zones are defined on the Tree Location Preservation Map attached to this report.

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Inspections To ensure the successful implementation of the recommended procedures Site Inspections are recommended by the Project Arborist. Site inspections will take place at the following intervals throughout the course of the project!

- During all tree pruning/removal activities in proximity to trees to be preserved.
- During demolition
- Following on-site placement of grade stakes.
- During preconstmction root exploration and severance procedures.
- After Tree Preservation fencing locations have been staked.
- Following Tree Protection fencing installation, prior to the commencement of grading.
- **As** necessary during the **grading** activities.
- Three times per week during foundation and building construction.
- Weekly during landscape installation

Site monitoring forms will be submitted to the County of Santa **Cruz** Planning Department at regular intervals.

CONCLUSION

The construction of the plans as proposed, necessitates the removal of **33** trees, as a result of construction impacts, structural condition, poor species suitability and allows for the preservation of the remaining trees on this site.

Of this total, 22 trees are cited for removal as a result of unavoidable impacts from the proposed construction:

An additional nine trees are recommended for removal due to condition. These trees have structural defects and threaten the safe use of the proposed residences. Some are non-native, highly aggressive species and are not suitable for retention in the Urban Arroyo or the incorporation into the developed site.

Two trees, #107 and 108 are recommended for removal due to the severe level of impacts resulting from the proposed construction. The development team has chosen to attempt to retrain these trees in hopes they will survive. If they are retained, the implementation of preconstruction treatments and alternative construction methods are necessary.

Each of the trees cited for removal will be replaced by planting a replacement tree. One, 24-inch boxed or fifteen-gallon replacement tree per individual tree removed will be planted on-site **as** components of the planned landscape

Clearance pruning is required for tree canopies that encroach upon building footprints or designated construction access points. Maintenance pruning is recommended for all retained trees.

It is anticipated @at impacts to the remaining trees can be reduced by implementing the alternative construction methods and adhering to the Tree Preservation Specifications detailed in this report.

To ensure the protection of the trees remaining on this site it is imperative that the recommendations and Tree Preservation Specifications detailed within this'document are incorporated as a condition of project approval.

Any questions regarding this report may be directed to my office

James P. Allen
Registered Consulting Arborist #390

Environmental Review Inital Study
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APPLICATION 06-0651

Tree Preservation Specifications

6851 Soquel Drive, APN **039-062-05**

These guidelines should be printed on all pages of :he development plans. Contractors and sub contractors should be aware of tree protection guidelines and restrictions. Contracts should incorporate tree protection language that includes "damage to trees Will **be appraised using the Guide to Plant Appraisal 9th Edition and monetary fines assessed".**

A pre construction meetine with the Proiect Arborist

A meeting with the Project Arborist, Project Manager and all contractors involved with the project shall take place prior to the onset of grading. Tree preservation specifications will be reviewed and discussed.

Establishment **of** a tree **preservation zone (TPZ)**

Chain link fencing, no less than 72 inches in height with metal stakes embedded in the ground, shall be installed in areas designated on the attached map. Bales of hay shall be placed end-to-end outside the perimeter of the fencing toward the construction activities. Bales may be stabilized by driving **metal** stakes or sections of #5 rebar through the bales 12 to **18** inches into the soil surface. Fencing will be installed prior to the onset of grading, under the supervision of the Project Arborist and shall not be moved.

Restrictions within the Tree Preservation Zone (TPZ)

No storage of construction materials, debris, or excess soil will be allowed within the TPZ. Parking of vehicles or construction equipment in this area is prohibited. Solvents or liquids of any type should be disposed of properly, never within this protected area.

Field decisions

The Project Arborist, Soils Engineer and Grading Contractor will determine the most effective construction methods to maintain tree health.

Alteration **of** grade

Maintain the natural grade around trees. If trees roots are unearthed during the construction process the consulting arborist will be notified immediately. Exposed roots will be covered with moistened burlap until the Project Arborist makes a determination.

Trenching requirements

Any areas of proposed trenching will be evaluated **with** the Project Arborist and the contractor prior to construction.

Tree canopy alterations

Unauthorized pruning of any tree on this site **will** not be allowed. Tree canopy alterations will be performed to the specifications established by the Project Arborist.

Supplemental irrigation

Shall be provided using "soaker" hoses or similar method of delivery. Supplemental irrigation requirements shall be determined by the Project Arborist and will be required prior to and after completion of the grading.

Muleh Laver

A 4-6 inch layer of amended tree chip mulch shall be applied within the Tree Preservation Zones. Tree chips should be amended with 7 pounds Bloodmeal, 13-0-0, per cubic yard of chips.

Environmental Review Initial Study
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APPLICATION 06-0651

James P. Allen
& Associates

TREE #	SPECIES	DIAMETER @ 4.5ft ABOVE NATURAL GRADE (INCHES)	CRITICAL ROOT ZONE (RADIAL FEET)	HEALTH	STRUCTURE	PRESERVATION SUITABILITY	SEVERITY OF IMPACTS	•OBSERVATION •RECOMMENDED PROCEDURES •MITIGATION
[illegible]	[illegible]	[illegible]	N/A	[illegible]	[illegible]	[illegible]	High: [illegible]	[illegible]
[illegible]	[illegible]	[illegible]	N/A	Poor	Poor	[illegible]	High: [illegible]	[illegible]
103	Alleppo Pine *Pinus halepensis*	31	N/A	Fair	Poor	Poor	Low: 4ft from proposed grading to northwest 6ft from proposed driveway to northeast 15ft to proposed building foundation to east Canopy Conflicts	•Severe poor trunk stem attachment @ 18ft At risk of breakage Lighting nailed to trunk •**Remove due to Condition** •One 24" boxed replacement tree
[illegible]	[illegible]	[illegible]	N/A	[illegible]	[illegible]	[illegible]	High: [illegible]	[illegible]
[illegible]	[illegible]	[illegible]	N/A	[illegible]	[illegible]	[illegible]	High: [illegible]	[illegible]
106	Monterey Pine *Pinus Radiata*	20	N/A	Poor	Poor	Poor	High: 4ft from proposed bldg foundation to southeast Canopy Conflicts	•Previous Construction Impacts Large diameter dead branch Low vigor Increased decline •**Remove due to Condition** •One 24" boxed replacement tree

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Remove due Construction Impacts ▒ Remove due to Condition ▒ Recommeded Removal due to Severe Impacts

HIDDEN OAKS SUBDIVISION
TREE INVENTORY
6851 Soquel Drive, Aptos, CA.
APN 039-062-05, Tract #1529

Dedicated to the Preservation of Trees

James P. Allen & Associates

TREE #	SPECIES	@ 4.5ft ABOVE NATURAL GRADE (INCHES)	CRITICAL ROOT ZONE (RADIAL FEET)	HEALTH	STRUCTURE	PRESERVATION SUITABILITY	SEVERITY OF IMPACTS	•OBSERVATION •RECOMMENDED PROCEDURES •MITIGATION
107	Redwood *Sequoia sempervirens*	Multi		Fair	Poor	Poor	High	
108	Douglas Fir *Pseudotsuga menziesii*	Est.	10	Poor	Poor	Poor	High	
109	Douglas Fir *Pseudotsuga menziesii*	11	N/A	Dead	Dead	Dead	High Within building	•Dead •Remove due to Condition •One 24" boxed replacement tree
110	Coast Live Oak *Quercus agrifolia*	12	10	Fair	Poor	Poor	High	

Remove due Construction Impacts | Remove due to Condition | Recommeded Removal due to Severe Impacts

Inital Study 10-21-05

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APN 039-062-05, Tract #1529

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TREE #	SPECIES	@ 4.5ft ABOVE NATURAL GRADE (INCHES)	CRITICAL ROOT ZONE (RADIAL FEET)	HEALTH	STRUCTURE	PRESERVATION SUITABILITY	SEVERITY OF IMPACTS	•OBSERVATION •RECOMMENDED PROCEDURES •MITIGATION
114	**Douglas Fir** *Pseudotsuga menziesii*	22.7	ATTACH APPLIC	Fair	Fair	Fair	**Medium:** 11ft from proposed grading 21ft from proposed grading 25ft from proposed retaining wall to south Canopy conflicts	•Previous clearance canopy pruning to north and west •**Preserve and Protect** Preconstruction root pruning required •None

Remove due Construction Impacts · Remove due to Condition · Recommeded Removal due to Severe Impacts

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TREE INVENTORY
6851 Soquel Drive, Aptos, CA.
APN 039-062-05, Tract #1529

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TREE #	SPECIES	@ 4.5ft ABOVE NATURAL GRADE (INCHES)	CRITICAL ROOT ZONE (RADIAL FEET)	HEALTH	STRUCTURE	PRESERVATION SUITABILITY	SEVERITY OF IMPACTS	•OBSERVATION •RECOMMENDED PROCEDURES •MITIGATION
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
118	**Coast live oak** *Quercus agrifolia*	14.3	11	Fair	Fair	Fair	**Medium:** 8ft from driveway to southwest	•None •**Preserve and Protect** Reduce limits of grading Preconstruction root pruning required •None
119	**Coast live oak** *Quercus agrifolia*	14.8	12	Fair	Fair	Fair	**Medium:** 8ft from proposed sewerline to 9ft from driveway to east	•None •**Preserve and Protect** Canopy clearance pruning required Preconstruction root pruning required •None
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Remove due Construction Impacts Remove due to Condition Recommeded Removal due to Severe Impacts

Inital Study

HIDDEN OAKS SUBDIVISION
TREE INVENTORY
6851 Soquel Drive, Aptos, CA.
APN 039-062-05, Tract #1529

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TREE #	SPECIES	DIAMETER @ 4.5ft ABOVE NATURAL GRADE (INCHES)	CRITICAL ROOT ZONE (RADIAL FEET)	HEALTH	STRUCTURE	PRESERVATION SUITABILITY	SEVERITY OF IMPACTS	•OBSERVATION •RECOMMENDED PROCEDURES •MITIGATION
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
126	**Coast live oak** *Quercus agrifolia*	23.5	20	Fair	Poor	Fair	**Low:** 16ft from storm drain to northwest 33ft from proposed bldg foundation to northwest Canopy conflicts	•Trunk leans sharply to northwest •**Preserve and Protect** Perform Root Crown Inspection Preconstruction root pruning required May destabilize tree •None
127	**Coast live oak** *Quercus agrifolia*	31.5	25	Fair	Poor	Fair	**Low:** 14ft from proposed strom drain to northwest 30ft from proposed bldg foundation to west Canopy conflicts	•Trunk leans to north Divides In two stems at 6ft Poor trunk/ tem attachments Large diameter dead branches in canopy Canopy co-mingles with group 128 •**Preserve and Protect** Perform root crown inspection Clearance pruning required •None

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Remove due Construction Impacts Remove due to Condition Recommeded Removal due to Severe Impacts

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HIDDEN OAKS SUBDIVISION
TREE INVENTORY
6851 Soquel Drive, Aptos, CA.
APN 039-062-05, Tract #1529

Dedicated to the Preservation of Trees

TREE #	SPECIES	@ 4.5ft ABOVE NATURAL GRADE (INCHES)	CRITICAL ROOT ZONE (RADIAL FEET)	HEALTH	STRUCTURE	PRESERVATION SUITABILITY	SEVERITY OF IMPACTS	•OBSERVATION •RECOMMENDED PROCEDURES •MITIGATION
128	Acacia *Acacia baileyana*	Group of 24 stems 6 to 14	N/A	Fair	Poor	Poor	None	•None •Remove due to Condition •One 24" boxed replacement tree
129	Acacia *Acacia baileyana*	17.8	N/A	Fair	Poor	Poor	None	•Canopy Suppressed to east •Remove due to Condition •One 24" boxed replacement tree
130	Acacia *Acacia baileyana*	19	N/A	Fair	Poor	Poor	None	•None •Remove due to Condition •One 24" boxed replacement tree
131	Acacia *Acacia baileyana*	Double 3 & 10	N/A	Fair	Poor	Poor	None	•None •Remove due to Condition •One 24" boxed replacement tree
132	Coast live oak *Quercus agrifolia*	12.5	20	Fair	Poor	Good	None	•Large wound on lower trunk to south Codominant stems Poor trunk/stem attachments **•Preserve and Protect** •None
133	Coast live oak *Quercus agrifolia*	30.3	25	Fair	Poor	Fair	None	•Severe decay on lower trunk to 10ft **•Preserve and Protect** •None
134	Coast live oak *Quercus agrifolia*	22	20	Fair	Fair	Good	None	•Low Live Crown Ratio **•Preserve and Protect** •None

ATTACHMENT 9 to Initial Study for APPLICATION 06-0957

Remove due Construction Impacts Remove due to Condition Recommeded Removal due to Severe Impacts

James P. Allen & Associates

HIDDEN OAKS SUBDIVISION
TREE INVENTORY
6851 Soquel Drive, Aptos, CA.
APN 039-062-05, Tract #1529

Dedicated to the Preservation of Trees

TREE #	SPECIES	@ 4.5ft ABOVE NATURAL GRADE (INCHES)	CRITICAL ROOT ZONE (RADIAL FEET)	HEALTH	STRUCTURE	PRESERVATION SUITABILITY	SEVERITY OF IMPACTS	•OBSERVATION •RECOMMENDED PROCEDURES •MITIGATION
136	Acacia *Acacia baileyana*	20.8	N/A	Fair	Poor	Poor	None	•Trunk leans sharply to west •**Remove due to Condition** •One 24" boxed replacement tree
137	**Coast live oak** *Quercus agrifolia*	24	17	Fair	Poor	Good	None	•Poor trunk/stem attachments •**Preserve and Protect** •None
138	**Coast live oak** *Quercus agrifolia*	31	24	Fair	Poor	Good	None	•Trunk leans sharply to east Poor trunk/stem attachments Within Urban Arroyo •**Preserve and Protect** •None
139	**Interior live oak** *Quercus wislizenii*	16	13	Fair	Poor	Good	None	•Poor trunk/stem attachments Within Urban Arroyo •**Protect and Preserve** •None
140	**Coast live oak** *Quercus agrifolia*	Double 12 & 15		Fair	Poor	Poor	**Low:** 12.5ft from proposed grading 18ft from proposed storm drain 20ft from proposed deck to northwest	•None •**Preserve and Protect** •None
142	**Coast live oak** *Quercus agrifolia*	21	16	Fair	Fair	Good	**Medium:** 9ft from proposed grading to west 15ft from proposed bldg foundation to west	•Divides into 2 stems @ 2ft Good trunk/stem attachments •**Preserve and Protect** Preconstruction root pruning required •None

ATTACHMENT 9, 2nd Environmental Review Initial Study
APPLICATION 06-0657

Remove due Construction Impacts Remove due to Condition Recommeded Removal due to Severe Impacts

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TREE INVENTORY
6851 Soquel Drive, Aptos, CA.
APN 039-062-05, Tract #1529

Dedicated to the Preservation of Trees

TREE #	SPECIES	@ 4.5ft ABOVE NATURAL GRADE (INCHES)	CRITICAL ROOT ZONE (RADIAL FEET)	HEALTH	STRUCTURE	PRESERVATION SUITABILITY	SEVERITY OF IMPACTS	•OBSERVATION •RECOMMENDED PROCEDURES •MITIGATION
143	Coast live oak *Quercus agrifolia*	11.1	N/A	Dead	Dead	Dead	**Medium:** 11ft from building to west	•Dead •**Removed due to Condition** •One 24" boxed replacement tree
144	**Maple** *Acer macrophyllum*	13.8	8	Fair	Poor	Good	None	•Codominant stems @ 5.5ft Within Urban Arroyo •**Preserve and Protect** •None
145	**Coast live oak** *Quercus agrifolia*	26.8	9	Fair	Poor	Fair	None	•Suppressed lateral branch development Within Urban Arroyo •**Preserve and Protect** •None
146	**Coast live oak** *Quercus agrifolia*	40	28	Poor	Poor	Poor	**Medium:** 13ft from proposed grading to west 21ft from proposed bldg foundation to northwest Canopy conflicts	•Significant wound on lower trunk to south Wetwood infection Poor trunk/stem attachments Borders Urban Arroyo •**Preserve and Protect** Preconstruction root pruning required Clearance pruning required •None
147	**Pittosporum** *Pittosporum eugenioides*	14	6	Fair	Fair	Fair	**Low:** 8ft from proposed grading to west	•Within Urban Arroyo •**Preserve and Protect** •None
148	**Pittosporum** *Pittosporum eugenioides*	8	4	Fair	Fair	Fair	None	•Within Urban Arroyo •**Preserve and Protect** •None

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APPLICATION 06-0657
Environmental Review Initial Study

Remove due Construction Impacts Remove due to Condition Recommeded Removal due to Severe Impacts

HIDDEN OAKS SUBDIVISION
TREE INVENTORY
6851 Soquel Drive, Aptos, CA.
APN 039-062-05, Tract #1529

Dedicated to the Preservation of Trees

James P. Allen & Associates

TREE #	SPECIES	@ 4.5ft ABOVE NATURAL GRADE	CRITICAL ROOT ZONE (RADIAL FEET)	HEALTH	STRUCTURE	PRESERVATION SUITABILITY	SEVERITY OF IMPACTS	•OBSERVATION •RECOMMENDED PROCEDURES •MITIGATION
149	**Coast live oak** *Quercus agrifolia*	20.2	15	Fair	Fair	Fair	**Medium:** 6ft from proposed grading to west 10ft from proposed bldg foundation to northwest 23ft from proposed bldg Canopy conflicts	•Poor trunk/stem attachment @ 10ft Within Urban Arroyo •**Preserve and Protect** Preconstruction root pruning required Canopy clearance pruning required None
150	**Douglas fir** *Pseudotsuga menziesii*	19.7	16	Fair	Fair	Fair	**Low:** 17.5ft from proposed grading	•Suppressed by Ivy Borders Urban Arroyo •**Preserve and Protect** •None
[redacted]								
152	**Coast live oak** *Quercus agrifolia*	12	8	Poor	Poor	Good	**Low:** 13ft from proposed grading	•Suppressed by Ivy Within Urban Arroyo •**Preserve and Protect** •None
153	**Coast live oak** *Quercus agrifolia*	11.3	8	a or	oor	Good	**Low:** 15ft from proposed grading	•Suppressed by Ivy Within Urban Arroyo •**Preserve and Protect** •None
154	**Coast live oak** *Quercus agrifolia*	5	40	Fair	oor	Good	**Medium:** 14ft from proposed grading 20ft from proposed bldg to northwest Canopy conflicts	•Trunk divides at 3ft Poor trunk/stem attachments Suppressed by Ivy Within Urban Arroyo •**Preserve and Protect** Preconstruction root pruning required Canopy clearance pruning required •None

ATTACHMENT 9 Environmental Review Initial Study
APPLICATION 06-0657 Exhibit 28

Remove due Construction Impacts · Remove due to Condition · Recommeded Removal due to Severe Impacts

HIDDEN OAKS SUBDIVISION
TREE INVENTORY
6851 Soquel Drive, Aptos, CA.
APN 039-062-05, Tract #1529

Dedicated to the Preservation of Trees

James P. Allen & Associates

T E	SPECIES	DIAMETER @ 4.5ft ABOVE NATURAL GRADE (INCHES)	CRITICAL ROOT ZONE (RADIAL FEET)	HEALTH	STRUCTURE	PRESERVATION SUITABILITY	SEVERITY OF IMPACTS	•OBSERVATION •RECOMMENDED PROCEDURES •MITIGATION
155	**Coast live oak** *Quercus agrifolia*	16	12	Fair	Fair	Good	**None:** 19ft from proposed grading	•Poor trunk/stem attachments Suppressed by Ivy Branches co-mingle with tree #154 Within Urban Arroyo •**Preserve and Protect** •None
156	**Coast live oak** *Quercus agrifolia*	5	6	Fair	Poor	Fair	**None:** 7ft from proposed grading to northwest	•Poor trunk/stem attachment @ 8ft Within Urban Arroyo •**Preserve and Protect** •None
157	**Coast live oak** *Quercus agrifolia*	15.2	12	Poor	Poor	Poor	**Medium:** 10ft from proposed bldg foundation to west Canopy conflicts	•Trunk leans to north Poor trunk/stem attachments @ 20ft Within Urban Arroyo •**Preserve and Protect** Preconstruction root pruning required Canopy clearance pruning required •None
158	**Pittosporum** *Pittosporum eugenioides*	9		Fair	Fair	Fair	**None**	•None •**Preserve and Protect** •None
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ATTACHMENT 9 to Application 221081 Environmental Review Initial Study

Remove due Construction Impacts Remove due to Condition Recommeded Removal due to Severe Impacts

Dedicated to the Preservation of ***Trees***

January 31, *2007*

James P. Allen & Associates

B.K Properties
Attention. Keith Baxter
550 Hudson Lane
Aptos, CA 95003

Regarding: Hidden Oaks Subdivision, 6851 Soquel Drive, Aptos, CA
Tract #1529, APN 039-062-05

Mr. Baxter,

I have reviewed the site plan this project provided by Sam Stivers of Ifland Engineers on January 19, 2007. This revised plan for the subdivision tentative map submittal addresses the incomplete items as defined by the Santa Cruz County **Planning** Department. These plan alterations will not result in additional impact to the tree resources on this site and to be in general conformance with the ""Tree Resource Evaluation/Construction lmpact Assessment" prepared by this office dated October 5, 2006."

Please contact my office with any questions.

Thanks you for the opportunity to be of service.

James P. Allen
Registered Consulting Arborist #390

JAMES P. ALLEN
ASCA
AMERICAN SOCIETY of CONSULTING ARBORISTS
Registered Consulting Arborist #390

Environmental Review Inital Study
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APPLICATION 06-0651

Consulting Arborists

611 Mission Street
Santa Cruz, CA 95060

831.426.6603 office
831.234.7739 mobile
831.460.1464 tax
jpallen@consultingarborists.com
www.consultingarborists.com

HIGGINS ASSOCIATES

CIVIL & TRAFFIC ENGINEERS

December 22, 2006

Keith G.Baxter
P.O.Box 1057
Aptos, CA 95003

Re: Traffic Engineering **Study to** Evaluate the Provision **of** Access to Three **Town Homes on Haas** Drive in Santa Cruz County, California

Dear Keith,

Thank you for requesting Higgins Associates to assist you in providing Traffic Engineering services for your residential development on Haas Drive, Santa Cruz County, California. The project includes the provision of **10** town homes of which three will have access from Haas Drive. The remainder of the homes will have access from Soquel Drive. The project vicinity map and the site plan are indicated in Exhibit **1** and Exhibit **2** respectively.

Typically driveway vehicles back out of the driveways onto the local street or when entering, wait for a gap in the traffic stream from the front. The traffic volume on Haas Drive is low. The busiest peak hour is in the PM (4:00 PM to 5:00 PM) and the count data indicates 45 vehicles, which is one vehicle every 80 seconds and gaps are sufficient.)

Driveway vehicles backing up would **look** up and down the street for oncoming street vehicles from the driveway and decide to either wait or proceed with the maneuver depending if there is a vehicle approaching or not.

Driveway vehicles turning into the driveway would wait for a gap from street vehicles coming from the front (which is adequate based on the approaching volumes). Street vehicles approaching the driveway vehicle wanting to turn into the driveway from behind would see the turn signal and decide to slow down and stop, if required.

The sight distance analysis indicates the minimum sight distance that is required for an approaching vehicle proceeding on the street to stop if a driveway vehicle enters or exits a driveway.

The site plan indicates that the driveways will be constructed almost horizontal with the curb level, which is advantageous to, and increases sight distance compared to existing conditions where the natural slope drops from the curb level.

This letter provides the findings of the adequacy of sight distance at the driveways to the three homes on Haas Drive per the County of Santa Cruz standards and requirements. Haas Drive is a local street that has an average daily traffic volume of **324** vehicles that was counted on November 29, 2006. The tube count data is included in Appendix A. The road has an approximately 10-12%

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grade immediately north of Soquel Avenue and the grade decreases to approximately 6-8% at the driveways. The road then flattens out to the north and then increases again. There are no speed limit signs posted on Haas Drive in the vicinity *of* the driveways and a speed limit of 25 miles per hour was assumed for analysis purposes based on the speeds surveyed. No parking is allowed on Haas Drive in the vicinity ofthe driveways.

The relative steep grade and horizontal curves on Haas Drive typically results in lower uphill speeds and higher downhill speeds. Together with the volume counts, speed data was also collected. The average travel speed on northbound Haas Drive in the vicinity *of* the driveways is 20 miles per hour (mph), and the 85th percentile speed (design speed) is about 25 mph. In the southbound direction (downhill), the average speed is 25 mph, and the 85'' percentile speed is 32 mph. The results of the speed survey are summarized in Appendix **B.**

Currently, sight distance to the south on Haas Drive from the project driveways is approximately I75 to 185 feet. To the north, the sight distance is approximately 400 feet. This analysis is based on a 13-foot setback from the edge **of** the travel way. Comer sight distance **is** measured from a point 3.5 feet above the existing grade at the project driveways at the location of the driver on the minor street, to a 4.25 foot object height in the center of the approaching lane of the major road. To ensure that the sight distance at the driveways is maintained, it is recommended that existing trees and shrubs be removed to ensure that adequate sight distance be maintained based on the setback.

Based on American Association of State Highway and Transportation Officials (AASHTO) standards, which are also used by the County of Santa Cruz, a sight distance *of* approximately 245 feet to the north and approximately 141 feet to the south, is required with the measured design speeds (85'' percentile speed). Eased upon the available sight distance of 400 feet to the north and 175-185 feet to the south, the project driveways exceed the required standards. The sight distance calculations are included as **Exhibit 3.**

In conclusion our analysis indicates that the design speeds (85'' percentile) on Haas Drive provides for adequate sight distance to the north and south from the three driveways on Haas Drive. The driveways meet the County of Santa Cruz requirements for access onto the local street. If you have any questions regarding our analysis, please do not hesitate to contact us.

Sincerely yours:

Keith B. Higgins, CE, TE

kbh:mm

Environmental Review Inital Study
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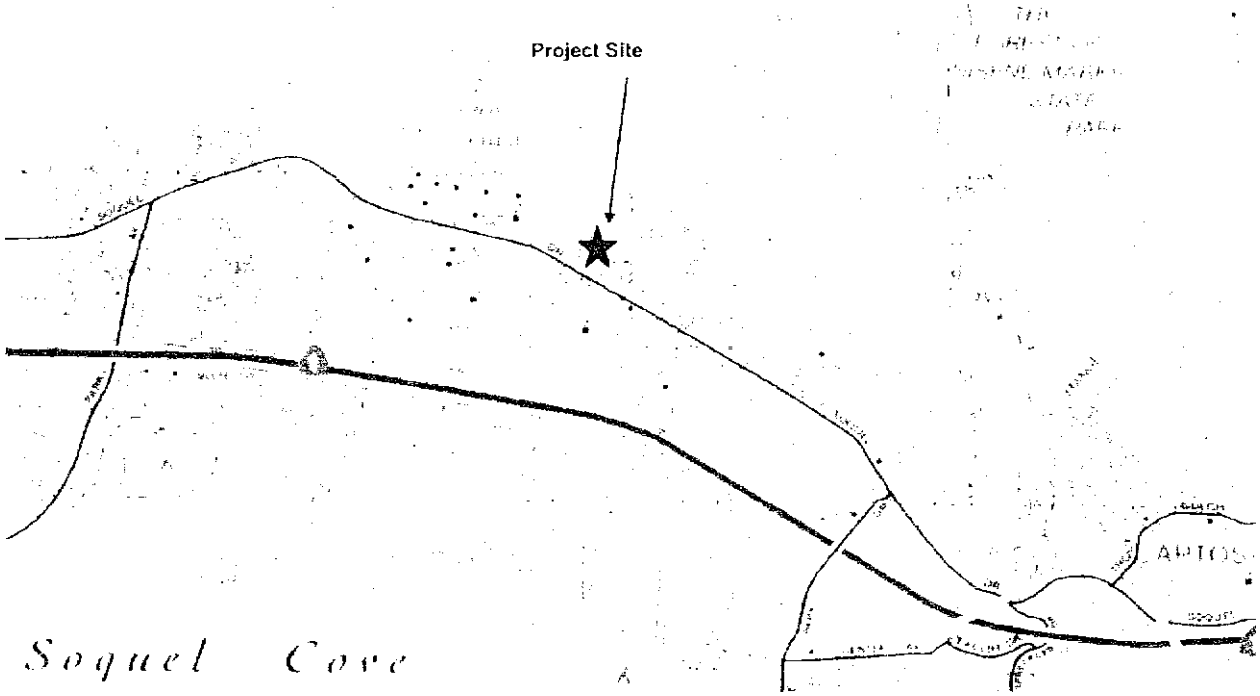

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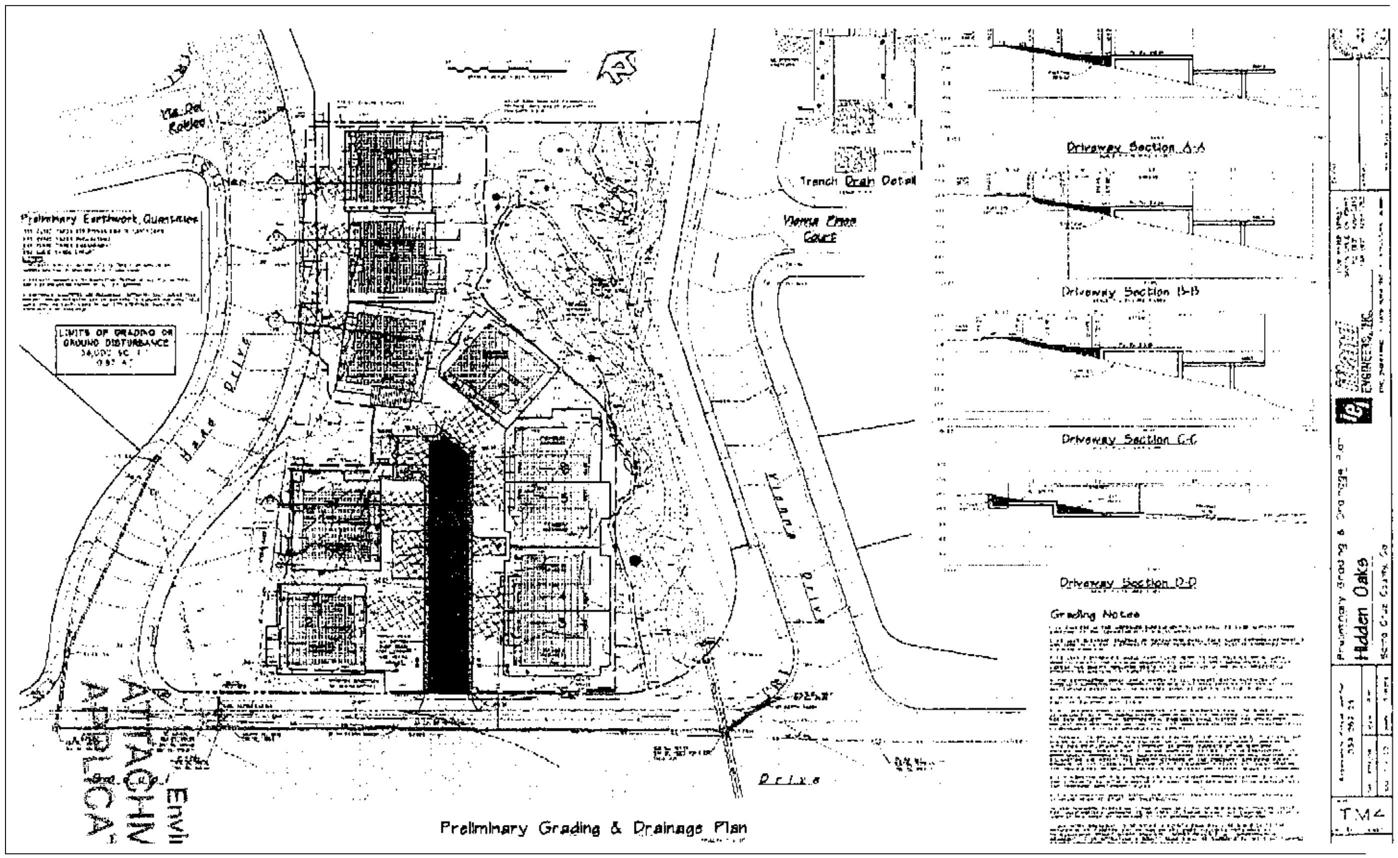
EXHIBIT 1
PROJECT VICINITY MAP



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HIGGINS ASSOCIATES.

6-208 Map Exhibits
SitePlan1

EXHIBIT 2
SITE PLAN

Existing Sight Distance From Project Driveway With Measured 85th Percentile Speeds										
				Braking Distance (feet)		Total Distance (feet)		Measured	Available	Cause(s) of
	Design	Brake Reaction		-8%	8%	-8%	8%	Sight	Sight Distance	Sight Distance
Direction	Speed	Time	Distance	grade	grade	grade	grade	Distance (feet)	Acceptable?	Constraint
SB (Looking North)	32 mph	2.5	117.3	127.4		244.8		400	Yes	NA
NB (Looking South)	25 mph	2.5	91.7		48.7		140.4	175	Yes	Vegetation and horisontal curve.

Notes:
1. Source: *A Policy on Geometric Design of Highways and Streets*, American Association of State Highway and Transportation Officials 2001
2. Design speeds of 32 and 25 mph are based upon a speed survey data obtained from the tubes

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APPENDIX **A**

Higgins Associates
1300-B **First Street**
Gilroy. **California** *95020*

Site Code:
HAAS **VOLUME**

Start Time	28 Nov 0 Tue	SB Morning	SB Afternoon	Hour Totals Morning	Hour Totals Afternoon	NB Morning	NB Aflernoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00											
12:15			3				3				
12.30			5				5				
12:45			1	0	9		2	0	1(	0	19
01.00			3				3				
01:15			3				4				
01:30			3				7				
01:45			8	0	17		4	0	1(	0	35
02:00			2				5				
02:15			7				10				
02:30			3				1				
02:45			3	0	1:		8	0	2(	0	39
03.00			5				1				
03:15			4				4				
03:30			5				8				
03:45			4	0	1(		4	0	1i	0	35
04:00			4				5				
04:15			3				4				
04:30			5				1				
04:45			3	0	15		4	0	1(	0	29
05:00			0				1				
05:15			4				6				
05:30			3				6				
05:45			4	0	11		4	0	1i	0	28
06:00			4				8				
06:15			3				2				
06:30			2				5				
06:45			7	0	1(		6	0	21	0	37
07:00			1				2				
07:15			2				4				
07:30			0				4				
07:45			5	0	8		3	0	1:	0	21
08:00			4				1				
08:15			0				4				
08:30			2				4				
08:45			0	0	6		4	0	1:	0	19
09:00			0				3				
09:15			1				0				
09:30			1				1				
09:45			1	0	3		1	0	9	0	8
10:00			1				1				
1015			0				0				
10:30			0				1				
10:45			0	0	1		0	0		0	3
11:00			0				0				
11:15			0				0				
11:30			0				1				
11:45			0	0	0		0	0	1	0	1
Total		0	119			0	155			0	274
Percent		0 0%	100 0%			0 0%	100 0%			0 0%	100 0%

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Higgins Associates
1300-B First Street
Gilroy. California 95020

Site Code
HAAS VOLUME

Start Time	29-Nov-0 Wed					NB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12 00		0	6			1	6				
12 15		1	2			0	4				
12 30		0	3			0	1				
1245		0	3	1	14	1	5	2	16	3	30
01 00		0	4			0	3				
01 15		0	2			0	6				
01 30		0	3			0	2				
01 45		0	3	0	12	0	3	0	14	0	26
02 00		0	5			0	5				
02 15		0	4			0	2				
02 30		0	1			0	4				
0245		0	4	0	14	0	0	0	11	0	25
03.00		0	5			0	4				
03:15		0	2			0	5				
03 30		1	3			1	3				
0345		0	1	1	11	0	2	1	14	2	25
04.00		0	6			0	4				
04:15		0	5			0	5				
04:30		0	4			0	9				
04:45		0	4	0	19	0	8	0	26	0	45
05:00		0	3			0	3				
05:15		0	5			0	7				
05:30		1	3			1	2				
05:45		0	0	1	11	0	C	1	1;	2	23
06:00		0	0			0	C				
06:15		1	0			1	C				
06:30		1	0			0	C				
06:45		2	0	4	0	2	C	3	(	7	0
07:00		8	0			2	C				
07:15		3	0			0	C				
07:30		1	0			2	C				
07.45		2	0	14	C	0	C	4	(	18	0
08:00		6	0			3	C				
08:15		3	0			1	C				
08:30		6	0			3	C				
08:45		4	0	19	C	3	C	10	I	29	0
09:00		1	0			1	C				
09:15		1	0			4	C				
09:30		7	0			4	C				
09:45		4	0	13	C	2	C	11	(	24	0
10:00		5	0			7	C				
10:15		6	0			7	C				
10:30		4	0			2	C				
10:45		2	0	17	C	1	C	17	(	34	0
11:00		6	0			2	C				
11:15		3	0			4	C				
11:30		5	0			2	C				
11:45		5	0	19	C	5	C	13	(	32	0
Total		89	81			62	9			151	174
Percent		52 4%	47 6%			40 0%	60 0%			46 5%	53 5%

Environmental Review Inital Study
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Higgins Associates
1300-B First **Street**
Gilroy, California 95020

Site Code
HAAS VOLUME

Start Time	30-Nov-0 Thu	SB		Hour Totals							
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	0			0	0				
12:15		0	0			0	0				
12:30		0	0			0	0				
12:45		0	0	0	0	0	0	0	0	0	0
01:00		0	0			0	0				
01:15		0	0			0	0				
01 30		0	0			0	0				
01:45		0	0	0	0	0	0	0	0	0	0
02:00		0	0			0	0				
02: 15		0	0			0	0				
02:30		0	0			0	0				
02:45		0	0	0	0	0	0	0	0	0	0
03:00		0	0			0	0				
03:15		0	0			0	0				
0330		0	0			0	0				
03:45		0	0	0	0	0	0	0	0	0	0
04:00		0	0			0	0				
04: 15		0	0			0	0				
04:30		0	0			0	0				
04:45		0	0	0	0	0	0	0	0	0	0
05:00		0	0			0	0				
05:15		0	0			0	0				
05:30		0	0			0	0				
05:45		0	0	0	0	0	0	0	0	0	0
06:00		0	1			0	0				
06:15		0	0			0	0				
06:30		0	0			0	0				
06:45		0	0	0	1	0	0	0	0	0	1
07:00		0	0			0	0				
07:15		0	0			0	0				
07'30		0	0			0	0				
07:45		0	0	0	0	0	0	0	0	0	0
08:00		0	0			0	0				
08:15		0	0			0	0				
08:30		0	0			0	0				
08:45		0	0	0	0	0	0	0	0	0	0
09:00		0	0			0	0				
09:15		0	0			0	0				
09:30		0	0			0	0				
09:45		0	0	0	0	0	0	0	0	0	0
10:00		0	0			0	0				
10:15		0	0			0	0				
1030		0	0			0	0				
10:45		0	0	0	0	0	0	0	0	0	0
11.00		0	0			0	0				
11:15		1	0			1	0				
11:30		1	0			2	0				
11:45		0	0	2	0	0	0	3	0	5	0
Total		2	1			3	0			5	1
Percent		66.7%	33 3%			1000%	0 0%			83 3%	16 7%

Environmental Review Inital Study
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Higgins Associates
1300-B First **Street**
Gilroy. California 95020

Site Code.
HAAS VOLUME

Stan Time	01-Dec-0 Fri	SB Morning	SB Aflernoon	Hour Totals Morning	Hour Totals Afternoon	NE Morning	NE Afternoon	*Hour* Totals Morning	*Hour* Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12.00		0				0					
1215		0				0					
1230		0				0					
12 45		0		0	0	0		0	0	0	0
01 00		0				0					
01 15		0				0					
01'30		0				0					
01 45		0		0	0	0		0	0	0	0
02.00		0				0					
02 15		0				0					
02 30		0				0					
0245		0		0	0	0		0	0	0	0
03 00		0				0					
03 15		0				0					
03 30		0				0					
03 45		0		0	0	0		0	0	0	0
04:00		0				0					
04 15		0				0					
04:30		0				0					
04 45		0		0	0	0		0	0	0	0
0500		0				0					
05.15		0				0					
05.30		0				0					
05'45		0		0	0	0		0	0	0	0
0600		0				0					
06:15		0				0					
06.30		0				0					
0645		0		0	0	0		0	0	0	0
07.00		0				0					
0715		0				0					
0730		0				0					
07:45		0		0	0	0		0	0	0	0
0800		0				0					
08:15		0				0					
08:30		0				0					
08:45		0		0	0	0		0	0	0	0
0900		0				0					
09:15		0				0					
09:30		0				0					
0945		0		0	0	0		0	0	0	0
10:00											
10:15											
10:30											
10.45											
11'00											
11:15											
11:30											
11 45											
Total		0	0			0	0			0	0
Percent		0 0%	0.0%			0 0%	0.0%			0 0%	0 0%
Grand Total		91				65	248			156	449
Percent		31 2%				20 8%	79.2%			25 8%	74 2%
ADT		No! Calculated									

Environmental Review Inital Study
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APPENDIX B

Higgins Associates
1300-B First Street
Gilroy, California 95020

Southboun																	th	th
Start	1	16	21	26	31	6	41	46	51	56	61	66	71	76				
Time	5	20	25	30	35	0	45	50	55	60	65	70	75	999	Total		nt	nt
11/28/06																		
01:00																		
02:00																		
03:00																		
04:00																		
05:00																		
06:00																		
07:00																		
08:00																		
09:00																		
10:00																		
11:00																		
12 PM	1	2	1	4	3	0	0	0	0	0	0	0	0	0	31		27	31
13:00	1	3	4	4	4	1	0	0	0	0	0	0	0	0	17		32	34
14:00	0	1	1	9	2	2	0	0	0	0	0	0	0	0	15		35	36
15:00	0	4	5	7	2	0	0	0	0	0	0	0	0	0	18		29	31
16:00	0	2	6	4	3	0	0	0	0	0	0	0	0	0	15		31	32
17:00	2	0	1	3	4	1	0	0	0	0	0	0	0	0	11		33	34
18:00	0	4	1	7	3	1	0	0	0	0	0	0	0	0	16		32	33
19:00	0	0	3	3	2	0	0	0	0	0	0	0	0	0	8		31	32
20:00	0	0	1	3	0	2	0	0	0	0	0	0	0	0	6		36	37
21:00	0	0	1	0	1	1	0	0	0	0	0	0	0	0	3		36	36
22:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1		36	36
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total	4	16	24	44	24	9	0	0	0	0	0	0	0	0	141			
Percent	%	11.3%	17.0%	31.2%	17.0%	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
AM Peak																12:00		
Vol.																31		
PM Peak		15:00	16:00	14:00	13:00													
Vol.		4	6	9	4													

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Environmental Review Initial Study

Higgins Associates
1300-B First Street
Gilroy, California 95020

Site Code:
haas Speed +5

Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 99	Total	85th Percent	95th Percent
11/29/06	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	31	31
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	36	36
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	36	36
06:00	0	0	1	1	2	0	0	0	0	0	0	0	0	0	4	31	32
07:00	0	0	4	7	3	0	0	0	0	0	0	0	0	0	14	31	32
08:00	0	3	6	8	1	1	0	0	0	0	0	0	0	0	19	29	35
09:00	1	0	4	3	5	0	0	0	0	0	0	0	0	0	13	33	34
10:00	0	2	2	8	3	2	0	0	0	0	0	0	0	0	17	32	36
11:00	1	0	8	6	3	1	0	0	0	0	0	0	0	0	19	31	33
12 PM	0	3	2	7	2	0	0	0	0	0	0	0	0	0	14	30	31
13:00	1	2	2	5	1	1	0	0	0	0	0	0	0	0	12	30	35
14:00	0	2	2	9	1	0	0	0	0	0	0	0	0	0	14	29	30
15:00	1	0	1	6	3	0	0	0	0	0	0	0	0	0	11	31	32
16:00	2	1	5	8	2	1	0	0	0	0	0	0	0	0	19	30	32
17:00	4	0	3	3	1	0	0	0	0	0	0	0	0	0	11	27	28
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	10	13	0	71	8	8	0	0	0	0	0	0	0	0	170		
Percent	5.9%	7.6%	%	41.8%	%	4.7%	0.0%	0.0%	%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00	08:00	10	08:00	0	10:00									08:00		
Vol.	1	3	8	8	5	2									19		
PM Peak	17:00	12:00	10	14:00	0	13:00									16:00		
Vol.	4	3	5	9	3	1									19		

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Environmental Review Initial Study

Higgins Associates
1300-B First Street
Gilroy, California 95020

Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	th nt	th nt
11/30/06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
11:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
12 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
18:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
Total	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3		
Percent	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00														11:00		
Vol.	2														2		
PM Peak	18:00														18:00		
Vol.	1														1		

Environmental Review Inital Study
ATTACHMENT 10 (4 of 9)
APPLICATION 06-065

Higgins Associates
1300-B First Street
Gilroy, California 95020

Site Code:
haas Speed +5

Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
12/01/06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12 PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.															
PM Peak Vol.															
Grand Total	37	29	64	115	52	17	0	0	0	0	0	0	0	0	314
Percent	11.8%	9.2%	20.4%	36.6%	16.6%	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Statistics

15th Percentile :	17 MPH
50th Percentile :	27 MPH
85th Percentile :	32 MPH
95th Percentile :	36 MPH
10 MPH Pace Speed :	21-30 MPH
Number in Pace :	179
Percent in Pace :	57.0%
Number of Vehicles > 55 MPH :	0
Percent of Vehicles > 55 MPH :	0.0%
Mean Speed(Average) :	25 MPH

ATTACHMENT 10, Staff Report
APPLICATION 06-06-51
Environmental Review Initial Study

Higgins Associates
1300-B First Street
Gilroy, California 95020

Northbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
11/28/06	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	3	4	7	1	0	0	0	0	0	0	0	0	0	0	15	24	25
13:00	3	5	8	2	0	0	0	0	0	0	0	0	0	0	18	24	26
14:00	3	6	14	1	0	0	0	0	0	0	0	0	0	0	24	24	25
15:00	1	4	9	3	0	0	0	0	0	0	0	0	0	0	17	25	27
16:00	0	4	7	3	0	0	0	0	0	0	0	0	0	0	14	26	27
17:00	2	6	9	0	0	0	0	0	0	0	0	0	0	0	17	23	24
18:00	0	8	11	2	0	0	0	0	0	0	0	0	0	0	21	25	26
19:00	0	5	6	2	0	0	0	0	0	0	0	0	0	0	13	25	26
20:00	0	2	9	2	0	0	0	0	0	0	0	0	0	0	13	25	26
21:00	0	2	1	2	0	0	0	0	0	0	0	0	0	0	5	26	27
22:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	21	21
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	21	21
Total	12	47	83	18	0	0	0	0	0	0	0	0	0	0	160		
Percent	7.5%	29.4%	51.9%	11.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak	12:00	18:00	14:00	15:00											14:00		
Vol.	3	8	14	3											24		

ATTACHMENT 10 to Item 19
APPLICATION 06-0651
Environmental Review Initial Study

Higgins Associates
1300-B First Street
Gilroy, California 95020

Northbound

Start Time	1 15	6 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	5th ent	5th ent
11/29/06	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	31	31
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	16	16
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	21	21
06:00	1	1	1	0	0	0	0	0	0	0	0	0	0	0	3	21	21
07:00	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	23	24
08:00	1	5	3	1	0	0	0	0	0	0	0	0	0	0	10	22	23
09:00	3	1	7	0	0	0	0	0	0	0	0	0	0	0	11	23	24
10:00	1	8	7	1	0	0	0	0	0	0	0	0	0	0	17	23	25
11:00	1	4	6	2	0	0	0	0	0	0	0	0	0	0	13	25	26
12 PM	1	0	3	2	0	0	0	0	0	0	0	0	0	0	16	23	26
13:00	1	7	5	1	0	0	0	0	0	0	0	0	0	0	14	24	25
14:00	2	3	5	1	0	0	0	0	0	0	0	0	0	0	11	24	25
15:00	2	1	11	0	0	0	0	0	0	0	0	0	0	0	14	24	25
16:00	8	6	11	1	0	0	0	0	0	0	0	0	0	0	26	24	25
17:00	5	2	5	0	0	0	0	0	0	0	0	0	0	0	12	23	24
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	26	9	69	0	1	0	0	0	0	0	0	0	0	0	155		
Percent	16.8%	%	44.5%	%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00	0	09:00	0	00:00										10:00		
Vol.	3	8	7	2	1										17		
PM Peak	16:00	0	15:00	0											16:00		
Vol.	8	0	11	2											26		

ATTACHMENT 10 to Environmental Review Initial Study
APPLICATION 06-0657

Higgins Associates
1300-B First Street
Gilroy, California 95020

Northbound

Start Time	1 15	16 20	21 25	6 0	3 35	36 40	41 45	4 6 5 0	51 55	56 60	61 65	66 70	71 75	76 999	a	th nt	th nt
11/30/06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
11:00	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
12 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
Total	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3		
Percent	100.0%	0.0%	0.0%	%	0.0%	0.0%	0 0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00														0		
Vol.	3														3		
PM Peak																	
Vol.																	

ATTACHMENT 10 to 8479
APPLICATION 06-0651
Environmental Review Initial Study

Higgins Associates
1300-B First Street
Gilroy, California 95020

Northbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	th nt	h t
12/01/06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
11:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
12 PM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
13:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
14:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
15:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
16:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
17:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
18:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
19:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
20:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
21:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
22:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
23:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Percent	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0 0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.																	
Grand Total	41	96	152	28	1	0	0	0	0	0	0	0	0	0	318		
Percent	12.9%	30.2%	47.8%	8.8%	0.3%	0.0%	0.0%	0.0%	0.0%	0 0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile :	16 MPH
50th Percentile :	21 MPH
85th Percentile :	25 MPH
95th Percentile :	28 MPH

Statistics

10 MPH Pace Speed :	16-25 MPH
Number in Pace :	248
Percent in Pace :	78.0%
Number of Vehicles > 55 MPH :	0
Percent of Vehicles > 55 MPH :	0.0%
Mean Speed(Average) :	20 MPH

ATTACHMENT 10 to Initial Study
APPLICATION 06-0251
Environmental Review

Environmental **Consulting** Services **18488** Prospect **Road – Suite 1, Saratoga, CA *95070***
Phone: (408) 257-1045 stanshell99@toast.net FAX: (408) 257-7235

October 16,2006

Mr. Keith Baxter
BK Properties, L.P.
550 Hudson Lane
Aptos, CA 95003

Re: Noise Study Report for the Hidden ***Oaks*** Residential Development Project,
6851 Soquel Drive, Santa Cruz County – APN 039-061-03

Dear Mr. Baxter,

I have reviewed the acoustical **aspects** of the design documents for the subject project relative to the Santa **Cruz** County and State of California residential noise planning requirements. This report presents the results of the noise study, which includes on-site noise monitoring, projection of future L_{dn} project noise levels, a description of architectural details relevant to noise protection performance, and general recommendations for compliance with Connty planning criteria [1] and California Title 24 Noise Insulation Standards [2].

PROJECT DESCRIPTION [3]

The proposed 1.55-acre Hidden **Oaks** residential development is located on Soquel Drive between **Haas** Drive and Vienna Drive, and includes two duplex units (# 3-4 and 5-6), and six single-family residential units (#1, 2, 7, 8, 9, 10). There are primarily residential uses in the area, with Cabrillo College west of the site on Soquel Drive. Units #1 through 7 will be accessed through a new **street** to be created, Oak Leaf Court, while units #8-10 will be accessed via **Haas** Drive. At present there are two houses on the site, which will be demolished. This report evaluates the complete build-out scenario.

Environmental Review Inital Study
ATTACHMENT 11, 1 of 6
APPLICATION 06-0651

SUMMARY OFFINDINGS

The primary source of noise at the project site is traffic on Soquel Drive, a four-lane arterial with a middle **turn** lane. Typical vehicle passby noise levels on site are 60-70 dBA at **50** feet. Trucks, motorcycles, and poorly-muffled vehicles produce peak levels **5** to 15 dBA higher on passby. Traffic on Soquel Drive adjacent to the project site has moderate volumes and speed. Traffic on **Haas** Drive to the west and Vienna Drive to the east is low volume and low speed, and contributes little to the overall noise level. There are no other significant noise sources in the project area

Based upon site noise measurements, anticipated future traffic volumes, and noise modeling, the worst-case Design Noise Level for project residential units would be 73 dBA. The Design Noise Level is the worst-case outdoor noise level the project structures with the highest noise exposures mnst mitigate to provide **a** satisfactory interior environment. To meet Santa Cruz County residential noise criteria, described in the Noise Element of the Santa Cruz County General Plan [1], the following general design measures must be met:

- Title 24-specifies that long-term interior noise levels not exceeding 45 L_{dn} due to exterior sources must be provided.

- **Party** wall assemblies between residential units must have a minimum *50* STC (Sound Transmission Class) rating. Standard STC ratings for different **types** of **party** wall constructions are documented in References *6* and 7.
- Floor/ceiling assemblies between attached units should have a minimum 50 IIC (lmpact Insulation Class) rating, **as** well **as** a 50 STC rating. **This** regulation does not apply to **this** project, since there are no units that share **a** floor-ceiling assembly with another unit *@arty* wali connections only).
- Outdoor activity **areas** associated with residential uses, such **as** decks and back yards, are recommended **to** meet a County Noise Element standard of **60** dBA Ldn.

NOISE MONITORING *AND* DESIGN NOISE LEVEL ANALYSIS

Field noise measurements on site were made during the late morning commute period of October 11, 2006, with a CEL-440 precision noise meter and analyzer, calibrated with a B & K Model 4230 Sound Level Calibrator. The measurement locations were chosen to represent worst-case exposure of project residential units closest to Soquel Drive:

Location 1 -- approximately the location of the back yard or deck of residential unit #2, nearest to Soquel Drive on the south side of the site, about **40** feet from the nearest lane

Location 2 – approximately the location of the back yard or deck of residential unit #8, about 180 feet from the roadway, the **only** residence with an outdoor activity area directly facing Soquel Drive.

Existing Noise Levels

Noise levels were measured and are reported using percentile noise descriptors: L_{90} (the background noise level exceeded 90 % of the time), L_{50} (the median noise level exceeded *50%* of the time), L_1 (the peak level exceeded **1%** of the time), and L_{eq} (the average energy-equivalent noise level). Measured noise levels are presented in Exhibit 1 below. The L_{dn} noise levels were computed **as** the long-term average **of** L_{eq} using the typical daily traffic distribution in the area, with standard weighted penalties for the nighttime hours.

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EXHIBIT 1
EXISTING NOISE LEVELS (dBA)
Main Street Village Residential Project Site - Soquel

Location	L_{90}	L_{50}	L_{eq}	L_1	L_{dn}
1. Unit 2 deck/yard, south **side** of site	*55*	65	67	76	70
3. Unit 8 deck/yard, middle of site	46	51	52	60	55

Noise levels on the site are typical for locations adjacent to an **arterial** such **as** Soquel Drive, which has relatively high speeds and moderate traffic volumes. The future residential locations are somewhat elevated and **look** down on Soquel Drive, which raises noise levels somewhat. At locations in the middle and at the north end **of** the site noise levels are lower due to increased distance and shielding from intervening structures.

Future Project Noise **Levels**

The Design Noise Level is the outdoor noise level anticipated within the next ten years (2016) for the residential units experiencing the highest noise exposure—the **maximum** noise level that the building

Location	First **Floor** and Yards	**Second** Floor
1. **Units** near Soquel Drive, south end	71	**73**
3. Units near mid-site and north end	55-58	***55-58***

The estimated worst-case noise levels for units closest to and facing the roadway, the architectural Design Noise Level, would be 73 dBA for upper floor **units.** Areas further back from the roads, such as the interior areas and *units* at the north section of the site, would have significantly lower noise levels than those near the roadway.

This project **is** adjacent to residential uses to the north, east and west. **As** in any busy **area,** some non-traffic activities could cause sporadic disturbance to the project. However, the proximity to steady arterial traffic would provide a noise background covering most incidental noise from adjacent properties.

STATE OF CALIFORNIA and SANTA CRUZ *COUNTY* RESIDENTIAL NOISE STANDARDS

County and State noise criteria require that new residential housing developments provide **an** interior L_{dn} noise level **of** 45 dBA or less due to exterior noise sources. ***As*** described in the previous section, the worst-case project noise environment for architectural design purposes is **73** dBA for units next to Soquel Drive. Therefore, to achieve an interior L_{dn} of **45 dBA,** a minimum noise reduction of at least **28** dB must be provided by the combmed elements **of** the building shell, particularly those units near the freeway. The transmission loss **of** architectural building elements **is** designated by Sound Transmission Class (STC) ratings for wall elements and by Impact Insulation Class (IIC) ratings for floor/ceiling assemblies, both of which are methods of estimating the inherent ability to attenuate noise ***transmission.*** **Residences** *not near* the roadway would have lower noise exposure levels due to both distance and shielding effects.

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Standard wood and gypsum exterior wall constructions have STC ratings of approximately 40 dBA or more. Standard hollow-core doors and openable single pane windows are rated at about 22-28 STC. Typical dual-layer thermal pane windows are rated at 27-30 dB STC. Except for actual cracks and openings in a structure, doors and windows are usually the weakest elements in the design and construction of a good sound-rated building, and usually reduce the overall protection provided by the more substantial wall structures.

County Noise Element guidelines for residential areas specify outdoor protected areas of 60 dBA Ldn. In high volume traffic environments this often means noise reduction by means of noise walls, special property line or rear yard walls, or individual deck enclosures. In some developments the residential structures themselves offer some or all of the protection necessary from traffic noise impacts. The three units nearest to Soquel Drive, #2, 3 and 4, have yards or deck areas that require 10-11 dB noise reduction in order to meet the 60 dB Ldn outdoor criteria, which is difficult using normal height noise walls. A solid 8-foot wall or fence can provide at most 9 dB noise reduction in these key areas. Outdoor yards and decks further back can be protected with standard 6-foot property line wood fences.

RECOMMENDATIONS

Following are recommendations for meeting the primary criteria for good residential noise insulation design by the Hidden Oaks residential development:

1. **WINDOWS.** Windows should have STC rating of at least 28 dB, although a 30 STC rating is recommended for units near the roadway to provide more protection from peak noise levels from motorcycles and trucks. High quality double-glazed thermal windows, with two 1/8" lights separated by a 1/2" to 3/4" air space, and good weather seals if openable, typically have ratings of 29-30 STC.

2. PARTY WALL ASSEMBLIES. For *minimizing* noise transmitted between attached residential units, the party wall assembly should have several inches of *air* space, fiberglass insulation and minimal structural connections, and generally resilient channel (RC) on one side of the party wall, in order to meet the 50 dBA STC requirement. Acceptable types of party wall assemblies are described in References 6 and 7.

   In addition, any fire stops between units should ***not*** provide a ***strong*** structural connection. That is, they should be of lightweight material, such as sheet metal or fiberglass that cannot conduct low-frequency sound and vibration between units.

3. EXTERIOR DOORS. Entrance doors and sliding glass doors, particularly those in residences near and facing the roadway, should meet an STC rating of at least 28 dB to match the building shell noise reduction criteria

4. PROTECTED OUTDOOR ACTIVITY AREAS. As shown in Exhibit 2, without protection noise levels in outdoor areas near Soquel Drive are going to be in the 70-71 dBA range. As described previously, the three units nearest to Soquel Drive, #2, 3 and 4, have yards or deck areas that require 10-11 dB noise reduction in order to meet the 60 dB Ldn outdoor criteria, which is difficult using normal height noise walls. A solid 8-foot wall or fence, double layer wood or masonry, is recommended to provide about 8-9 dB noise reduction in these key areas, which would provide an outdoor noise environment in the 60-62 dBA Ldn range. Outdoor yards and decks further back should be protected with standard solid 6-foot property line wood fences.

5. **VENTILATION.** Mitigation of outside traffic noise is based upon windows that are closed in order to provide the required noise protection. Therefore all units, particularly those units nearest the traffic noise sources producing the primary noise, must have a ventilation system that provides a habitable interior environment with the windows closed, regardless of outside temperature. In addition, if air conditioning units are installed, the noise levels produced by the AC units must

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not themselves cause a noise problem for any of the residential units associated with the project or adjacent residential properties.

6. GENERAL DESIGN AND CONSTRUCTION PRACTICES. Good noise design must be implemented by **good** field **construction** practices or the design performance will not be achieved. This includes minimizing all penetrations of and connections between party wall and floor/ceiling assemblies, and acoustical **sealant** around any necessary penetrations.

If I may be of further assistance on this project, please do not hesitate to contact me.

Respectfully submitted

Stan Shelly

H. Stanton Shelly
Acoustical Consultant
Board Certified Member (1982),
Institute of Noise Control Engineering

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REFERENCES

1. "Noise Element", Santa Cruz County General Plan, Santa Cruz County Planning Department, 1999.
2. "Noise Insulation Standards," Section 3501, Title 24, Part 2, California Building Standards Code, revised September 1989.
3. Architectural Site Plan and elevations: "Tentative Map – Tract No 1529, Hidden Oaks", Ifland Engineers, Inc, Santa Cruz; and "Soquel Subdivision" elevations, W, R & D Architects LLP, Monterey
4. Traffic volume counts: Soquel Drive near project (year 2003), "Transportation Monitoring Report", Santa Cruz County Regional Transportation Commission website, October 2006.
5. *Highway Noise - A Design Guide for Highway Engineers,* National Cooperative Highway Research Program Report 117, Highway Research Board, National Academy of Sciences, Washington, D.C., 1971 (model enhanced and field validated by ECS).
6. DuPree, Russell B., *Catalog of STC and IIC Ratings for Waifand Floor/Ceiling Assemblies,* California Dept of Health Services, Office of Noise Control, Berkeley, CA, Feb. 1980.
7. "Fire Resistance and Sound Control Design Manual", 17th Ed., Gypsum Association, Washington, DC, 2003.
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