COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
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ALVIN JAMES, DIRECTOR

BOARD OF SUPERVISORS AGENDA: FEBRUARY 26,2002 @ 7:30 p.m.

February 14,2002

Board of Supervisors
County of Santa Cruz
701 Ocean Street
Santa Cruz CA 95060

SUBJECT: CONTINUED PUBLIC HEARING TO CONSIDER:

1. PLANNING COMMISSION'S DENIAL OF APPLICATION #98-0148 TO CONSTRUCT 12 SEMI-DETACHED AND 46 DETACHED TOWNHOUSES IN THREE PHASES, ON A COMMON PARCEL WITH A MINIMUM RESTRICTED COMMON AREA OF 3,000 SQUARE FEET MINI" PER DWELLING UNIT; THREE NEW ROADS; "BOWMAN COURT", "BOWMAN CIRCLE', AND AN EMERGENCY ACCESS DRIVE; FIVE PARKING AREAS TOTALLING 28 SPACES; DRAINAGE SYSTEMS DISCHARGING TO AN EXISTING POND AND TO AN EXISTING GULLY ALONG PORTER GULCH CREEK; TWO RETAINING WALLS UP TO FOUR FEET IN HEIGHT AND ONE RETAINING WALL UP TO EIGHT FEET IN HEIGHT; AND AN OVERLOOK. GRADING ON PARCEL 037-251-21 CONSISTS OF 4,800 CUBIC YARDS OF CUT AND FILL, AND GRADING ON PARCEL 037-251-22 CONSISTS OF 5,200 CUBIC YARDS OF CUT AND FILL. THE REAR OF BOTH PARCELS WOULD BE RETAINED AS OPEN SPACE. THE PROJECT REQUIRES A SUBDIVISION, ROADWAY/ROADSIDE EXCEPTIONS, A RIPARIAN EXCEPTION FOR THE DRAINAGE SYSTEMS RELEASING INTO THE RIPARIAN CORRIDOR, AND PRELIMINARY GRADING APPROVAL; AND

2. THE DEVELOPER'S REVISED PROPOSAL TO CONSTRUCT (4) SEMI-DETACHED TOWNHOUSES AND (29) DETACHED HOMES, IN TWO PHASES, ON A COMMON PARCEL WITH A MINIMUM RESTRICTED COMMON AREA OF 3,000 SQUARE FEET MINIMUM PER DWELLING UNIT; TWO NEW PRIVATE STREETS AND AN EMERGENCY ACCESS DRIVE; FOUR PARKING AREAS TOTALING (19) SPACES; DRAINAGE SYSTEMS DISCHARGING INTO AN EXISTING GULLY ALONG PORTER GULCH CREEK; TWO RETAINING WALLS UP TO FOUR FEET IN HEIGHT AND ONE RETAINING WALL UP TO SIX FEET IN HEIGHT. GRADING ON APN 037-251-21 CONSISTS OF 7,690 CUBIC YARDS OF CUT AND FILL, BALANCED ON THE SITE. THE REAR (RIPARIAN WOODLAND) OF THE PARCEL, AN AREA TOTALING 8.5 ACRES, TO BE MAINTAINED AS OPEN SPACE. A PROPOSED LOT LINE ADJUSTMENT

BETWEEN APN 037-251-21 *AND* 037-251-22 RESULTS IN THE TRANSFER OF 5.05 ACRES TO APN 037-251-22. THE PROJECT REQUIRES A SUBDIVISION, ROADWAY/ROADSIDE EXCEPTIONS, RIPARIAN EXCEPTION, PRELIMINARY GRADING APPROVAL, AND A LOT LINE ADJUSTMENT. PROPERTY LOCATED ON THE NORTH SIDE OF CABRILLO COLLEGE DRIVE AND SOUTH SIDE OF SOQUEL DRIVE, JUST EAST OF ATHERTON DRIVE, IN APTOS; AND:

3. A REVISED PROPOSAL TO CONSTRUCT (26) DETACHED TOWNHOUSES, IN PHASES, ON A COMMON PARCEL WITH A MINIMUM RESTRICTED COMMON AREA OF 3,000 SQUARE FEET MINIMUM PER DWELLING UNIT; **ONE** NEW ROAD "BOWERS COURT" (ACCESS TO CABRILLO COLLEGE DRIVE ACROSS APN 037-241-39); EMERGENCY ACCESS; ON-SITE PARKING AREAS; DRAINAGE SYSTEMS DISCHARGING TO *AN* EXISTING GULLY ALONG PORTER GULCH CREEK; RETAINING WALLS FOUR TO SEVEN FEET IN HEIGHT; AND A LOT LINE ADJUSTMENT TRANSFERRING 6.481 ACRES FROM *AND* RETAINING 2.965 ACRES OF APN 037-251-22 (PARCEL B), *AND* INCREASING APN 037-251-21 (PARCEL A) FROM 8.436 TO 14.917 ACRES. GRADING CONSISTS OF NO MORE THAN 5628 CUBIC **YARDS** OF CUT AND FILL, BALANCED ON THE SITE. THE PROJECT REQUIRES A SUBDIVISION, LOT LINE ADJUSTMENT, ROADWAY/ROADSIDE EXCEPTIONS, A RIPARIAN EXCEPTION FOR THE DRAINAGE SYSTEMS RELEASING INTO THE RIPARIAN CORRIDOR, AND PRELIMINARY GRADING APPROVAL. PROPERTY IS LOCATED ON THE NORTH AND WEST SIDES OF CABRILLO COLLEGE DRIVE, SOUTH OF SOQUEL DRIVE, EAST OF ATHERTON DRIVE IN APTOS.

Dear Members of the Board:

Background:

On April 11, 2001, the Planning Commission took action to deny Application #98-0148, a proposal to construct 12 semi-detached and 46 detached homes on the north side of Cabrillo College Drive and the south side of Soquel Drive, just east of Atherton Drive. At the public hearing held on March 14, 2001, the Planning Commission determined that the project could not be approved as proposed due to environmental impacts, that the site is unsuitable for the density of the project as proposed, and that the scale of proposed grading conflicts with General Plan policies, and type of housing proposed raises General Plan consistency issues.

A letter of Appeal was filed on April 12, 2001 and an evening hearing was held on May 8, 2001 and continued to June 5. At the June 5 hearing, project revisions were discussed that would better utilize the site as well as reduce both grading and traffic impacts associated with project density. The applicant was directed to show progress in efforts to obtain an easement for access over an adjacent, privately owned parcel and the revised project referred back to the Environmental Coordinator for review of traffic impacts associated with the project. The revised project was reviewed by the Environmental Coordinator and a Mitigated Negative Declaration was issued on October **3** 1, 2001. The Environmental Coordinator determined that additional traffic studies were not necessary. The project was set for hearing January 8, 2002 to accommodate **an** evening agenda date.

At the January 8th meeting, a revised project with 33 units and grading totaling 7,690 cubic yards was considered. After reviewing the revised report and hearing public testimony, your Board directed staff to return at 7:30 p.m. on February 26th, 2002 with draft conditions for approval for parcels 8-33 as proposed, and to answer whether density credits might be transferred to the new owner of the parcel adjacent to Soquel Drive (APN 037-251-21), and options for the application of covenants on the vacant parcel by the current owner. Further clarification of the Lot Line adjustment and strategies for a phased approach to the entire parcel were to be included, as well as prior direction that the Redevelopment Agency continue to work with the developer (Minute Order Item 55, Staff Report, Attachment 3).

Revised project plans were received by the Planning Department on January 22, 2002 and re-routed to reviewing agencies for comment. Project revisions included a reduction in the number of homes from 33 to 28. On February 20, 2002, the applicant submitted an additional revision of which further reduced the number of homes to 26 consistent with your Board's January 8th request.[1] Grading was reduced to 6,060 cubic yards for the 28 unit project[2], and one of the proposed roads eliminated from the project. The applicant has not yet obtained the required access over APN 037-241-39 for the 19 homes on the southern portion of the project. The revised staff report to address the Board's previous directions and proposed conditions for approval are attached. (Attachment 2)

Consideration of Alternative Development Opportunities:

1. In response to your Board's directive, staff explored the feasibility of transferring density credits from one parcel to another. This concept is commonly known as Transfer of Development Rights (TDR). Under TDR, potential development can be relocated from areas where proposed land use or environmental impacts are considered undesirable (the "donor" site) to another ("receiver") site chosen on the basis of its ability to accommodate additional units of

[1] The February 20, 2002 submittal included additional proposed project revisions. Specifically, the applicant now proposes to adjust the lot line of the Project so that it immediately borders the proposed development area as shown on the map included as Attachment 10. The proposed development area, designated on the map as Parcel B, would consist of 2.965 acres. It would include the northerly-most seven units to be developed in the first phase with a small park immediately to the south and the 19 homes on the southern portion connected by a 5 foot-wide landscaped strip of land between the two developed areas.

Twenty-two of the 27 foot-wide fire access facility would be located entirely on Parcel B. The remaining five feet is the connecting link between the northerly seven-unit development and the southerly 19 units described in the previous paragraph. It is proposed to be located on Parcel A. The property owner is proposing to reserve right of ways over the secondary and primary access serving the project. The property owner is also proposing that the proposed development's Homeowners Association retain an easement and financial responsibility for the ongoing maintenance of the adjacent riparian and buffer areas.

[2] The applicant has not submitted revised grading calculations based upon elimination of the two additional units. However, assuming the average volume of earthwork per lot to be 216 cubic yards as estimated in the January 22nd submittal, the amount of grading are estimated to be reduced from 6060 cubic yards to 5,628.

development beyond that for which it was zoned, with minimal environmental, social, and aesthetic impacts.

Utilization of TDR's is not included in Santa Cruz County ordinances. However, if the riparian area were removed from the parcel with the proposed **26** homes (southern parcel, APN **037-251-22)** and combined with the riparian area of the northern parcel (APN **037-251-21)** the total ***8.5*** acres of open space could be included with the northern parcel to benefit from development density credit as per General Plan policy **5.11.2**. Full density credit may be granted to that portion of the property outside the riparian corridor that is in the required buffer setback as per General Plan policy **5.2.6**. The reduction in area for APN **037-251-22** to **2.965** acres would result in a project density of one unit per approximately **4,100** square feet, a substantial improvement from the previous proposal.

The letter to County Counsel from Charlene Atack dated **2/5/02** proposes deed restrictions to the northern parcel such that fbture development of Parcel A (APN **037-251-21)** shall be required to be at no less than the density consistent with the designation of Urban High Residential of the General Plan, unless the parcel is re-zoned or the General Plan amended (Staff Report, Attachment **4).** This voluntary restriction on Parcel **A,** if accepted as a condition of approval by your Board, would provide assurance that approval of the development on Parcel B will not preclude a fbture development on Parcel A at a density level consistent with the General Plan.

At present, four affordable units are required to be constructed on Parcel B as a part of the proposed development. The applicant is requesting the opportunity to satisfy this requirement on Parcel A should a tentative map be approved for APN **037-251-21** or a non-profit housing developer purchase the parcel prior to the occupancy of the four affordable units on Parcel B. This issue is discussed below.

2. Clarification of the Lot Line Adjustment. The proposed lot line adjustment now transfers **6.481** acres from APN **037-251-22** (Parcel **B)** to APN **037-251-21** (Parcel A) resulting in two parcels of **2.965** and 14.917 acres respectively (Attachment 1). This increase in the amount retained by the vacant Parcel B subsequent to Board direction at the January 8th meeting, enhances the suitability of the that site for fbture development of higher density housing adjacent to major traffic arterial Soquel Drive. The proposed lot line adjustment is consistent with County Code Section 14.01.107.4(c) in that the lot line adjustment does not result in a greater number of parcels than originally existed, the lot line adjustment conforms with the zoning ordinance, and neither parcel is reduced below the minimum size required by the zoning designation.

3. The phased approach to the proposed development. The applicant is proposing two phases for development: Phase One includes the development of parcels 1-7 adjacent to Atherton Drive with off-site improvements including line of sight improvements at the corner of Atherton Drive and Soquel Drive, bus stop construction in front of Sesnon House, and installation of curb, gutter and sidewalk along Soquel Drive. Phase Two would include development of parcels **10-28** and acquisition of rights to access Cabrillo College Drive across APN **037-241-39,** installation of sight distance improvements at the intersection of Willowbrook Lane and Cabrillo College Drive, and any requirements by the Department of Public Works pursuant to the completed plan line study for Cabrillo College Drive.

Potential for connecting proposed and future projects

Because of concerns expressed about the density of the proposed project being below the density range of the County's General Plan, there was considerable discussion at the January 8th meeting about the ultimate density for the developer's combined properties in the area. It had been suggested by the developer that when the current proposed project **is** looked at in conjunction with the potential development on the vacant site to the immediate north (a site also held by the developer), the two sites together could achieve a total number of housing units consistent with the General Plan density for both properties. The question addressed by the Board was how to ensure that the upper site could indeed be built in a fashion that would accomplish that goal. Staff was therefore directed to explore means for accomplishing a "linkage" of development of the two sites.

It is important to be aware of the potential CEQA issues that could be raised if such a linkage is not properly structured. If an approach is selected that too closely links the fate of one project to the other, it might be possible for issues to be raised about creating a "phased project" under CEQA, thereby triggering the need to perform the CEQA analysis on both projects at the initial stage. Since the full project build out at **RM-3** density would be for a minimum of 85 units and the original CEQA analysis only considered the impact of a ***58*** unit project, supplemental environmental evaluation, particularly traffic analysis, may be required.

There are several approaches that can be taken to provide for some linkage between the two areas:

- **Option 1: Require a Project Redesign to Utilize the Whole Site**

The only approach which would provide your Board with a "guarantee" that affordable housing be developed on the northern site and that the combined parcels be developed at a density level consistent with the current General Plan density range would be that a development plan for both properties be brought through the land use process at one time. This would avoid any concerns regarding CEQA issues suggested above and would provide the Board the maximum latitude in guaranteeing that the minimum densities of the General Plan are achieved for the entirety of the developer's land holdings. This approach is straightforward and would require that the Board uphold the Planning Commission's denial of the project and reject subsequent revisions and work with the developer to submit a revised project application for the entire site.

- **Option 2: Coordinated Development of Two Sites**

Another approach would be to request the applicant to expedite development of the northern parcel. That project sponsor could be the current owner, a non-profit or a for- profit housing developer. Discussions have been underway between the developer, RDA and Mid Peninsula Housing Coalition, a non-profit, for several months. To date, however, no agreement has been reached. If development were expedited, the Board could consider a phased development approach and condition the pending project's approval upon the achievement of specified

milestones, related to the development of the northern parcel. This would have to conform to CEQA and would create numerous complexities and coordination difficulties.

- Option 3: Using Deed Restrictions To Encourage General Plan Conformity

A proposal offered by the owners' representatives is to provide a deed restriction on the northern site (Parcel A) to require that future development applications on the site would be within the General Plan densities. The ultimate approval of the project would be a discretionary action on the part of the Board. In addition, it is proposed that the previous lot line adjustment be amended to add the area outside of the development envelope of the current proposal to Parcel A. This would not only improve the density level of the current development relative to the General Plan, but would also promote the notion that the current proposed development would not impede future build out of Parcel A. The owner also proposes permit conditions to ensure that the development ultimately constructed on Parcel A is not unduly burdened with the responsibility and cost of maintaining the riparian and related habitat areas.

The developer's attorney has worked with County Counsel to suggest specific language that would provide for a future project on Parcel A at a density consistent with the General Plan. The language is as follows:

> Prior to the filing of the final map for the subdivision, Owner shall record a Declaration of Restrictions and provide Planning Staff with proof of recordation, that the newly adjusted vacant parcel which is not part of the proposed subdivision, is transferred to a third party with the following deed restriction:
>
> All future development proposals for this parcel shall be at a density that is no less than the lowest end of that density range set by the Urban High Residential designation of the 1994 General Plan/Local Coastal Program Land Use Plan, unless the land use designation for the parcel is revised by amendment of the General Plan/Local Coastal Program Land Use Plan. This restriction shall be binding upon all purchasers, and each and every successor in interest thereto and shall run with the land affected thereby. This restriction shall be enforceable whether or not this restriction is cited in future deeds or in any other document at time of transfer. This restriction shall be enforceable by the County of Santa Cruz.

Regarding maintenance of the riparian habitat and open space areas located on Parcel A as identified on the Lot Line Adjustment Exhibit dated February 20, 2002 (Attachment 10), County Counsel has proposed, in reference to that exhibit, that the following language be added to Condition III.F.7 of the Conditions of Approval in the attached Staff Report for Atherton Place Development (Attachment 2):

[Prior to beginning of the paragraph in Condition III.F.7, add the words:

Maintenance of Adiacent Riparian and Buffer Easement Area. The Homeowners Association shall pay for and maintain the riparian and buffer area located adjacent to the easterly boundary line of the project as shown and labeled on the attached map entitled "lot line adjustment" by Thacher & Thompson, Architects, dated February 20,2002.

Affordable Housing

At ***26*** units, the proposed development contains an obligation for four inclusionary units that have been identified on the plans submitted by the developer. However, the developer, in their most recent submission, has also requested that their four unit inclusionary housing obligation be allowed to be met offsite, on the northern parcel (Parcel A), as a part of a development which is yet to be determined. This request is premature.

Under existing codes, the County could allow the developer to partner with a non profit agency for the creation of housing on another site, including the northern parcel. This approach would be consistent with the policy requirement within County Code Chapter 17.10 for enhanced affordability, allowing satisfaction of affordable housing requirements through a nonprofit partnership project. Another provision of the code provides that in lieu fees could be paid to satisfy the inclusionary requirement. At the previous Board meeting, the Board expressed a clear preference that the inclusionary provisions of the Code be met and that the use of in lieu fees would be inappropriate. The developer agreed that the use of the in lieu fees provisions would not be pursued, leaving open the possibility of transferring their inclusionary housing obligation to another site. Again, given that there is no current development proposal for the northern site, it is proposed that the inclusionary units continue to be reflected on the project plan and if an alternative approach is requested, that the matter return to the Board.

Emergency Access and Site Configuration

The developer has asked for inclusion of language in the conditions of approval that indicates that the owners intend to reserve right of ways over the secondary and primary access serving the Project. Since the developer currently owns the entire site, he could reserve whatever easements he deems appropriate through private deed restriction. It is proposed that all easements be clearly reflected in the conditions.

However, this does not address the need to obtain access across property not owned by the developer. It should be noted that, if the developer is not able to obtain access to property needed to provide access to the **19** homes located on the southern portion of the property, the project is conditioned to require the Developer to reapply.

Conclusion:

(a) Your Board cannot approve the proposed project and provide assurance that the combined parcels are developed at a density level within the current General Plan density range;

(b) If your Board intends to increase the probability that the northern portion (Parcel A) is developed at a density range within those set forth in the General plan, you could approve the approach suggested by the developer (option 3) to require a deed restriction for the northern parcel (Parcel A). This restriction would prescribe that future development applications are submitted in conformity with those requirements, however the ultimate disposition of Parcel A would be subject to County discretion at a future date. Nonetheless, this would state the Board's intent and demonstrate the "linkage" that is intended if this application is to proceed. Findings and conditions for approval of the most recent proposal for a 26-unit project are included for your Board's consideration in the staff report identified as Attachment 2.

It is, THEREFORE, recommended that your Board:

1. Consider Application #98-0148 for a 26 unit development on the southern parcel (identified as Parcel B on the February 20, 2002 site plan submittal) and the associated findings and conditions (Attachment 2); and
2. Consider certifying the Mitigated Negative Declaration in connection with the approval.

Sincerely,

Alvin D. James
Planning Director

RECOMMENDED: Susan A. Mauriello
County Administrative Officer

Attachment: Board of Supervisors Staff Report dated February 26, 2002

cc: Brad Bowman, First Federal, 2516 Samaritan Drive, Suite K, San Jose, CA 95124
Richard Beale, Land Use Planning, Inc. 100 Doyle St., Suite E, Santa Cruz 95060
Charlene B. Atack, Law Offices of Bosso, Williams P.O. Box 1822, Santa Cruz CA 95061
Wendy Richardson, 6362 Baseline Drive, Aptos CA 95003
Ken Hart, Environmental Coordinator, County of Santa Cruz
Tom Burns, Redevelopment Director, County of Santa Cruz
Rahn Garcia, County Counsel
Bud Carney, City of Capitola, 420 Capitola Ave., Capitola CA 95010

COUNTY OF SANTA CRUZ
PLANNING DEPARTMENT

Date: February 26, 2002
Time: After 7:30 p.m.

STAFF REPORT TO THE BOARD OF SUPERVISORS

APPLICATION NO.: 98-0148

APN: 037-251-21 & -22

APPLICANT: Richard Beale Land Use Planning

OWNERS: Atherton Place Development LLC

PROJECT DESCRIPTION: Proposal to construct (26) detached homes, in two phases, on a common parcel with a minimum "restricted common area" of 3,000 square feet minimum per dwelling unit; a new private street: "Bowers Court" (access to Cabrillo College Drive across APN 037-241-39) and an emergency access drive; (2) parking areas totaling (9) spaces; drainage systems discharging to an existing gully along Porter Gulch Creek; and retaining walls from four to seven feet in height. Grading on Parcel B (APN 037-251-22) consists of no more than 5,628 cubic yards of cut and fill, The rear (riparian woodland) of the parcel, an area totaling 6.92 acres, would be combined with an area similar in character and location on Parcel A (APN 037-251-21) totaling 1.33 acres. The entire 8.25 acres would be maintained as open space. The proposed Lot Line Adjustment between APN 037-251-21 and 037-251-22 results in the transfer of 6.48 acres from APN 037-251-22 (Parcel B) to APN 037-251-21 (Parcel A) resulting in Parcel B being 2.965 acres and Parcel A being 14.917 acres.

LOCATION: Property located on the side of Cabrillo College drive and the south side Soquel Drive, just east of Atherton Drive.

PERMITS REQUIRED: Subdivision, Roadway/Roadside Exceptions, Riparian Exception for the drainage systems releasing to the riparian corridor; preliminary grading approval, and a Lot Line Adjustment.

ENVIRONMENTAL DETERMINATION: Negative Declaration with Mitigations.

COASTAL ZONE: ___ yes __X__ no

PARCEL INFORMATION

PARCEL SIZE: 17.882 acres total.
APN 037-251-21 (Parcel A) is 8.436 acres and would be 14.917 acres after the proposed lot line adjustment; the 1.33 acres designated as open space/riparian area on this parcel would be combined with the 6.92 acres previously a part of Parcel B designated as open space/riparian area for a total of 8.25 acres of open space/riparian area;
APN 037-251-22 (Parcel B) is 9.446 acres and would be 2.965 acres after the proposed lot line adjustment;
EXISTING LAND USE:
PARCEL: Vacant
SURROUNDING: Single- and Multi-Family Residential; Neighborhood Parks; Cabrillo College; and the Twin Lakes Baptist Church.
PROJECT ACCESS: Atherton Drive to Bowman Court and Cabrillo College Drive to Bowers Court across APN 037-241-39 (under separate ownership).
PLANNING **AREA:** Soquel
LAND USE DESIGNATION: Urban High Density Residential (R-UH) 2,500 to 4,000 square feet of net developable parcel area per unit for attached housing, 3,500 to 4,000 square feet of net developable parcel area per unit for creation of new single-family residential lots &

Urban Open Space (0-U)
ZONING DISTRICT: "RM-3" (Multi-Family Residential; minimum 3,000 square feet/unit)
SUPERVISORIAL DISTRICT: Second District

ENVIRONMENTAL INFORMATION

Item	Comments
a. Geologic Hazards	a. No mapped hazards.
b. Soils	b. USDA Soil Type 133, Elkhorn Sandy Loam, 2-9% slope USDA Soil Type 174, Tierra-Watsonville Complex, 15 - 30% slopes. USDA Soil Type 177, Watsonville Loam, 2 - 15% slopes. USDA Soil Type 179, Watsonville Loam, thick surface, 2-15% slopes. Soils report submitted, reviewed and accepted.
c. Fire Hazard	c. Low
d. Slopes	d. No development on slopes greater than 30 percent.
e. Env. Sen. Habitat	e. Biotic reports for on-site flora and fauna submitted, reviewed and accepted. Biotic mitigations required. Required open space of 6.92 acres includes: coast live oak woodland, willow riparian woodland, coyote brush scrub, non-native and all native grasslands, eucalyptus, Monterey Pine, and seasonal wetland habitats
f. Grading	f. Balanced grading on site: 5,628 cubic yards of cut and fill on Parcel 037-251-21.
g. Tree Removal	g. Three trees over 6", d.b.h. are proposed to be removed: two 24" oaks, and one walnut. Replacement at a 3:1 ratio required. One willow on access parcel to be replaced with 24-inch box specimen.
h. Scenic	h. Mapped as Scenic Resource. Landscaping mitigates visibility from the designated scenic corridor, Highway 1
i. Drainage	i. Within Zone 5 Drainage District. Increased drainage directed to Porter Gulch.
j. Traffic	j. Traffic Studies submitted, reviewed and accepted. Payment of TIA fees, and on- and off-site traffic mitigations required.
k. Roads	k. One new private road and an emergency access drive to be constructed,
l. Parks	l. Park fees are required.
m. Sewer Availability	m. Sewer service is available for the proposed development. Sewer will be extended to serve all lots.
n. Water Availability	n. Municipal water is available from the Soquel Creek Water District, for both domestic use and fire protection. Water will be extended to serve all lots.
o. Archeology	o. Not located within a mapped Archeological Resource Area.

SERVICES INFORMATION

W/in Urban Services Line: _X_yes___no
Water Supply: Soquel Creek Water District
Sewage Disposal: Santa Cruz County Sanitation District
Fire District: Central Fire Protection District
Drainage District: Zone 5 Drainage District

ANALYSIS & DISCUSSION

Background

On March 12, 1998, the County Planning Department accepted application No. 98-0148 for a Subdivision, Roadway/Roadside Exceptions, Riparian Exception for the drainage systems releasing to the riparian corridor, and a preliminary grading approval. In accordance with the California Environmental Quality Act (CEQA) and the County Environmental Review Guidelines, the project was considered by the County Environmental Coordinator on December 15, 1999 and March 21, 2000. A Negative Declaration with Mitigations was issued on April 13, 2000.

The project was denied by the Planning Commission on April 11, 2001 due to the physical unsuitability of the site for the density of the development as designed, which applied an essentially single-family residential model to physically constrained parcels zoned for mixed, multi-family development. The Planning Commission found that this design resulted in excessive grading that was inconsistent with General Plan policies. A letter of Appeal was filed on April 12,2001 and an evening hearing before the Board set for May 8,2001. The project appealed was the original proposal for 58 units.

The Board hearing was continued to June 5,2001. At the June 5 hearing, potential project revisions were discussed that would reduce the number of housing units from 58 to 33 units and reduce grading from 10,000 cubic yards to 7,690 cubic yards. A new access road was proposed that would connect the southern portion of the development to Cabrillo College Drive, for the purpose of attempting to avoid new traffic impacts on neighboring development. The applicant was directed to show what efforts have been made to obtain an easement for the new exit road onto Cabrillo Drive and the Planning Department was directed to return the revised project to the Environmental Coordinator to determine if a new traffic study would be required. The revised project was reviewed by the Environmental Coordinator and a Mitigated Negative Declaration issued on October 31,2001. The Environmental Coordinator determined that additional traffic studies were not necessary. On December 11,2001 a continued public hearing was scheduled for January 8,2002.

At the January 8th Board meeting, it was proposed that Lots 1 through 7 be deleted from the project to retain a greater portion of flat topography on APN 037-251-21 which would be more amenable to development which would be consistent with the RM-3 zoning at some future time, while a lower density would be accommodated on the more environmentally sensitive southern portion of the project site, APN 037-251-22. Planning staff was directed to draft conditions of approval for the project and to return to the Board on February 26th (Minute Order Item 55, Attachment 3).

Project Setting & Surroundings

The property is approximately 17.8 acres in area and is in the Soquel Planning area. The site spans two contiguous parcels, APN 037-251-21 and -22. The parcels are located on the north and west sides of Cabrillo College Drive and the south side of Soquel Drive, just east of Atherton Drive, in the Soquel Planning Area. Both parcels are currently undeveloped. The most level areas of the parcels occur along their western frontages to Atherton Drive. The parcels are vegetated primarily with meadow grasses and mature evergreen trees. The rear (eastern edge) of the parcels slopes down towards Porter Gulch Creek and is mapped as riparian woodland.

The property is proposed to be reconfigured via lot line adjustment such that APN 037-251-21 (Parcel **A)** would be 14.917 acres and APN 037-251-22 (Parcel B) would be 2.965 acres. The project site proposed for development is the 2.965 acres comprising (Parcel B).

Surrounding development includes multi-family residential, neighborhood parks, commercial, Cabrillo College, and the Twin Lakes Baptist Church.

Project Description

The applicant requests approval to construct twenty six detached homes, in two phases, on a common parcel with a minimum "restricted common area" of 3,000 square feet minimum per dwelling unit; a new private street: Bowers Court and an emergency access drive connecting Atherton Drive to Bowers Court; two parking areas totaling 9 spaces; drainage systems discharging to an existing gully along Porter Gulch Creek; and retaining walls ranging from four to seven feet in height. Grading consists of no more than 5,628 cubic yards of cut and fill, balanced on the site. The rear (riparian woodland) of both parcels, as presently configured, totals 8.25 acres and would be maintained as open space. A lot line adjustment would transfer 6.481 acres from APN 037-251-22 (Parcel **B**, fronting on Cabrillo College Drive) to APN 037-251-21 (Parcel **A,** fronting on Soquel Drive), resulting in two parcels of 2.965 acres and 14.917 acres respectively. The entire ripariadopen space would become a part of Parcel **A.** The proposed development would take place on Parcel B.

Construction phasing includes:

Phase I (Lots 1-7): 7 detached homes;

Phase II (Lots 10-28): 19 detached homes.

26 TOTAL

As part of the proposed subdivision, the applicant proposes construction of a new private street, Bowers Court, and an emergency access drive connecting Atherton Drive to Bowers Court. Bowers Court and the Atherton Road frontage would be improved with curb, gutter and sidewalk. Off-site improvements include the sight distance improvements at the southwest corner of Atherton Drive and Soquel Drive and at the north side of the intersection of Cabrillo College Drive at Willowbrook Lane.

General Plan & Zoning Consistency

The project site has a General Plan land use designation of "R-UH" (Urban High Density Residential) and "O-U" (Urban Open Space). **A** map of General Plan designations is included as Attachment 7. The "O-U" designation identifies those lands within the Urban Services Line that are not appropriate for development due to the presence of environmental constraints, in this case, the riparian area associated with Porter Gulch. No development is proposed within this area. The "R-UH" designation allows a density range, 10.9 to 17.4 units per net developable acre, which corresponds to a requirement of 2,500 square feet to 4,000 square feet of net developable parcel area per dwelling unit, and 3,500 square feet to 4,000 square feet of net developable parcel area for the creation of new lots. This land use designation provides higher density residential development in areas within the Urban Services Line that have a full range of urban services. Housing types appropriate to the Urban High Density designation may include small detached houses, "zero lot line" houses, duplexes, townhouses, garden apartments, and congregate senior housing. Although the proposed homes are characterized by the applicant as townhomes, due to the parcel configuration and surrounding common area, the development would appear to consist of single-family homes, with front setbacks of 20 feet, setbacks of five feet on each side, and rear setbacks of 15 feet.

As proposed, the 26-unit development would result in a density of approximately 4,100 square feet of net developable parcel area per unit. While this density is still below the General Plan density, which corresponds to 3,500 square feet to 4,000 square feet of net developable parcel area for the creation of new lots, represents a substantial improvement over previous proposals for this project. General Plan Policy 2.10.4 specifically does not preclude an applicant from voluntarily filing an initial application for development at less than the lowest allowed density. The lower density provides a buffer for the environmentally sensitive riparian area adjacent to the proposed development that is also supportive of General Plan policies that promote protection of natural resources. Therefore, the proposed project is consistent with the goals of the General Plan.

The objective of the Urban Open Space designation is to preserve areas, which are not suited to development due to the presence of natural resources or physical development hazards. In the case of the proposed development, the "O-U" designation is intended to preserve the riparian corridor and buffer adjacent to Rodeo Creek and to locate development away from slopes in excess of 30 percent, which occur within the riparian corridor, and away from native grass preservation areas. All proposed building envelopes are located outside the riparian corridor and buffer, and no disturbance of that area is proposed, with the exception of minor excavation to install two drainage outlets into the riparian corridor, which also serves as the drainage facility for the area. This work requires approval of a Riparian Exception.

The project is in the "RM-3" Zone District (Multi-Family residential; minimum of 3,000 square feet of net developable land area per dwelling unit). The proposed division of land complies with the zoning ordinance as the property is intended for residential use. The height, setbacks, lot coverage and floor area ratio will be consistent with the minimum zoning ordinance requirements. Although the average

lot size proposed would be larger that the required 3,500 – 4,000 square feet of net developable area, density is determined by the General Plan designation, not by the zoning. The project is also consistent with County Code Section 17.10.030, Inclusionary Housing Requirements for Residential Projects, in that 15 percent of the project or four units are designated to be constructed and sold as affordable under Chapter 17.10 of the County Code.

All of the proposed new dwellings meet development standards for the "RM-3" zone district. Each home meets the required setbacks of 15 feet from the front parcel boundary, 20 feet to the garage, 15 feet from the rear parcel boundary and 5 feet from the side parcel boundaries. The proposed dwellings cover less than 40 percent of the total developable area, and the proposed floor area ratio is less than 50 percent. The site plan and proposed architectural plans are included in Attachment 1 by Thatcher & Thompson, Architects.

Design Review Issues

Because the project is a land division located inside the Urban Services Line, it is subject to the provisions of County Code Chapter 13.11; Site, Architectural and Landscape Design Review. A primary purpose of the Design Review ordinance, as defined by General Plan Objective **8.1,** is to achieve functional high quality development through design review policies that recognize the diverse characteristics of the area, maintain design creativity, and preserve and enhance the visual fabric of the community. Because the proposed project is an urban infill development, the applicant has submitted a perspective drawing and architectural floor plans and elevations (Attachment 1, Sheet A1 1).

The applicant proposes to construct (26) detached homes on one common parcel.. Each homeowner would have a private open space easement, a minimum of 3,000 square feet, surrounding each residence consistent with County Code Section 13.10.323(f). The front yard and common area landscaping would be maintained by the Home Owners Association. Residents would be free to landscape the fenced "rear yard" to their personal preference.

Architectural floor plans and elevations for the proposed homes are included in Attachment 1. The site and landscape plan and a perspective drawing is included in Attachment 1. Homes are proposed to be two-story with a variety of siding and accent treatments. Proposed materials include stucco, horizontal wood siding, and wood shingles. Roofing materials are proposed to be composition shingle of a neutral color. The size of the proposed homes ranges from 1,360 square feet to 1,665 square feet (exclusive of garages). All plans include design features such as porches and varied roof-lines for additional visual interest. Color combinations are interspersed throughout the development. The proposed project is consistent with Section 13.11.073 of the County Code as it relates to the compatibility of the design of the homes with the adjacent area.

The proposed development is consistent with Section **13.1**1.072 of the County Code as it relates to site design, as the site plan relates to the topography and natural site amenities. The revised proposal reduces the amount of grading proposed to not more than 5,628 cubic yards of cut and fill, balanced on the site1. Textured surface retaining walls from four to seven feet in height complement the

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I The applicant has not submitted revised grading calculations based upon elimination of the two additional units. However, assuming the average volume of earthwork per lot to be 216 cubic yards as estimated in the January 22nd submittal, the mount of grading could reduced further from 6060 cubic yards to 5,628.

proposed home design and usable open space. The proposed homes would be located on the most level portion of the site, and the housing type is consistent with the adjacent single-family development.

The proposed development is consistent with Section 13.11.075 of the County Code, relating to landscaping. Street trees are proposed that meet the requirements of the County Urban Forestry Master Plan. The Landscape Plans specify a mix of 15-gallon size street trees, including Flowering Plum, Golden rain Tree, Brisbane Box, and Strawberry Tree. Landscape Plans also includes a variety of shrubs and groundcover throughout the development, and a densely planted vegetative privacy screen along the western boundary of the southern parcel comprised of Strawberry Trees and tall-growing shrubs. Native coast live oaks and redwoods are planted at the southern extremity of the proposed development to mitigate project visibility from the scenic corridor of Highway One.

Roadway and Roadside Improvement Issues

Project frontage exists along Atherton Drive and Cabrillo College Drive, public roads. Proposed driveway access to the 7 homes of Phase I would be directly off Atherton Drive. Bowers Court would be accessed from Cabrillo College Drive by way of an easement over APN 037-241-39, 2505 Cabrillo College Drive, which is owned by the Imperial Star. Although negotiations are in progress, the owner of this parcel has not yet granted an easement for the proposed road. Board Minute Order dated June 5, 2001 directed the developer to show that efforts have been made to obtain an easement to provide access to Bowers Court for the 19 detached units that would use this access point.

Bowers Court is proposed as a 40-foot wide right-of-way with separated sidewalk (with 3.5 foot planting strip) on both sides for most lengths of the proposed roadway and a 24-foot paved roadway. The western side of the 12-foot turf block emergency access road provides a vegetative screen between the road and existing residential development. A right-of-way less than 56 feet in width requires a roadway exception.

The applicant submitted comparative cross-sections which show the full roadwayhoadside cross-section required by County Design Standards, and the roadwayhoadside cross-section as proposed; and a letter from the project landscape architect demonstrating that the proposed, reduced width landscape strip will support the plantings specified.

Given that County Code Section 15.10.050(f)(4) allows for exceptions to roadway and roadside improvements when the improvements would be located in an environmentally sensitive area as shown on file with the Planning Department, and because construction of full improvements would cause impacts which could not be mitigated on the lands surrounding the open space area, the exception request is in conformance with County policies.

Alternative Access Issues

To date, the applicant has not established that the alternative access from the project site to Cabrillo College Drive has been acquired. The proposed road over APN 037-241-39 would serve a total of nineteen single-family dwellings.

To date, the applicant has not demonstrated that an easement has been obtained from the owner of APN 037-241-39. Pursuant to Section 1240.030 of the Code of Civil Procedure the power of eminent domain may be exercised if findings are made that the public interest and necessity require the project, the project is planned or located in a manner that will be most compatible with the greatest public good and the least private injury, and the property to be acquired is necessary for the project.

At this time, it is difficult to determine whether eminent domain requirements could be satisfied for the proposed project.

Affordable Housing Issues

The proposed project would construct 26 homes on 2.965 acres of developable area, deducting land for roads and open spacelriparian areas, for a residential density of one unit per approximately 4,100 square feet. This project is proposed on one of two adjacent parcels with designation for a density of up to 17.4units per acre, and where a project of at least ***85*** units could be constructed. This site is one of the few remaining undeveloped Urban High density parcels in the county. The Board of Supervisors is currently considering a number of actions in response to related to the current affordable housing crisis, including the severe shortage of affordable units in the County and the high rents and sales prices of market-rate units.

The applicant identified the required four inclusionary units, however, they have also asked to have the projects' inclusionary housing requirement shifted to Parcel B. We believe the proposal is premature. Every effort should be made to ensure that the current development proposal does not preclude fbture utilization of Parcel **A** to its highest potential for the creation of affordable housing.

Environmental Review

The revised project with reduced grading and lower density was reviewed by the Environmental Coordinator on September 10, 2001. **A** Mitigated Negative Declaration was issued on October 31, 2001. Required mitigation measures include: installation of protective fencing adjacent to riparian and native grass areas; pre-construction biologic studies to determine the presence of Loggerhead shrike, Yellow warbler or raptor bird nests; installation of drainage improvements to be monitored by the project biologist to protect riparian areas; temporary fencing to be installed to protect riparian and native grass areas; erosion control plans are to be implemented; drainage discharges shall not contaminate natural water courses; a mowing plan for the native grasses shall be implemented; the project acoustic consultant shall verify that noise levels for units 21 & 22 (closest to Highway One) comply with General Plan limits; sight-distance improvements at Cabrillo College and Willowbrook Drives and at Atherton and Soquel Drives shall be implemented, stop signs shall be installed at Cabrillo College Drive/Bowers Court; and Transportation Improvement Area fees are to be levied for the project. No comments were received from the regional or state clearinghouses on the Initial Study.

Major Environmental Issues

Major environmental issues related to this project include biotic resources, noise and traffic.

Biotic Resources:

Focused biotic studies were conducted on the subject properties. No special status plant species are present on site. Three types of birds of special concern, Loggerhead shrike, Yellow warbler, and various species of raptors, may be present on site. Pre-construction surveys are required to determine if any nests of these birds are present, and additional mitigation measures apply if nesting are found.

Additionally, approximately 8.25 acres of the 14.917 acre property adjacent to the project site would be maintained as open space. This area includes coast live oak woodland, willow riparian woodland, coyote brush scrub, non-native and native grasslands, eucalyptus, Monterey Pine, and seasonal wetland habitats. Measures to protect these habitats include: measures to minimize disturbance of the riparian buffer and corridor during installation of the drainage infrastructure and site grading; **3:**1 tree replacement for three, mature trees to be removed; maintenance and enhancement of native grassland area; and pre-treatment of drainage to be received by Porter Gulch.

Noise:

The project site is located within the noise corridors of Soquel Drive to the north and Highway 1 to the south. The County General Plan Noise Element requires all new residential development to conform to a noise exposure standard of 60 dB Ldn (day/night average noise level) for outdoor noise and 45 dB Ldn for indoor noise. Acoustical measurements taken on site found elevated outdoor noise levels for the southerly-most parcels nearest Highway 1. The project acoustical engineer recommended enclosed "outdoor" living spaces for these parcels. The project architect has added glazed greenhouse spaces on the rear of the impacted parcels. Interior noise level standards can be met by using industry-standard building materials.

Traffic:

Focused traffic studies were conducted for the proposed project. The traffic impact of the 26 homes is estimated to be no more than 280 vehicle trips per day. The County threshold for acceptable level of service is LOS D, with LOS A representing free-flow conditions and LOS F representing forced flow conditions. The results of the traffic study indicate that all intersections will operate at a level of service of LOS D or better after the project is developed.

Traffic-related mitigation for this project includes the payment of earmarked TIA fees at the rate of $4,000.00 per unit to be used to fund construction of intersection improvements. Additional required off-site traffic improvements include lengthening the sight distance at the southwest corner of Atherton Drive and Soquel Drive, and at the north side of Cabrillo College Drive at Willowbrook Lane, and construction of a bus stop on Soquel Drive at the Sesnon House.

Grading:

Grading plans and volumes were submitted for the proposed project. Although the environmental effects of the proposed grading could be adequately mitigated, environmental review does not address a project's consistency with General Plan policies, other than to require mitigation of impacts. No

more than 5,628 cubic yards of cut and fill, balanced on the site are proposed.

Public Correspondence:

Staff received a large volume of public correspondence in opposition to the initial project from surrounding neighbors on the initial project reviewed by the Board on May **8,** 2001.

Conclusion

Required findings can be made to approve this application. The project is consistent with the General Plan in that the project complies with the recommended density of 3,500 square feet to 4,000 square feet of net developable parcel area for the creation of new lots. The proposed approximately 4,100 square feet per unit project density maximizes housing opportunities on the site while minizing adverse impact on adjacent environmentally sensitive habitat . The revised project is also consistent with General Plan policy 6.3.9, which requires projects to be designed so as to minimize grading. Grading has been reduced to at least 5,628 cubic yards of cut and fill, balanced on the site. The proposed access road, Bowers Court, connecting to Cabrillo College Drive must be acquired by the developer. The appropriateness of utilizing eminent domain for acquisition of land for the alternative access is not known at this time.

Please see Attachment 2 (Findings) for a complete listing of findings and evidence related to the above discussion.

RECOMMENDATION

1. Consider Application #98-0148 for a 26 unit development on the southern parcel (identified as Parcel B on the February 20, 2002 site plan submittal) and the associated findings and conditions (Attachment 2); and
2. Consider certifying the Mitigated Negative Declaration in connection with the approval.

ATTACHMENTS

1. Project Plans:
   Architectural Plans prepared by Thatcher & Thompson, Sheets A1-A-2, dated 8/14/01; Sheets A3-A11 dated 6/20/01; Bowers Court Extension & Parking Plan Sheet A-12 dated 11/5/01;
   Landscape Plans, prepared by Gregory Lewis, Sheets L 1-L2 dated 8/14/01;
   Tentative Map and Preliminary Improvement plans prepared by Ifland Engineers, Sheets 1-8 dated 8/15/01
   Lot Line Adjustment, Ifland Engineers dated 8/15/01

(Originals on file with the Planning Department)

2. Planning Department Staff Report of February 26,2002
3. Board Minute Order, Item No. 055, dated January 8,2002.
4. Letter of Charlene Atack re-deed restrictions, dated 2/05/02
5. Revised density calculations by Ifland Engineers dated 2/06/02
6. Public Works Traffic Engineering memo dated 2/05/02
7. Letter of John D. Hurd, President, Cabrillo College dated 1/29/02
8. General Plan and Zoning Maps
9. Planning Department Staff Report of January 8,2002 with Attachments on file with the Planning Department.
10. Letter From Charlene Atack to Board of Supervisors, dated February 20,2002 with attached conditions and exhibits.
11. Public Correspondence

SUPPLEMENTARY REPORTS AND INFORMATION REFERRED TO IN THIS REPORT ARE ON FILE AND AVAILABLE FOR VIEWING AT THE SANTA CRUZ COUNTY PLANNING DEPARTMENT, AND ARE HEREBY MADE A PART OF THE ADMINISTRATIVE RECORD FOR THE PROPOSED PROJECT.

SUBDMSION FINDINGS

1. THAT THE PROPOSED SUBDIVISION MEETS ALL REQUIREMENTS OR CONDITIONS OF THE SUBDIVISION ORDINANCE AND THE STATE SUBDIVISION MAP ACT.

   The proposed division of land meets all requirements and conditions of the County Subdivision Ordinance and the State Map Act in that the project meets all of the technical requirements of the Subdivision Ordinance.

2. THAT THE PROPOSED SUBDIVISION, ITS DESIGN, AND ITS IMPROVEMENTS, ARE CONSISTENT WITH THE GENERAL PLAN, AND THE AREA GENERAL PLAN OR SPECIFIC PLAN, IF *ANY*.

   The proposed subdivision is consistent with the General Plan policy regarding infill development in that the proposed architectural style and density of the proposed development area is consistent with the adjacent single-family development of the Imperial Star, while the riparian area is left in a protected status consistent with the Urban Open Space General Plan designation. The subdivision is not in a hazardous area, the preservation of open space protects the most environmentally sensitive portions of the property, and the project is sited in an area designated for this type of development, although not the proposed density of development.

   The proposed division of land, its design, and its improvements, is consistent with the General Plan. The proposed density of approximately 4,100 square feet per net developable parcel area per unit is in substantial compliance with the minimum General Plan density range designation for the location. The proposed density level, although slightly below the General Plan density goal, will minimize impact on the adjacent sensitive riparian habitat. The project creates twenty-six homes and is located in the Residential, Urban High Density (R-UH) and Urban Open Space (0-U) General Plan designations, which allows a density of one dwelling for each 2,500 to 4,000 square feet of net developable parcel area. The proposed project density is approximately 4,100 square feet per net developable parcel area. General Plan Policy 2.10.4 allows the developer to voluntarily file an initial application for development at less than the lower limit of the density range, but does not require that the decision making body approve the lower density. Development within the R-UH density range of 2,500-4,000 square feet is limited by environmental constraints associated with the parcel including sensitive grasslands, riparian areas, slopes more than 30 percent, freeway noise impacts, and

scenic corridor protection standards. Up to **85** units could be constructed on the entire project site given the net developable land available and using the minimum threshold density specified by the General Plan. The project would be consistent with existing patterns of some development in the project vicinity such as Willowbrook Village condominiums, and would increase opportunities for affordable housing on a large, existing multi-family zoned property.

The project is consistent with the General Plan in that the full range of urban services is available and will be extended to the new parcels created, including municipal water and sewer service. The subdivision is on an existing street, which can potentially provide satisfactory access to the project once access to Cabrillo Drive over APN 037-241-39 has been obtained for the 19 southern lots. However, APN 037-241-39 is currently under separate ownership. The applicant has not , as yet, demonstrated the ability to acquire an appropriate easement for proposed access to Bowman Court. *Also,* acquisition of sufficient acreage to accommodate access improvements for the project via the County's use of Eminent Domain has not been evaluated for feasibility. **A** separate process pursuant to Section 1240.030 of the Code of Civil Procedure exists for determining feasibility.

The proposed subdivision is similar to the pattern and density of some surrounding development, is near commercial shopping facilities and recreational opportunities, and, with proposed road improvements, will have adequate and safe vehicular access. The revised project is now consistent with General Plan grading policies in that grading has been significantly reduced from the original project submittal of 10,000 cubic yards to no more than 5,628 cubic yards, including a reduction in the access roads required.

Retention of 8.25 acres of open space is on the adjacent Parcel **A** is consistent with the Urban Open Space designation of the General Plan. General Plan policy 5.11 aims to preserve in open space those uses that are not suited to development due to the presence of natural resource values, i.e. the riparian corridors and buffer areas.

3. THAT THE PROPOSED SUBDIVISION COMPLIES WITH ZONING ORDINANCE PROVISIONS **AS** TO USES OF LAND, LOT SIZES AND DIMENSIONS AND ANY OTHER APPLICABLE REGULATIONS.

The proposed division of land complies with the zoning ordinance provisions as to uses of land, lot sizes and dimensions and other applicable regulations in that the use of the property will be residential in nature, lot sizes meet the minimum dimensional standards for the "RM-3" Zone District where the project is located, and all setbacks will be consistent with the zoning standards. The proposed new dwellings will comply with the development standards in the zoning ordinance as they relate to setbacks, maximum parcel coverage, minimum site width

and minimum site frontage. Density is determined by the General Plan and not by the zoning classification.

4. THAT THE SITE OF THE PROPOSED SUBDIVISION IS PHYSICALLY SUITABLE FOR THE TYPE AND DENSITY OF DEVELOPMENT.

The site of the proposed subdivision is physically suitable for the type of development in that no challenging topography affects the portion of the site to be developed adjacent to Atherton Drive, and subsequent to the proposed lot line adjustment, the majority of the parcel shall remain in open space in perpetuity consistent with the Urban Open Space General Plan designation. The development area is adequately shaped to ensure efficiency in the conventional development of the property, and the proposed site plan offers an arrangement and shape that insures development without the need for variances or site standard exceptions. No environmental constraints exist which would necessitate that the area remain completely undeveloped, although 8.25 acres of the adjacent 14.917 acre Parcel **A** must remain as open space due to environmental constraints such as slope, native grasslands, riparian areas, and the scenic corridor.

5. THAT THE DESIGN OF THE PROPOSED SUBDIVISION OR TYPE OF IMPROVEMENTS WILL NOT CAUSE SUBSTANTIAL ENVIRONMENTAL DAMAGE NOR SUBSTANTIALLY AND AVOIDABLY INJURE FISH OR WILDLIFE OR THEIR HABITAT.

The design of the proposed division of land and its improvements will not cause environmental damage nor substantially and avoidably injure fish or wildlife or their habitat. No mapped or observed sensitive habitat or threatened species impede development of the site as proposed.

The project received a mitigated Negative Declaration on April 13, 2000, and a second revised mitigated Negative Declaration on October 31, 2001 pursuant to the California Environmental Quality Act and the County Environmental Review Guidelines (Initial Studies on file with the Planning Department).

6. THAT THE PROPOSED SUBDIVISION OR TYPE OF IMPROVEMENTS WILL NOT CAUSE SERIOUS PUBLIC HEALTH PROBLEMS.

The proposed division of land or its improvements will not cause serious public health problems in that municipal water and sewer are available to serve all proposed parcels, and these services will be extended as part of the improvement plan for the subdivision. Noise

impacts associated with traffic volumes along adjacent Highway One are required to be mitigated for Lots 21 and 22 by a combination of design elements in the building shells. Impacts associated with increases in traffic volume in the neighborhood, estimated at an additional 280 trips per day, are to be mitigated with off-site improvements and the payment of Transportation Improvement Area fees.

7. THAT THE DESIGN OF THE PROPOSED SUBDIVISION OR TYPE OF IMPROVEMENTS WILL NOT CONFLICT WITH EASEMENTS, ACQUIRED BY THE PUBLIC AT LARGE, FOR ACCESS THROUGH, OR USE OF PROPERTY WITHIN THE PROPOSED SUBDIVISION.

The design of the proposed division of land and its improvements will not conflict with public easements for access in that no easements are known to encumber the property. Access to all lots will be from existing public roads or from the proposed new private road, Bowers Court. Access to Bowers Court is proposed as an easement over APN 037-241-39 at *2505* Cabrillo College Drive. The Subdivision Map Act in Government Code Section 66462.5 expressly authorizes a County to condition a subdivision on the provision of off-site improvements, including, if necessary, all costs involved in an eminent domain action. The County Code expressly provides for such off-site improvement agreements for subdivisions in Section 14.01.513 and for other development projects in Section 18.10.240(d). The authority of a jurisdiction to use eminent domain is limited by the provisions of the Code of Civil Procedure, Section 1240.010 – *050*. Secondary access from Bower Court to Atherton Drive is provided by the proposed project.

8. THE DESIGN OF THE PROPOSED SUBDIVISION PROVIDES, TO THE EXTENT FEASIBLE, FOR FUTURE PASSIVE OR NATURAL HEATING OR COOLING OPPORTUNITIES.

The design of the proposed division of land provides to the fullest extent possible, the ability to use passive and natural heating and cooling in that the resulting parcels are oriented in a manner to take advantage of solar opportunities. All proposed residences are conventionally configured and meet the minimum setbacks as required by the zone district for the property and County code.

9. THE PROPOSED DEVELOPMENT PROJECT IS CONSISTENT WITH THE DESIGN STANDARDS AND GUIDELINES (SECTIONS 13.11.070 THROUGH 13.11.076) AND ANY OTHER APPLICABLE REQUIREMENTS OF THIS CHAPTER.

The proposed development is consistent with the Design Standards and Guidelines of the

County Code. The proposed development density, although complying with the standards for the "RM-3" zone district, does not meet the minimum General Plan density threshold for the Urban High Density Residential (R-UH) land use designation. The reduced density may be justified, however, since it will minimize adverse impact on the adjacent sensitive riparian habitat area and preserve open space. The project is also consistent with some adjacent siigle-family residential development .

Homes are proposed to be two-story with a variety of siding and accent treatments. Proposed materials include stucco, horizontal wood siding, and wood shingles. Roofing materials are proposed to be composition shingle and shall be a neutral color. The proposed paint palette is earth tones for the wall, trim and accent colors. The size of the proposed homes ranges from 1,330 square feet to 1,665 square feet (exclusive of the garage). All plans include design features such as porches and varied roof -lines for additional visual interest.

The proposed project has been designed to complement and harmonize with some of the existing and proposed land uses in the vicinity. The adjacent neighborhood is a mixed-use area with both detached single-family residences and high-density condominiums. It will be compatible with the physical design aspects, land use intensities, and dwelling unit densities of the single-family residences in the neighborhood.

The proposed development is consistent with Section 13.11.072 of the County Code as it relates to site design. The current proposal reduces the amount of grading relative to the previous proposal which was 10,000 cubic yards, no more than *5,628* cubic yards by reducing the number of houses from 58 to 26 houses and by eliminating Bowman Court, a private road, The current proposal would still result in a need for retaining walls from four to seven feet in height to accommodate the proposed home design and usable open space. The proposed homes would be located on the most level portion of the site so that the housing type would result in the appearance of a more conventional single-family development, The new development preserves the integrity of existing land use patterns of the immediately adjacent single-family residential development of the Imperial Courts subdivision, while preserving the open space amenity of the riparian corridor of Porter Gulch, consistent with General Plan policy 5.2.

Street trees are proposed that meet the requirements of the County Urban Forestry Master Plan. The Landscape Plans specify a mix of 15-gallon size street trees, including Flowering Plum, Golden Rain Tree, Brisbane **Box,** and Strawberry Tree. Native coast live oaks and redwoods shall be planted along the southernmost extremity of development to mitigate visual impacts from the Highway One scenic corridor. The Landscape Plans also includes a variety of shrubs and groundcover throughout the development, and a densely planted vegetative

privacy screen along the western boundary of the southern parcel comprised of Strawberry Trees and tall-growing shrubs.

ROADWAY/ROADSIDE EXCEPTION FINDINGS
Section 15.10.050(f) Santa Cruz County Code

1. IMPROVEMENTS ARE NOT APPROPRIATE BECAUSE THE REQUIRED IMPROVEMENTS WOULD ENCROACH ON PRIVATE PROPERTY IN WHICH THE COUNTY WOULD NOT HAVE AN INTEREST SUFFICIENT TO ALLOW THE IMPROVEMENT TO BE CONSTRUCTED OR INSTALLED (COUNTY CODE SECTIONS 15.10.050(f)5.

Bowers Court is proposed as a 40-foot wide right-of-way with separated sidewalk on both sides for most lengths of the proposed roadway and a 24-foot paved roadway. There shall be a vegetative screen between the proposed and existing residential development along the emergency access road between the Bowers Court cul-de-sac and Atherton Drive. A right-of-way less than 56 feet in width requires a roadway exception. Additionally, elimination of a segment of separated sidewalk and a landscaping strip less than 4 feet in width requires a roadside exception. The applicant submitted comparative cross-sections which show the full roadwayhoadside cross-section required by County Design Standards, and the roadwayhoadside cross-section as proposed; and a letter from the project landscape architect demonstrating that the proposed, reduced width landscape strip will support the plantings specified.

Bowers Court is proposed to gain access to Cabrillo Drive by means of access across APN 037-241-39. The Subdivision Map Act in Government Code Section 66462.5 expressly authorizes a County to condition a subdivision on the provision of off-site improvements, including, if necessary, all costs involved in an eminent domain action. The County Code expressly provides for such off-site improvement agreements for subdivisions in Section 14.01.513 and for other development projects in Section 18.10.240(d). The County has previously utilized such agreements for the acquisition of right-of-ways for development projects.

County Code Section 15.10.050(f)(4) allows for an exception to roadway and roadside improvement standards when the improvements would be located in an environmentally sensitive area as shown by information on file with the Planning Department, where construction of full improvements would cause impacts which could not be satisfactorily

mitigated if the project is developed to a density which approaches the zoning of "RM-3" on the lands outside of the open space area.

An emergency access road is proposed as a 12-foot wide turfblock right-of-way which would connect Bowers Court with Atherton Drive (see Attachment A, Ifland Sheet 4 of 8). The west side of this emergency access will be landscaped to provide a visual screen for the existing residential development. Removable bollards would be placed at both ends of the emergency access.

To date, the applicant has not provided evidence that an easement has been obtained fiom the owner of adjacent parcel No. 037-241-39, for the proposed road that would connect Bowers Court with Cabrillo College Drive. Although the County does have authority to acquire, through eminent domain, land for road construction, there are certain requirements for exercise of that authority. Pursuant to Section 1240.030 of the Code of Civil Procedure (Attachment 12) the power of eminent domain may be exercised only if the public interest and necessity require the project, the project is planned or located in a manner that will be most compatible with the greatest public good and the least private injury, and the property to be acquired is necessary for the project.

It cannot be determined at present if the above requirements could be satisfied for the proposed project. The proposed road easement, for which eminent domain may be required, would serve a total of nineteen single-family dwellings.

RIPARIAN EXCEPTION FINDINGS (County Code Section 16.30.060(d)

1. THAT THERE ARE SPECIAL CIRCUMSTANCES OR CONDITIONS AFFECTING THE PROPERTY.

The special circumstance that affects this property is the location of the adjacent riparian corridor which serves as the drainage collector for this area. The only development and disturbance proposed within the riparian corridor and biotic reserve is the installation and maintenance of a drainage system.

2. THAT THE EXCEPTION IS NECESSARY FOR THE PROPER DESIGN AND FUNCTION OF SOME PERMITTED OR EXISTING ACTIVITY ON THE PROPERTY.

This exception is necessary for the proper design and function of the drainage system.

3. THAT THE GRANTING OF THE EXCEPTION WILL NOT BE DETRIMENTAL TO THE PUBLIC WELFARE OR INJURIOUS TO OTHER PROPERTY DOWNSTREAM OR IN THE AREA IN WHICH THE PROJECT IS LOCATED.

Granting this exception will not be detrimental to the public welfare or injurious to downstream properties as all drainage from the project will be diverted to the natural course utilized in the area, thereby directing run-off away from neighboring properties.

4. THAT THE GRANTING OF THE EXCEPTION IS IN ACCORDANCE WITH THE PURPOSE OF CHAPTER 16.30 OF THE COUNTY CODE, AND WITH THE OBJECTIVES OF THE GENERAL PLAN AND ELEMENTS THEREOF.

The granting of this exception is in accordance with the purpose of Chapter 16.30, to minimize impacts to the riparian corridor as placement of the storm drain within the riparian corridor and buffer has been sited avoid significant riparian vegetation. In addition, the exception is consistent with Chapter 16.30, in that a purpose of the Riparian Corridor Protection Ordinance is to protect these areas for the transportation and storage of floodwaters.

LOT LINE ADJUSTMENT FINDINGS (County Code Section 14.01.107.4(c))

1. THE LOT LINE ADJUSTMENT WILL NOT RESULT IN A GREATER NUMBER OF PARCELS THAN ORIGINALLY EXISTED.

The proposed lot line adjustment will occur between two existing parcels, APN's 037-251-21 and -22, both vacant parcels. The proposed transfer will not result in the creation of an additional parcel or an additional building site.

2. THE LOT LINE ADJUSTMENT CONFORMS WITH THE COUNTY ZONING ORDINANCE (INCLUDING, WITHOUT LIMITATION, COUNTY CODE SECTION 13.10.673) AND THE COUNTY BUILDING ORDINANCE (INCLUDING, WITHOUT LIMITATION, COUNTY CODE SECTION 12.01.070).

In accordance with County Code Sections 13.10.300 and 13.10.320, the proposed lot line adjustment is consistent with the Single-family Residential (RM-3) zoning designation which requires a minimum 3,000 square foot parcel size required by the zone district. The lot line

adjustment transfers approximately 6.481 acres of land from APN 037-251-22 to APN 037-251-21, resulting in two parcels of 14.917 acres (APN 037-251-21) and 2.965 acres (APN 037-251-22). The proposed project for 26 dwelling units is consistent with the county zoning ordinance in that the 2.965 acre site will be developed at an average approximately 4,100 square feet per parcel per unit, which exceeds the minimum 3,000 square foot parcel size. No development has been proposed for the 14.917 acre Parcel A (APN 037-251-21) at this time.

3. NO AFFECTED PARCEL MAY BE REDUCED OR FURTHER REDUCED BELOW THE MINIMUM PARCEL SIZE REQUIRED BY THE ZONING DESIGNATION, ABSENT THE GRANT OF A VARIANCE PURSUANT TO COUNTY CODE SECTION 13.10.230.

County Code Section 13.10.323 requires minimum developable lot size in the RM-3 zone district to be 3,000 square feet. The transfer of 6.481 acres of land from APN 037-251-22 reduces that parcel from 9.446 acres to 2.965 acres and increases APN 037-251-21 from 8.436 acres to 14.917 acres, leaving both parcels above the minimum 3,000 square feet per dwelling unit required by the RM-3 zone district. The proposed 26-unit subdivision on APN 037-251-22 is consistent with the minimum parcel size in that the net developable parcel size is approximately 4,100 square feet per parcel per dwelling unit. No development has been proposed for APN 037-251-21.

CONDITIONS OF APPROVAL

Subdivision, Roadway/Roadside Exceptions & Riparian Exception No.: 98-0148

Tract No. 1409, Atherton Place Subdivision

Applicant: Richard Beale Land Use Planning

Property Owners: Atherton Place Development LLC

Assessor's Parcel No.: 037-251-21 & -22

Property Location: On the north side of Cabrillo Drive and the south side of Soquel Drive, just east of Atheron Drive.

Planning Area: Soquel

Exhibits:

A. Project Plans:

Architectural Plans prepared by Thatcher & Thompson, Sheets AO-A11, dated 1-18-02;
Tentative Map and Preliminary Improvement plans prepared by Ifland Engineers, Sheet sl -8 dated 01/16/02; Sight Distance Study Sheet SD-1 dated 1/16/02;
Lot Line Adjustment by Ifland Engineers, Sheet 1 dated 1/15/02;
Landscape Plans, prepared by Gregory Lewis, Sheets L1-L2 dated 1/23/02.

All correspondence and maps relating to this land division shall carry the land division number and tract number noted above.

PROJECT ENTITLEMENTS. This Permit authorizes the construction of 26 detached townhomes in two phases, construction of a new private street "Bowers Court", two parking areas, drainage systems and retaining walls; a preliminary grading approval for no more than 5,628 cubic yards of cut and fill balanced on site; and a lot line adjustment transferring 6.481 acres resulting in APN 037-251-21 becoming 14.917 acres and 037-251-22 becoming 2.965 acres.

I. Prior to exercising any rights granted by this Approval:

a) The owner shall sign, date and return one copy of the Approval to indicate acceptance and agreement with the conditions thereof.
b) The Lot Line adjustment shall be recorded. File deed(s) of conveyance with the County Recorder. Parcels/portions of parcels to be combined must be in identical ownership. The deed(s) of conveyance for the lot line adjustment must contain the following statement after the property description:

The purpose of the deed is to combine the above-described portion of Assessors Parcel Number 037-251-21 with Assessors Parcel Number 037-251-22, as approved by the County of Santa Cruz **(14** days after permit approval date) under Application #98-0148. This Conveyance may not create a separate parcel, and is null and void unless the property is combined as stated.

II. A Final Map for this land division must be recorded prior to the expiration date of the tentative map and prior to sale, lease or financing of any new lots. The Final Map shall be submitted to the County Surveyor (Department of Public Works) for review and approval prior to recordation. No improvements, including, without limitation, grading and vegetation removal, shall be done prior to recording the Final Map unless such improvements are allowable on the parcel as a whole (prior to approval of the land division). The Final Map shall meet the following requirements:

A, The Final Map shall be in general conformance with the approved tentative map and shall conform with the conditions contained herein. All other State and County laws relating to improvement of the property, or affecting public health and safety shall remain fully applicable.

B. This development shall result in no more than twenty-six(26) total units.

C. Net area shall be shown to the nearest square foot.

D. The following items shall be shown on the Final Map:
1. Building footprints located according to the approved Tentative Map
2. **A** minimum average net developable area of 3,000 square feet per unit .
3. The Owner's Certificate shall include:

a. ***An*** irrevocable offer of dedication to the County of Santa Cruz for the right-of-way and improvements shown on the tentative map. If this offer of dedication is accepted by the County, this road would be County maintained. Unless the right-of-way and improvements are accepted, the Homeowners' Association shall be responsible for all maintenance.

Right-of-way width for "Bowers Court" shall be a minimum of 40 feet, and the road section shall be **24** feet. The approved roadwayhoadside exception allows a right-of-way less than 56 feet, elimination of separated sidewalk along the west side of the entrance, and a landscape strip less than **4** feet in width.

b. ***An*** easement for public use of the access road ("Bowers Court") shown on the tentative map, to expire when the offer of dedication is accepted by the County.

c. ***An*** easement for drainage infrastructure of the maintenance thereof on and across the open space and areas of common drainage improvements, specifically for lots **2-7** and 1**1-2**1.

d. In order to prevent conflicts with adopted General Plan policies regarding noise, the following elements are necessary to meet County requirements for a maximum interior noise of **45** dBA Ldn and outdoor protected areas of 60 **DBA** Ldn:

1. Rear deck enclosures as shown on Exhibit "A", Sheets A3, and **A4** and as specified in General Notes, Project Acoustical Requirements ***#2.*** (CEQA G).

E. The following requirements shall be noted on the Final Map as items to be completed prior to obtaining a building permit on lots created by this land division:

1. Lots shall be connected for water service to Soquel Creek Water District.

2. Lots shall be connected for sewer service to Santa Cruz County Sanitation District.

3. All future construction of the lots shall conform to the Architectural Floor Plans and Elevations, and the Site Analysis as stated or depicted in Exhibit "A" and shall also meet the following additional conditions:

1. No changes in the placement of windows that face directly towards existing residential development as shown on the architectural plans, shall be permitted without review and approval by the Planning Commission.

2. Exterior finishes shall incorporate wood siding, including horizontal wood siding, and/or stucco. T-1-11 type siding is not allowed. Exterior color combinations shall be interspersed throughout the development.

3. Notwithstanding the approved preliminary architectural plans, all future development shall comply with the development standards for the "RM-3" zone district. No residence shall exceed a 40% lot coverage, or a 50% floor area ratio, or other standard as may be established for the zone district. In the case of this project, because all land is held in common ownership, lot coverage and FAR are calculated as the applicable total development square footage as the numerator and the total net developable area as the denominator.

4. **A** final Landscape Plan for the entire site specifying the species, their size, and irrigation plans and meeting the following criteria:

a. Turf Limitation. Turf' area shall not exceed 25 percent of the total

landscaped area. Turf area shall be of low to moderate water-using varieties, such as tall or dwarf fescue.

b. Plant Selection. At least 80 percent of the plant materials selected for non-turf areas (equivalent to 60 percent of the total landscaped area) shall be well-suited to the climate of the region and require minimal water once established (drought tolerant). Native plants are encouraged. Up to 20 percent of the plant materials in non-turf areas (equivalent to 15 percent of the total landscaped area), need not be drought tolerant, provided they are grouped together and can be irrigated separately.

b. Soil Conditioning. In new planting areas, soil shall be tilled to a depth of 6 inches and amended with six cubic yards of organic material per 1,000 square feet to promote infiltration and water retention. After planting, a minimum of **2** inches of mulch shall be applied to all non-turf areas to retain moisture, reduce evaporation and inhibit weed growth.

c. Irrigation Management. All required landscaping shall be provided with an adequate, permanent and nearby source of water which shall be applied by an installed irrigation, or where feasible, a drip irrigation system. Irrigation systems shall be designed to avoid runoff, overspray, low head drainage, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways or structures.

The irrigation plan and an irrigation schedule for the established landscape shall be submitted with the building permit applications. The irrigation plan shall show the location, size and type of components of the irrigation system, the point of connection to the public water supply and designation of hydrozones. The irrigation schedule shall designate the timing and frequency of irrigation for each station and list the amount of water, in gallons or hundred cubic feet, recommended on a monthly and annual basis.

Appropriate irrigation equipment, including the use of pressure regulators, automated controllers, low volume sprinkler heads, drip or bubbler irrigation systems, rain shutoff devices, and other equipment

shall be used to maximize the efficiency of water applied to the landscape. Plants having similar water requirements shall be grouped together in distinct hydrozones and shall be irrigated separately.

Landscape irrigation should be scheduled between 6:00 p.m. and 11:00 a.m. to reduce evaporative water loss.

5. All planting shall conform to the landscape plan shown as part of Exhibit **A.** The following specific landscape requirements apply:

a. Street trees, including Golden Rain, Flowering Plum, Brisbane Box, Strawberry Tree and CA Live Oak shall be planted as per Exhibit **A. A** drip irrigation system shall be installed in the required landscape strip, which may be connected to the adjacent individual lot. The species, quantities and placement shall conform to Exhibit **A,** Landscape Plans, prepared by Gregory Lewis.

b. Street trees shall be installed according to provisions of the County Design Criteria.

c. Notes shall be added to the final improvement plans that indicate the manner in which existing trees, which will be retained, shall be protected during construction. Include a letter from a licensed arborist verifying that the protection measures are adequate to project the trees during construction of drainage improvements within the riparian buffer and corridor to prevent damage to the root zones of trees to be maintained.

d. To mitigate impacts from the loss of three mature trees, prior to public hearing the landscape plan shall be revised to show the placement of **(3)** fifteen gallon and (6) five gallon Coast Live Oaks (*Quercus agrifolia)* within the riparian woodland.

e. e. In order to mitigate the loss of the Chinese curly leafed willow on the proposed access road, one 24-inch box CA Live oak shall be planted in that vicinity adjacent to the road.

6. All future development on the lots shall comply with the requirements of the project geotechnical report.

7. Submit a written statement signed by an authorized representative of the school district in which the project is located confirming payment in full of all applicable developer fees and other requirements lawfully imposed by the school district in which the project is located.

8. Any changes between the approved Tentative Map, including but not limited to the attached exhibits for preliminary grading, drainage, erosion control, preliminary improvement plans, architectural and landscaping plans, must be submitted for review and approval by the decision-making body. Such proposed changes will be included in a report to the decision making body to consider if they are sufficiently material to warrant consideration at a public hearing noticed in accordance with Section 18.10.223 of the County Code. Any changes that are on the final plans that in any way do not conform to the project conditions of approval shall be specifically illustrated on a separate sheet and highlighted in yellow on any set of plans submitted to the County for review.

9. Construction of the access road onto Cabrillo College Drive.

III. Prior to recordation of the Final Map, the following requirements shall be met:

A. Pay a Negative Declaration filing fee of $1,275.00 to the Clerk of the Board of the County of Santa Cruz as required by the California Department of Fish and Game mitigation fees program.

B. Submit a letter of certification from the Tax Collector's Office that there are no outstanding tax liabilities affecting the subject parcels.

C. Meet all requirements of the Santa Cruz County Sanitation District as stated in the District's letter dated May 1, 1998, including, without limitation, the following standard conditions:

1. Submit and secure approval of an engineered sewer improvement plan providing sanitary sewer service to each parcel.

2. Pay all necessary bonding, deposits, and connection fees.

D. Submit and secure approval of engineered improvement plans from the Department of Public Works for all roads, curbs and gutters, storm drains, erosion control, and other improvements required by the Subdivision Ordinance, noted on the attached tentative map and/or specified in these conditions of approval. A subdivision agreement backed by financial securities (equal to 150% of engineer's estimate of the cost of improvements), per Sections 14.01.510 and 511 of the Subdivision Ordinance, shall be executed to guarantee completion of this work. Phase One improvements (including line of sight improvements at Soquel Drive/Atherton Place and curb, gutter and sidewalk along Soquel Drive) shall be installed prior to construction of units 1-7, and Phase **2** improvements shall be installed prior to construction of Units 10-28 (including line of sight improvements at Cabrillo College Drive and Willowbrook Lane). A Plan Line study from Cabrillo College Drive to Park Avenue is required, with TIA fee credit extended for plan line costs (Attachment 6). Improvement plans shall meet the following requirements:

1. All improvements shall meet the requirements of the County of Santa Cruz Department of Public Works Design Criteria Manual except as modified in these conditions of approval. The improvement plans shall include a bus stop and bus turn out on Soquel drive at the Sessnon House.

2. A detailed erosion and sediment control plan for the subdivision shall be integrated with the improvement plans and shall be submitted to the Planning Department, Environmental Planning Section, for review and approval prior to submittal to the Department of Public Works and approval of the Final Map. In order to prevent erosion, off site sedimentation, and pollution of creeks, the erosion control plan shall be revised to include the following items: a clearing and grading schedule that limits grading to the period of April 15 - October **15,** clearly marked disturbance envelope, revegetation specifications, silt barrier installed to protect the riparian area, temporary road surfacing and construction entry stabilization, sediment barriers around drain inlets, etc. [CEQA D]

3. A landscape plan for areas designated on the tentative map shall be submitted for Planning Department review and approval prior to submittal to the Department of Public Works. Wherever irrigation for landscaping is required, stub outs for water service shall be shown on the improvement plans. The

landscape plan shall be compared to the utility plan to prevent placement conflicts. No change in the landscape plan shall be granted without County review.

4. **A** full soils engineering investigation has been reviewed and accepted by the County Planning Department. **A** plan review letter from the geotechnical engineer shall be submitted with the plans, stating that the plans have been reviewed and found to be in compliance with the recommendations of the geotechnical report.

5. Engineered drainage plans shall be reviewed and approved by the Zone 5 drainage district. In order to offset the incremental addition of drainage to Porter Gulch the applicant shall pay drainage improvement fees to Drainage Zone 5. A plan review letter from the Geotechnical engineer accepting the final drainage plan is required and must confirm that the plan will not cause any erosion or stability problems on site or downstream from the site.

6. All new utilities shall be constructed underground. All facility relocations, upgrades or installations required for utilities service to the project shall be noted on the improvement plans. All preliminary engineering for such utility improvements is the responsibility of the developer.

7 Acquire all rights of way and easements and make all dedications thereof as needed for construction of required improvements. The owner shall reapply for approval of the land division should the owner or the County fail to acquire the necessary off-site easement for the access road onto Cabrillo College Drive. Any and all costs incurred by the County of Santa Cruz to obtain title to any property in the event that condemnation proceedings are necessary to implement this condition, shall be paid in fill by the applicant/subdivider prior to the recording of the Final Map.

8. All improvements shall comply with applicable provisions of the Americans With Disabilities Act and/or Title 24 of the State Building Regulations.

9. To prevent drainage discharges from carrying silt, grease, and other contaminants into Sesnon Pond or Porter Gulch, the silt and grease trap(s) and detention systems shown on the improvement plans shall be maintained by the Homeowners Association according to the following monitoring and maintenance schedule: [CEQA E]

a. The trap(s) shall be inspected to determine if they need cleaning or repair prior to October 15 of each year;

b. The applicant shall provide manufacturer's recommended maintenance procedures for the "Stormceptor" model to Department of Public Works staff;

c. **A** brief annual report shall be prepared by the inspector to at the conclusion of the October inspection and submitted to the Drainage Section of the Department of Public Works within **5** days of inspection. The report shall specify any repairs that have been done or that are needed for the trap to function well.

10. The following details shall be included on the final improvement plans:

a. Street lighting design and placement.

b. Roadside/Roadway Exceptions shall be permitted as described in Condition II.D.3.a.

c. **A** permanent split rail or welded wire fence placed along the boundary line of the biotic reserve, to be in place prior to final clearance of the project by the Planning Department.

d. ***An*** operational conditional note as follows: "Ground disturbance within the riparian area for the drainage pipes and dissipaters shall occur between April 15th and October 15th, erosion control and replanting shall be in place prior to October 15th, and the work shall comply with the conditions given in the riparian exception".

e. **A** note on the improvement plans indicating that there are restrictions regarding bird populations and referring to the required pre-construction survey. [CEQA A]

f. To prevent accidental incursion into the riparian buffer, riparian corridor, and areas of native grass, the improvement plans shall clearly show temporary, four foot chain link fencing placed along the boundary of the riparian buffer and a minimum of twenty feet outward

from the edge of native grass areas. Fencing shall be in place prior to the start of grading and construction activities and shall remain until subdivision improvements are completed, revegetation is in place and the improvement bond is released by the Department of Public Works. [CEQA C]

g. In order to increase traffic safety the owner/applicant shall, prior to public hearing, revise the project plans as follows: [CEQA H]

i. The entrances on "Atherton Drive" and "Bowers Court" to reflect County design criteria for driveways (no curb returns);

ii. Place stop signs at each end of "Bowers Circle"/Atherton Drive;

iii. Improve sight distance at the southwest corner of Atherton Drive and Soquel Drive and at the north side of Cabrillo College Drive at Willowbrook as shown on Ifland, Sheet SD-1, 1-16-02.

E. Engineered improvement plans for all water line extensions required by the Soquel Creek Water District shall be submitted for the review and approval of the water agency.

F. **A** Homeowners Association **(HOA)** shall be formed to administer the Covenants, Conditions, and restrictions (CC&Rs) for this subdivision and assume responsibility for maintenance of all areas under common ownership including streets and emergency access roads. A final copy of the CC&Rs containing all revisions required by the California Department of Real Estate shall be provided to the Planning Department for review and approval prior to recordation. The CC&Rs shall include the following project-specific requirements:

1. To minimize erosion problems on the biotic reserve, pedestrian and pet access shall be prohibited.

2. The exterior elevations contained in Exhibit "A" shall be incorporated onto the CC&Rs.

3. All requirements of the Conditions of this permit shall be included in the CC&Rs.

4. All common area landscaping, landscaping within the separated sidewalk, and associated irrigation required by these conditions of approval shall be maintained by the HOA.

5. All fencing within the subdivision shall remain graffiti-free at all times.

6. The silt and grease trap associated with the storm drain system shall be maintained by the HOA as specified by condition of approval III(D)(10).

7. In order to preserve native grass areas and encourage the spread of native grasses into grasslands dominated by non natives, the HOA shall: [CEQA F]

   a. Adhere to the maintenance and mowing plan, prepared by the project biologist, that includes spring and fall mowing schedule, and also includes an estimate of the cost of implementing the plan;

   b. Provide language in the HOA Agreement that specifies how the maintenance and mowing plan will be funded and implemented by the Association.

G. All requirements of the Central Fire District shall be met as set forth in the District's letter dated March 24, 1998.

H. Park dedication in-lieu fees shall be paid for twenty-six (26) new single-family dwelling units. On February 26,2002 these fees were $800.00 per bedroom, but are subject to change. Park fees are waived for the four affordable units.

J. Transportation improvement fees shall be paid for twenty-six ***(26)*** new single-family dwelling units. On February 26,2002 these fees were $2,000 per unit, but are subject to change. (CEQA **I)**

K. Roadside improvement fees shall be paid for twenty-six (26) new dwelling units. On February 26, 2002, these fees were $2,000 per unit, but are subject to change.

L. Child Care Development fees shall be paid for twenty-six (26) new single-family dwelling units. On February 26, 2002 these fees were $109 per bedroom, but are

subject to change.

M. Enter into a Certification and Participation Agreement with the County of Santa Cruz to meet the Affordable Housing Requirements specified by Chapter 17.10 of the County Code. Four units (Units **2,** 13, ***22*** and **28)** are shown on the tentative map as the designated affordable units. These units will be the designated affordable units and they shall be constructed within the project site unless the Board of Supervisors exercises its discretion and approves the use of an alternative authorized under Section 17.10.030(c) of the Santa Cruz County Code.

N. Owner shall record a Declaration of Restrictions and provide Planning Staff with proof of recordation, that the newly adjusted vacant parcel which is not part of the proposed subdivision, is transferred to a third party with the following deed restriction:

All future development proposals for this parcel shall be at a density that is no less than the lowest end of that density range set by the Urban High Residential designation of the 1994 General Plan/Local Coastal Program Land Use Plan, unless the land use designation for the parcel is revised by amendment of the General Plan/Local Coastal Program Use Plan. This restriction shall be binding upon all purchasers, and each and every successor in interest thereto and shall run with the land affected thereby. This restriction shall be enforceable whether or not this restriction is cited in future deeds or in any other document at time of transfer. This restriction shall be enforceable by the County of Santa Cruz. This parcel may not be encumbered in a manner that would be inconsistent with this restriction.

IV. All subdivision improvements shall be constructed in accordance with the approved improvement plans and in conformance with the requirements of the subdivision agreement recorded pursuant to condition III.D. The construction of subdivision improvements shall also meet the following conditions:

A. All work adjacent to or within a County road shall be subject to the provisions of Chapter 9.70 of the County Code, including obtaining an encroachment permit where required. Where feasible, all improvements adjacent to or affecting a County road shall be coordinated with any planned County-sponsored construction on that road.

B. No land clearing, grading or excavating shall take place between October 15 and April 15 unless a separate winter erosion-control plan is approved by the Planning Director.

C. No land disturbance shall take place prior to issuance ofbuilding permits (except the minimum required to install required improvements, provide access for County required tests or to carry out other work specifically required by another of these conditions).

D. Pursuant to Sections 16.40.040 and 16.42.100 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.100, shall be observed.

E. Construction of improvements shall comply with the requirements of the project geotechnical report. The geotechnical engineer shall inspect the completed project and certify in writing that the improvements have been constructed in conformance with the geotechnical report.

F. To minimize noise, dust, and nuisance impacts on surrounding properties to insignificant levels during construction, the owner/applicant shall, or shall have the project contractor, comply with the following measures during all construction work:

1. Limit all construction to the time between 8:00 **A.M.** and 5:00 P.M. weekdays, unless a temporary exemption to this time restriction is approved in advance by the Planning Department to address an emergency situation.

2. Each day it does not rain, wet all exposed soil frequently enough to prevent significant amounts of dust from leaving the site. Street sweeping on adjacent or nearby streets may be required to control the export of excess dust and dirt.

3. The owner/developer shall designate a disturbance coordinator to respond to citizen complaints and inquiries from area residents during construction. **A** 24-hour contact number shall be conspicuously posted on the job site. The name, phone number and nature of the disturbance shall be recorded by the disturbance coordinator. The disturbance coordinator shall investigate complaints and take remedial action, if necessary, within 24 hours of receipt of the compliant or inquiry. Unresolved complaints received by County staff from area residents may result in the prescription of additional Operational Conditions.

4. Saw cuts within the traveled roadway, which cause temporary depressions in the surfacing prior to repair, shall be leveled with temporary measures and signage shall be posted noting such.

G. All required subdivision improvements shall be installed and inspected prior to final inspection clearance for any new structure on the subdivision lots.

H. The project engineer who prepares the grading plans must certify that the grading was completed in conformance with the approved tentative map or the engineered improvement plans.

I. **A** preconstruction meeting between the developer and the Department of Public Works shall be held to conduct a survey of the existing condition of Atherton Drive. This survey shall be submitted in written form to the Planning Department prior to any site disturbance. Prior to final of the last residence, a postconstruction survey of Atherton Drive shall be prepared in the same manner. Damage done to Atherton Drive which can reasonably be attributed to the construction activity of this project shall be repaired by the developer under the direction of and specification by the Department of Public Works. Capital improvement bonds will be held for these repairs. Bonds shall be released by the Department of Public Works upon completion and acceptance of any required repairs.

J. In order to mitigate disturbance to three types of bird that are of special concern, Loggerhead shrike *(Lanius Ludovicianus]* **,** Yellow warbler *(Dendroicapetechia* ***brewsteri*** } and various species of raptor, the following shall occur: (CEQA A.)

1. Between thirty days and twenty one days prior to the start of disturbance on the property the project biologist shall conduct pre-construction surveys to determine whether any nests of the above types of birds are present. The biologist shall submit this survey to the Environmental Coordinator for review at least 14 days prior to site disturbance.

   a. If nest(s) are found, the location shall be plotted on the improvement plans along with a 200 foot radius no-disturbance zone around each nest. To avoid accidental incursion into the no disturbance zone chain link fencing with "no entry" signs shall be installed on the perimeter of the zone. Prior to site disturbance, the applicant/owner shall arrange for field inspection by Environmental

Planning staff to verify proper installment of the fencing. The no-disturbance zone signs and fencing shall remain in place until the Environmental Coordinator approves written documentation from the project biologist that certifies that the young in the nest(s) have fledged and the nest(s) are no longer active; If none of the above listed birds are nesting on site, the owner/applicant shall obtain written acceptance of the survey and permission to begin site disturbance from the Environmental Coordinator.

2. Prior to site disturbance the applicant/owner shall organize a pre-construction meeting on site among the contractor, Department of Public Works inspector, and Environmental Planning staff to ensure that all parties are aware of restrictions to mitigate impacts to birds.

K. To minimize disturbance in the riparian buffer and corridor the following shall occur: **(CEQA** B)

1. The proposed location of the drainage pipes and dissipaters shall be staked in the field and shall be inspected by the project biologist prior to any ground disturbance. The project biologist shall submit a letter to Environmental Planning staff verifying that the drainage works are located such that the minimum possible amount of vegetation is being removed and that no mature trees are being removed. The biologist shall calculate the amount of lost vegetation and shall provide a plan for replacement at **3:1** of in-kind native species. Non-native vegetation need not be replaced;

2. Ground disturbance for the installation of drainage pipes and dissipaters shall not occur after October 1st. Erosion control and replanting shall be in place prior to October 15th.

V. All fbture development on lots created by this subdivision shall comply with the requirements set forth in Condition II.E.

VI. In the event that fbture County inspections of the subject property disclose non-compliance with any Conditions of this Approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including Approval revocation.

VII. As a condition of this development approval, the holder of this development approval ("Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, and agents, from and against any claim (including attorneys' fees), against the COUNTY, it officers, employees, and agents to attack, set aside, void, or annul this development approval of the COUNTY or any subsequent amendment of this development approval which is requested by the Development Approval Holder.

A. COUNTY shall promptly notify the Development Approval Holder of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. If COUNTY fails to notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.

B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:

1. COUNTY bears its own attorney's fees and costs; and

2. COUNTY defends the action in good faith.

C. Settlement. The Development Approval Holder shall not be required to pay or perform any settlement unless such Development Approval Holder has approved the settlement. When representing the County, the Development Approval Holder shall not enter into any stipulation or settlement modifying or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.

D. Successors Bound. "Development Approval Holder" shall include the applicant and the successor'(s) in interest, transferee(s), and assign(s) of the applicant.

E. Within 30 days of the issuance of this development approval, the Development Approval Holder shall record in the office of the Santa Cruz County Recorder an agreement that incorporates the provisions of this condition, or this development approval shall become null and void.

VIII. Mitigation Monitoring Program

The mitigation measures listed under this heading have been incorporated into the conditions of approval for this project in order to mitigate or avoid significant effects on the environment. As required by Section 21081.6 of the California Public Resources Code, a monitoring and reporting program for the above mitigations is hereby adopted as a condition of approval for this project. This monitoring program is specifically described following each mitigation measure listed below. The purpose of this monitoring is to ensure compliance with the environmental mitigations during project implementation and operation. Failure to comply with the conditions of approval, including the terms of the adopted monitoring program, may result in permit revocation pursuant to Section 18.10.462 of the Santa Cruz County Code.

A. Mitigation Measure: Protection of Birds [Conditions III.D.10.e, IV.J.1 & IV.J.2]

Monitoring Program: Prior to commencement of any site disturbance, the project site will be field surveyed for three types of birds that are of special concern: Loggerhead shrike (Lanius Ludovicianus), Yellow warbler (Dendroica petechia brewsteri) and various species of raptor. Failure to conduct these studies prior to the commencement of any site disturbance will result in the suspension or delay of issuance of any grading or building permit. If nests are found, a 200-foot radius no disturbance zone shall be established around each nest. No-disturbance zone signs and fencing shall remain in place until the Environmental Coordinator approved written documentation from the project biologist that certifies that the young have fledged and the nests are no longer active. If none of the above listed birds are nesting on site, the owner/applicant shall obtain written acceptance of the survey and permission to begin site disturbance from the Environmental Coordinator. Inspections will be conducted to verify that all construction has been performed in accordance with the recommendations of the biotic report and the approved plans. Correction notices will be issued in the event of noncompliance.

B. Mitigation Measure: Protection of Riparian Buffer and Corridor/Drainage Infrastructure [Conditions IV.K.1]

Monitoring Program: Prior to commencement of any site disturbance, the proposed location of the drainage infrastructure will be staked in the field for the project biologist's review and approval. The project biologist shall submit a letter to Environmental Planning staff verifying that the drainage works are located such that the minimum possible amount of vegetation is being removed and that no mature

trees are being removed. The biologist shall calculate the amount of lost vegetation and shall provide a plan for replacement at a ratio of 3:1 of in-kind native species. Failure to obtain the approval of the project biologist prior to the commencement of any site disturbance will result in the suspension or delay of issuance of any grading or building permit. Inspections will be conducted to verify that all construction has been performed in accordance with the recommendations of the biotic report and the approved plans. Correction notices will be issued in the event of noncompliance.

C. Mitigation Measure: Protection of Riparian Buffer and Corridor/Construction Impacts [Condition III.D.10.f]

Monitoring Program: Prior to commencement of any site disturbance, protective fencing shall be erected along the boundary of the riparian corridor and a minimum of twenty feet outward from the of the native grass land. Failure to erect the protective four-foot chain link fencing prior to the commencement of any site disturbance will result in the suspension or delay of issuance of any grading or building permit. Inspections will be conducted to verify that all construction has been performed in accordance with the recommendations of the biotic report and the approved plans. Correction notices will be issued in the event of noncompliance.

D. Mitigation Measure: Erosion Control [Condition III.D.2]

Monitoring Program: Prior to recordation of the Final Map, the improvement plans will be reviewed and accepted by the Environmental Planning Section of the Planning Department and the County Surveyor. The improvement plans will include a clearing and grading schedule that limits grading to the period of April 15 – October 15, clearly marking the disturbance envelope, re-vegetation specifications, silt barriers installed to protect the riparian area, temporary road surfacing and construction entry stabilization, and sediment barriers around drain inlets. Inspections will be conducted to verify that the construction of all subdivision improvements is performed in accordance with the approved plans. Correction notices will be issued in the event of noncompliance.

E. Mitigation Measure: Protection of Riparian Areas/Drainage Discharge Quality [Condition III.D.9]

Monitoring Program: The HOA will maintain the "Stormceptor" silt and grease traps, and submit yearly maintenance reports to the Department of Pubic Works. Correction notices will be issued in the event of noncompliance.

F. Mitigation Measure: Native Grassland Maintenance [Conditions III.F.7.a & b]

Monitoring Program: The existing native grass stands which include purple needlegrass (Nassella pulchra), wild rye (Elymus glaucus) and California oatgrass (Danthonia californica) shall be protected from construction disturbance with four-foot tall chain link fencing placed at a minimum of 20-feet from the outward edge of the native grass stands. The open space grassland areas shall be perpetually maintained with seasonal mowing to encourage the growth of native grasses and forbs. Mowing shall be conducted in the spring and fall, mowing grass to four inches. The maintenance program shall be written by the project biologist and approved by the Environmental Coordinator and shall be funded by the Homeowner's Association. Annual reports shall be submitted to the Planning Department. Correction notices will be issued in the event of noncompliance.

G. Mitigation Measure: Acoustical Standards [Condition II.D.3.d]

Monitoring Program: Prior to obtaining a building permit for Units 21 and 22, the acoustical engineer shall submit a plan check letter verifying that the interior and exterior spaces will meet the noise thresholds specified by the General Plan. Inspections will be conducted to verify that all construction has been performed in accordance with the recommendations of the acoustical report and the approved plans. Furthermore, construction activity shall be limited to weekdays 8:00 AM - 5:00 PM. Correction notices will be issued in the event of noncompliance.

H. Mitigation Measure: Traffic Safety [Conditions III.D.10.g.i - iii]

Monitoring Program: Prior to occupancy, all required on- and off-site traffic improvements shall be complete. Inspections will be conducted by the Department of Public Works to verify that all improvements have been installed in accordance with the approved plans. Correction notices will be issued in the event of noncompliance.

I. Mitigation Measure: Incremental Traffic Impacts [Conditions III.F.8, III.J & III.K]

Monitoring Program: Prior to filing a Tentative Map, all required Transportation Area Improvement Fees will be paid in full to be used as a fair share contribution towards future traffic improvements. Correction notices will be issued in the event of noncompliance.

AMENDMENTS TO THIS LAND DIVISION APPROVAL SHALL BE PROCESSED IN ACCORDANCE WITH CHAPTER 18.10 OF THE COUNTY CODE.

This Tentative Map is approved subject to the above conditions and the attached map, and expires **24** months after the 14-day appeal period. The Final Map for this division, including improvement plans if required, should be submitted to the County Surveyor for checking **at least 90 days** prior to the expiration date and in no event later than 3 weeks prior to the expiration date.

cc: County Surveyor

Approval Date: ____/____/ 2002

Effective Date: ____/____/2002

Expiration Date: ____/____/2004

ATTACHMENT 3

COUNTY OF SANTA CRUZ

STATE OF CALIFORNIA

AT THE BOARD OF SUPERVISORS MEETING

On the Date **of** .January 8, 2002

REGULAR AGENDA Item No. 055

(Continued public hearing to consider Planning
(Commission's denial of Application #98-0148 to
(construct 12 semi-detached and **46** detached townhouses
(in three phases on a common parcel with a minimum
("Restricted Common Area" **of** 3,000 square feet minimum
(per dwelling unit; three new roads: "Bowman Court",
("Bowman Circle" and an emergency access drive; five
(parking areas totaling 28 spaces; drainage systems
(discharging to an existing pond and to an existing
(gully along Porter Gulch Creek; two, retaining walls up
(to four feet in height and one retaining wall up to
(eight feet in height; and an overlook. Grading on
(Parcel 037-251-21 consists of **4,800** cubic yard of cut
(and fill, and grading on Parcel 037-251-22 consists of
(5,200 cubic yards of cut and fill. The rear of both
(parcels would be retained as open space. The project
(requires a Subdivision, Roadway/Roadside Exceptions, a
(.Riparian Exception for the drainage systems releasing
[into the Riparian Corridor, and Preliminary Grading
(Approval; and
(Public hearing to consider the developer's revised
;proposal to construct four semi-detached townhouses
'and ***(29)*** detached townhouses, in two phases, on **a**
(common parcel with **a** minimum restricted common area **of**
(3,000 square feet minimum per dwelling unit; two new
'private streets and an emergency access drive; four
:parking areas totaling (19) spaces; drainage systems
'discharging into an existing gully along Porter Gulch
Creek; two retaining walls up to four feet in height
and one retaining wall up to six feet in height,
:grading on APN 037-251-21 consists of **7,690** cubic
yards of cut and fill, balanced on the site. The rear
:(Riparian Woodland) of the parcel, an area totaling
(8.5 acres, would be maintained as open space. The
:proposed lot line adjustment between **APN** 037-251-21
{and 037-251-22 resluts in the transfer of 5.05 acres
(to APN 037-251-22. The project requests a Subdivision,
(Roadway/Roadside Exceptions, Riparian Exception,
(Preliminary Grading approval, and a Lot Line
(Adjustment, Property located on the south side of
(Cabrillo College Drive and south side of Soquel Drive,
(just east of Atherton Drive, in **Aptos**;

State *of* California, County of Santa Cruz-ss.

I, Susan ***A.*** *Mauriello, Ex-officio Clerk of the Board of Supervisors of the County* of *Santa Cruz, State of California, do hereby certify that the foregoing is a true and correct copy of the order made and entered in .the Minutes* of *said Board of Supervisors. In witness thereof I have hereunto set my hand and* ***affixed*** *the . of said Board of Supervisors.*

COUNTY OF SANTA CRUZ

STATE OF CALIFORNIA

AT THE BOARD OF SUPERVISORS MEETING

On the Date of January 8, 2002

REGULAR AGENDA Item No. 055

(corrections to staff report dated January 8, 2002 are (as follows: (a) page 4, Construction phasing includes: (Phase I (Lots 1-14): should read: "2" affordable, semi (detached homes; "12" market-rate, detached homes (b) (page 8, the referenced attachment should be ((Attachment 11) (c) page 11, the first line should (read: eminent domain, which "may" not serve a public (interest (d) page 12, the number at the bottom center (of page should be "85" and (e) page 13, the number (at the bottom center of the page should be "86" ((1) motion to accept the new revision as proposed (including acceptance of the negative declaration and (the request for a lot line adjustment; motion failed ((2) motion to continue to February 26, 2002 at 7:30 (P.M. the hearings on the ,denialof the original .(application and the revised proposal; with an (additional directive that the Planning staff draft (conditions of approval for parcels 8 through 33 as (proposed, answer as to whether you can transfer the (density credits to the new owner, and list options in (terms of the covenants that *can* be put on the vacant (parcel while it is still owned by the current (developer; clarified that the Board would be advised (of any issues raised by the lot line and strategies (for *a* phased approach *to* the entire parcel, as well (as, the prior direction that the Redevelopment Agency (continue to work with the developer...

Continued public hearing to consider Planning Commission's denial of Application #98-0148 to construct 12 semi-detached and 46 detached townhouses in three phases on a common parcel with a minimum "Restricted Common Area'' of 3,000 square feet minimum per dwelling unit; three new roads: "Bowman Court", "Bowman Circle" and an emergency access drive; five parking areas totaling 28 spaces; drainage systems discharging to an existing pond and to an existing gully along Porter Gulch Creek; two retaining walls up to four feet in height and one retaining wall up to eight feet in height; and an overlook. Grading on Parcel 037-251-21 consists of 4,800 cubic yard

State of California, County of Santa Cruz-ss.

I, Susan A. Mauriello, Ex-officio Clerk of the Board of Supervisors of the County of Santa Cruz, State of California, do hereby certify that the foregoing is a true and correct copy of the order made and entered in the minutes of said Board of Supervisors. In witness thereof I have hereunto set my hand and affixed the seal of said Board of Supervisors.

of cut and fill, and grading on Parcel 037-251-22 consists of 5,200 cubic yards of cut and fill. The rear of both parcels would be retained as open space. The project requires a Subdivision, Roadway/Roadside Exceptions, a Riparian Exception for the drainage systems releasing into the Riparian Corridor, and Preliminary Grading Approval; and

Public hearing to consider the developer's revised proposal to construct four semi-detached townhouses and (29) detached townhouses, in two phases, on a common parcel with a minimum restricted common area of 3,000 square feet minimum per dwelling unit; two new private streets and an emergency access drive; four parking areas totaling (19) spaces; drainage systems discharging into an existing gully along Porter Gulch Creek; two retaining walls up to four feet in height and one retaining wall up to six feet in height, grading on APN 037-251-21 consists *of 7,690* cubic yards of cut and fill, balanced on the site. The rear (Riparian Woodland) of the parcel, an area totaling 8.5 acres, would be maintained as open space. The proposed lot line adjustment between APN 037-251-21 and 037-251-22 results in the transfer of 5.05 acres to APN 037-251-22. The project requests a Subdivision, Roadway/Roadside Exceptions, Riparian Exception, Preliminary Grading approval, and a Lot Line Adjustment, Property located on the south side of Cabrillo College Drive and south side *of* Soquel Drive, just east of Atherton Drive, in Aptos; corrections to staff report dated January 8, 2002 are as follows: (a) page 4, Construction phasing includes Phase I (Lots 1-14) should read: "2" affordable, semi-detached homes; "12" market-rate, detached homes (b) page 8, the referenced attachment should be (Attachment 11) (c) page 11, the first line should read: eminent domain, which "may" not serve a public interest (d) page 12, the number at the bottom center of page should be "85" and (e) page 13, the number at the bottom center *of* the page should be "86"

Motion made by Supervisor Pirie, duly seconded by Supervisor Beautz, to accept the new revision as proposed including acceptance of the negative declaration and the request for a lot line adjustment; motion failed; with Supervisors Wormhoudt, Campos and Almquist voting "no";

Upon the motion of Supervisor Almquist, duly seconded by Supervisor Wormhoudt, the Board, with Supervisors Pirie and Beautz voting

---

State of California, County of Santa Cruz-ss.

I, *Susan A. Mauriello, Ex-officio Clerk of the Board of Supervisors* of *the County of Santa Cruz, State* of *Califcrnia, do hereby certify that the foregoing is a true and correct copy of the order made and entered in the Minutes of said Board* of *Supervisors. In witness thereof I have hereunto set my hand and affixed the seal of said Board of Supervisors.*

'COUNTY OF **SANTA** CRUZ

STATE OF CALIFORNIA

AT THE BOARD OF SUPERVISORS MEETING

On the Date **of** January *8*, 2002

REGULAR AGENDA Item **No.** 055

"no" , continued to February **26**, 2002 at 7:30 P.M. the hearings on the denial of the original application and the revised proposal, with an additional directive that the Planning staff draft conditions of approval for parcels **8** through **33** as proposed, answer as to whether you can transfer the density credits to the new owner, and list options in terms of the covenants that can be put on the vacant parcel while it is still owned by the current developer; clarified that the Board would be advised of any issues raised by the lot line and strategies for a phased approach to the entire parcel, as well as, the prior direction that the Redevelopment Agency continue to work with the developer.

cc:

Brad Bowman
Richard Beale, Land Use Planning, Inc.
~CharleneB. Atack, Law Offices of Bosso, Williams
Wendy Richardson
Ken Hart, Environmental Coordinator, County of Santa Cruz
Tom Burns, Redevelopment Director, County of Santa Cruz
County Counsel

State of California, County of **Santa** Cruz-ss.

*I, Susan **A.** Mauriello, Ex-officio Clerk of the Board of Supervisors of the County of Santa Cruz, State **of** California, do hereby certify that the foregoing* **is a** *true and correct copy **of** the order made and entered in the minutes **of** said Board of Supervisors. In witness thereof I **have** hereunto set my hand and affixed the seal of said Board of Supervisors.*

by Sharon Mitchell, Deputy **Clerk**, ON January **16**, 2002.

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* CERTIFIED SPECIALIST IN TAXATION LAW, THE STATE BAR OF CALIFORNIA, BOARD OF LEGAL SPECIALIZATION

ATTACHMENT 4

February 5, 2002

Rahn Garcia
County Counsel
Santa Cruz County
701 Ocean Street
Santa Cruz, CA 95060

Re: Redesigned Project - Deed Restrictions for Vacant Parcel Atherton Place - Application # 98-0148

Dear Rahn:

The Board of Supervisors requested that the Applicant propose conditions which would require overall project density within the General Plan range and provide for construction on site of the affordable housing units in a timely manner. On behalf of the Applicant, I suggest that the following be added to the Conditions of Approval:

1. Density. Prior to filing of the final map for the subdivision, Owner shall provide Planning Staff with proof in the form of a copy of a recorded deed that the newly adjusted vacant parcel (the "Vacant Parcel"), which is not part of the subdivision, is transferred to a third party with the following deed restriction:

> All future development of this parcel shall be at no less than that density consistent with the designation of Urban High Residential of the General Plan and tho applicable zoning unless the parcel is re-zoned or the General Plan is amended. This restriction shall be binding upon all purchasers, and each and every successor in interest thereto and shall run with the land affected thereby. This restriction shall be enforceable whether or not this restriction is cited in future deeds or in any other document at time of transfers.

ATTACHMENT 4

2. Construction of Affordable Units for Atherton Project. Owners agrees that the required affordable housing units for this subdivision will be constructed on the Atherton Project site or on the Vacant Parcel in the following manner:

> Owner shall designate four *(4)* affordable housing units to be constructed on the Atherton Project site. In the event that prior to occupation of all of the four (4) affordable housing units either: (1) a tentative subdivision map is approved by the County for the Vacant Parcel; or (2) the Vacant Parcel is transferred to a non-profit housing developer, Owner shall have the option of satisfying the obligation of providing those affordable units not yet occupied by developing the remaining affordable housing units on the Vacant Parcel or transferring the obligation to develop said housing units on the Vacant Parcel to said agency. Said obligation shall be in addition to any such units required by the County for the development of the Vacant Parcel. *County* agrees to diligently process a development application for development of the Vacant Parcel.

In addition, there was a question from one Board member with regard to transfer of density credit, While the applicant is willing to agree to such a transfer, it is my understanding that there is no County provision allowing for such a transfer.

I look forward to discussing your comments on these conditions at your earliest convenience.

Very truly yours,

Charlene B. Atack

CBA:kj

F:\WPDATA\CHARLENE\firstfedbdltrdeedrestr.wpd

ATTACHMENT 5

Ifland Engineers, Inc.
Civil Engineering & Structural Design
1100 Water Street
Santa Cruz, CA 95062
831.426.5313 Fax 831.426.1763
www.iflandengineers.com

FAX COVER SHEET

Number of pages including cover sheet: 1

TO:	Rich Beale	***FROM:***	Glen H. Ifland
RE:	Atherton Place	***PROJECT #:***	97218
FAX PHONE:	425-1565	***DATE:***	February 5, 2002

REMARKS: ___ *Urgent* _x_ *For your use* _x_ *As requested* ___ *Please Comment*

Area Breakdown

Parcel A – 218,573 Sq. Ft. (5.017 Ac.)
Parcel B - 580,399 Sq. Ft. (12.865 Ac.)
778,972 Sq. Ft. (17.882 Ac.)

Parcel B Breakdown

Open Space 301,251 Sq. Ft. (6.916 Ac.)
Gross Developable Land 259,162 Sq. Ft. (5.959 Ac.)

Area of Bowers Court (within Parcel B only) 24,837 Sq. Ft. (0510 Ac.)
Area of sloped in excess of 30% 17,474 Sq. Ft. (0.40 Ac.)

Net Developable Land = 216,851 Sq Ft. (4.978 Ac.)

216,851 ÷ 28 lots = 7,745 Sq. Ft. per lot

COUNTY OF SANTA CRUZ

INTER-OFFICE CORRESPONDENCE

ATTACHMENT 6

DATE: February 5, 2002

TO: Joan Van der Hoeven, Planning Department

FROM: Jack Sohriakoff, Department of Public Works

SUBJECT: ATHERTON PLACE, ADDITIONAL COMMENTS, 28 LOT SUBDIVISION, TRACT 1409, APPLICATION NUMBER 98-0148, APN:037-251-21 AND -22

The Transportation and Road Planning Engineering section has reviewed the revised plans dated January 16, 2002, for the above referenced project and makes the following comments.

1. The proposed access road from Cabrillo College Drive requires an exception request to be approved by the Board of Supervisors. Staff cannot recommend approval of the proposed roadway since it does not meet current design criteria standards. The exception request process requires the cross-sections to be included on the plans indicating the standard requirements and the proposed section. These sections must be on the same page so the approving body can readily compare the differences. If the roadway is approved without meeting current design criteria standards, it is recommended that the roadway be privately rnaintai ned by the homeowners.
2. The project applicant proposes to accommodate parking with perpendicular parking stalls adjacent to the new street. This is not recommended due to public health and safety reasons. Other subdivisions have provided a standard parking lot within the subdivision to offset the lack of on-street parking. If the applicant is granted an exception to the roadway standards and on-street parking is not accommodated, it is recommended that a standard parking lot be designed for the additional parking.
3. The project applicant now proposes to access Cabrillo College Drive which is a County maintained roadway and has a functional classification as a collector street. Cabrillo College Drive immediately south of Soquel Drive has recently been realigned and improved with sidewalks and bike lanes.

ATTACHMENT 6

The rest of Cabrillo College Drive from Twin Lakes Church to Park Avenue does not have roadside improvements or bike lanes. It is recommended that the project applicant be required to conduct a plan line study of Cabrillo College Drive from Park Avenue to the recently constructed portion. Although the plan line is normally recommended to be approved by the Board of Supervisors prior to determining a complete application for the project proposal, this particular timeline, however, is not appropriate for the project since it is already deemed as a complete application. County Code allows two alternative timelines for a plan line to be approved by the Board of Supervisors: prior to the first public hearing for the subdivision; and, prior to filing the final map. If there is an issue with time constraints associated with taking the project application to a public hearing before the Board of Supervisors, it would be appropriate to condition the project to do the plan line prior to filing the final map.

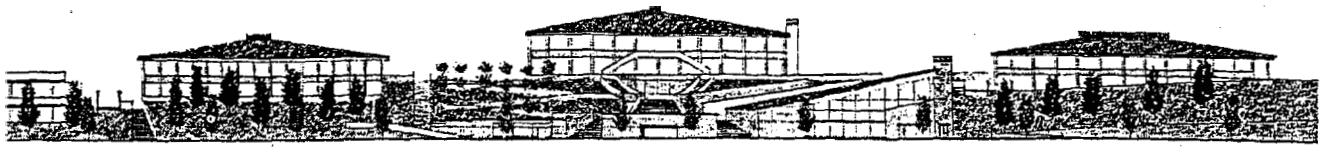
4. The project applicant is required to provide frontage improvements along Soquel Drive including curb, gutter, and sidewalk. These improvements are critical to completing the pedestrian network in this area. The current plan does not show these improvements. Previous plan submittals did include these improvements as part of the subdivision.
5. It is recommended that all previously proposed improvements to increase the sight distance at the intersections of Soquel Drive/Atherton Drive and Cabrillo College Drive/Willowbrook Lane be required as a condition of this project.
6. The Aptos Transportation Improvement Area (TIA) fees are required for all newly created lots. The current Aptos TIA fee is $2000 per lot for transportation improvements, and $2000 per lot for roadside improvements. The plan line for Cabrillo College Drive would be eligible for TIA fee credit at the current rate of $2.00 per lineal foot of roadway.

ATTACHMENT 6

Other specific previous comments regarding this project may be applicable. Please contact me or Greg Martin, Civil Engineer, at extension 2160 if you have any questions.

JRS:abc

ATHERA



ATTACHMENT 7

Cabrillo College • *Celebrating 40 Years of Excellence*

January 29, 2002

Santa Cruz County Board of Supervisors
701 Ocean Street, Rm. 500
Santa Cruz, CA 95060

Members of the Board of Supervisors:

Like employees at other public institutions in Santa Cruz County, faculty and staff at Cabrillo College face increasing difficulty in finding affordable housing within commuting distance to the college. In many cases, highly-qualified candidates for faculty positions have withdrawn their applications once they discover the availability and cost of housing. We are also finding it difficult to attract **and** retain management and staff positions at all levels, given the housing situation.

The Atherton Place property, immediately adjacent to the college's Aptos campus, has received significant attention from the Board of Supervisors in recent months. Because of its proximity to the college, this property would obviously be an ideal location for housing for Cabrillo faculty and staff. While the college is not able to participate financially to this end with a direct budget appropriation, we may be able to participate through other financial mechanisms or sources. We have discussed our need and interest with the current owner of the property as well as non-profit developers, including Mid-Peninsula Housing Coalition. At this time the project is not yet moving in a direction that would provide a housing option for any Cabrillo faculty and staff

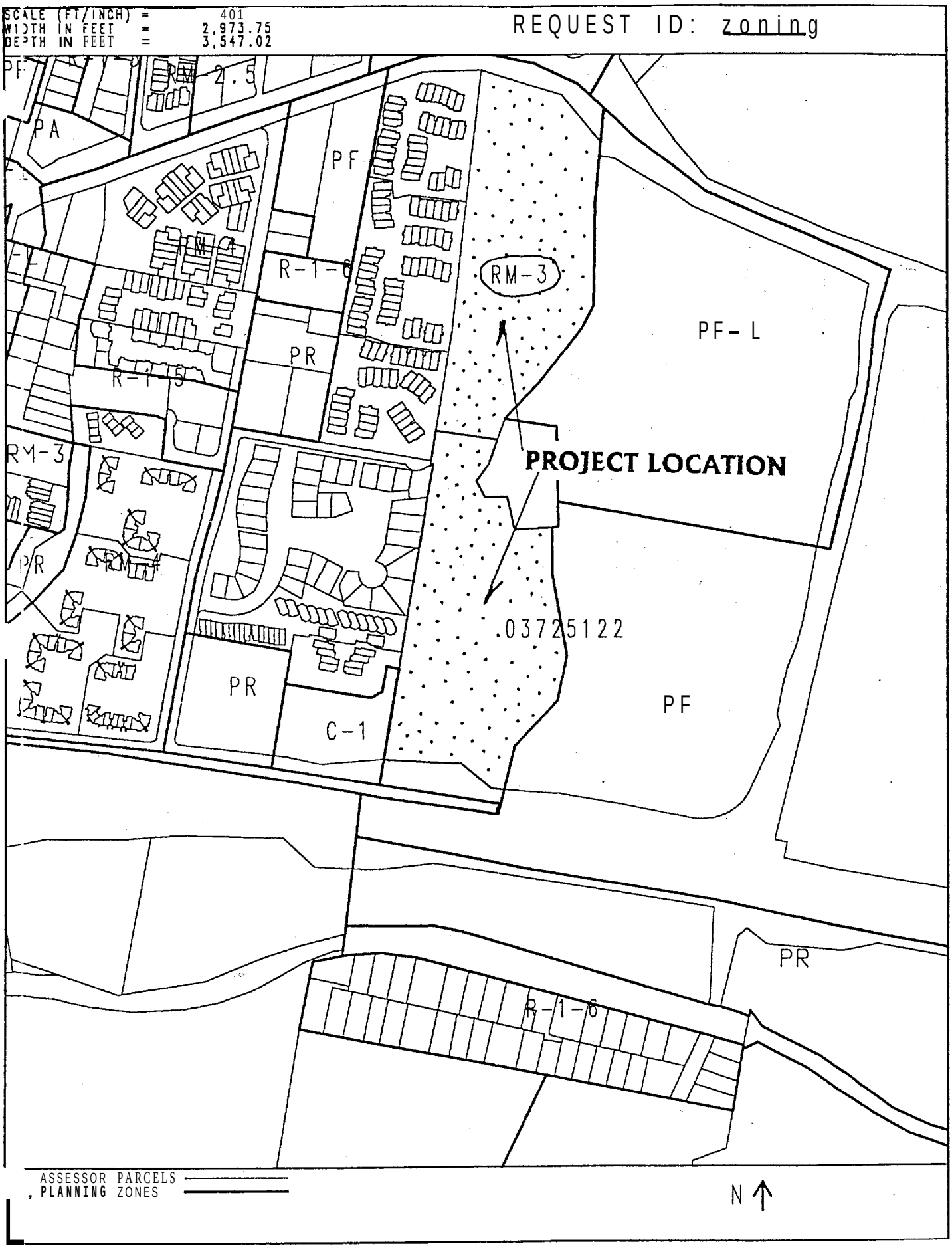
Providing moderately-priced housing, either for rent or purchase, with priority given to Cabrillo faculty and staff, would be a "win-win" for the college and the county and the residents we both serve. Faculty **and** staff would be able to walk to work as well as walk to the Cabrillo Child-Care Center to drop,off pre-school children. Traffic on Highway One and other county roads would be reduced, as well **as** pressure on limited campus parking.

As you consider proposals for the development of the Atherton Place property, we urge you to work toward a solution that would result in a "win-win" for the community and the college. I would be pleased to work with the Board of Supervisors and/or whomever you suggest to achieve this end.'*-

,Sincerely,

John D. Hwd

John D. Hwd
President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REQUEST ID: zoning
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PA
PF
R-1-6
RM-3
PF-L
PR
R-1-6
PROJECT LOCATION
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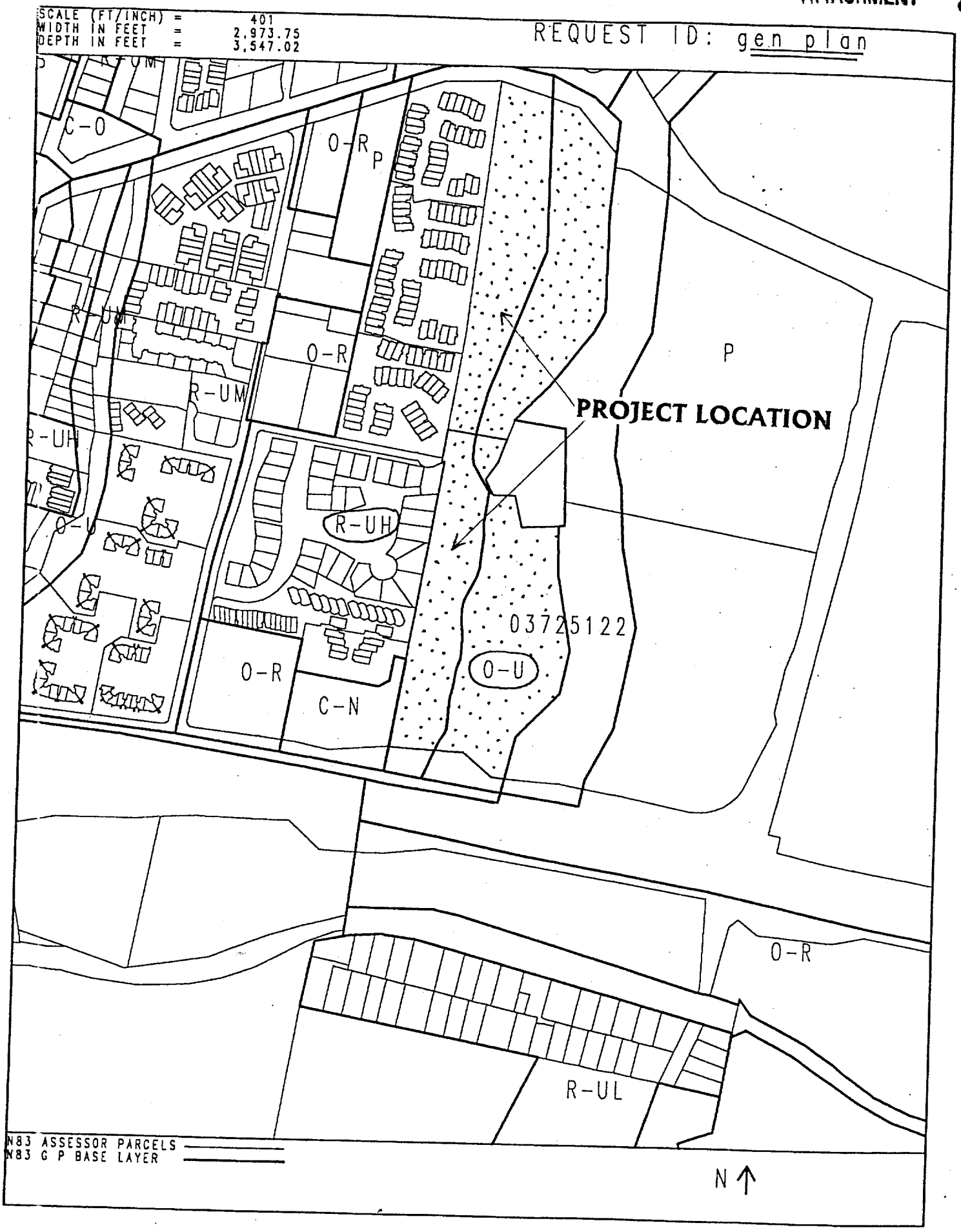
PR
C-1
PF
PR
R-1-6
ASSESSOR PARCELS
PLANNING ZONES
N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WIDTH IN FEET = 2,973.75
DEPTH IN FEET = 3,547.02
REQUEST ID: gen plan
C-O
O-R
P
R-UM
R-UH
O-U
C-N
PROJECT LOCATION
03725122
R-UL
N83 ASSESSOR PARCELS
N83 G P BASE LAYER
N

ATTACHMENT 10

LAW OFFICES OF
BOSSO, WILLIAMS, SACHS, ATACK & GALLAGHER
AND **PETER L. SANFORD**
AN ASSOCIATION OF PROFESSIONAL CORPORATIONS

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• CERTIFIED SPECIALIST IN TAXATION LAW, THE STATE BAR OF CALIFORNIA, BOARD OF LEGAL SPECIALIZATION

February 20,2002

Board of Supervisors
Santa Cruz County
701 Ocean Street
Santa Cruz, CA 95060

Re: Redesigned Project - Proposed Option
Atherton Place - Application # 98-0148

Dear Chairperson and Board Members:

On behalf of the Project Applicant, I am confirming in writing a proposal offered at the previous hearing for the Board's further consideration. The proposal is to adjust the lot line of the Project immediately around the development area as shown on the map attached hereto. The Project would continue to maintain the riparian and buffer area immediately adjacent to the Project on its easterly boundary and reserve right of ways to the Project as further described in the attached conditions.

If you have any questions or require further information, please contact me or Rich Beale.

Very truly yours,

Charlene B. Atack

CBA/kj
attachments

Conditions for Proposal

Maintenance of Adjacent Riparian and Buffer Easement Area - The Homeowners' Association shall pay for and maintain the riparian and buffer area located adjacent to the easterly boundary line of the Project as shown and labeled on the attached map as "Riparian and Buffer Easement Area" and meet all obligations and requirements set forth in the conditions of approval for the Project pertaining to said area.

Right of Ways - Owners shall reserve right of ways over the secondary and primary access serving the Project.

ATTACHMENT 10

PARCEL AREAS

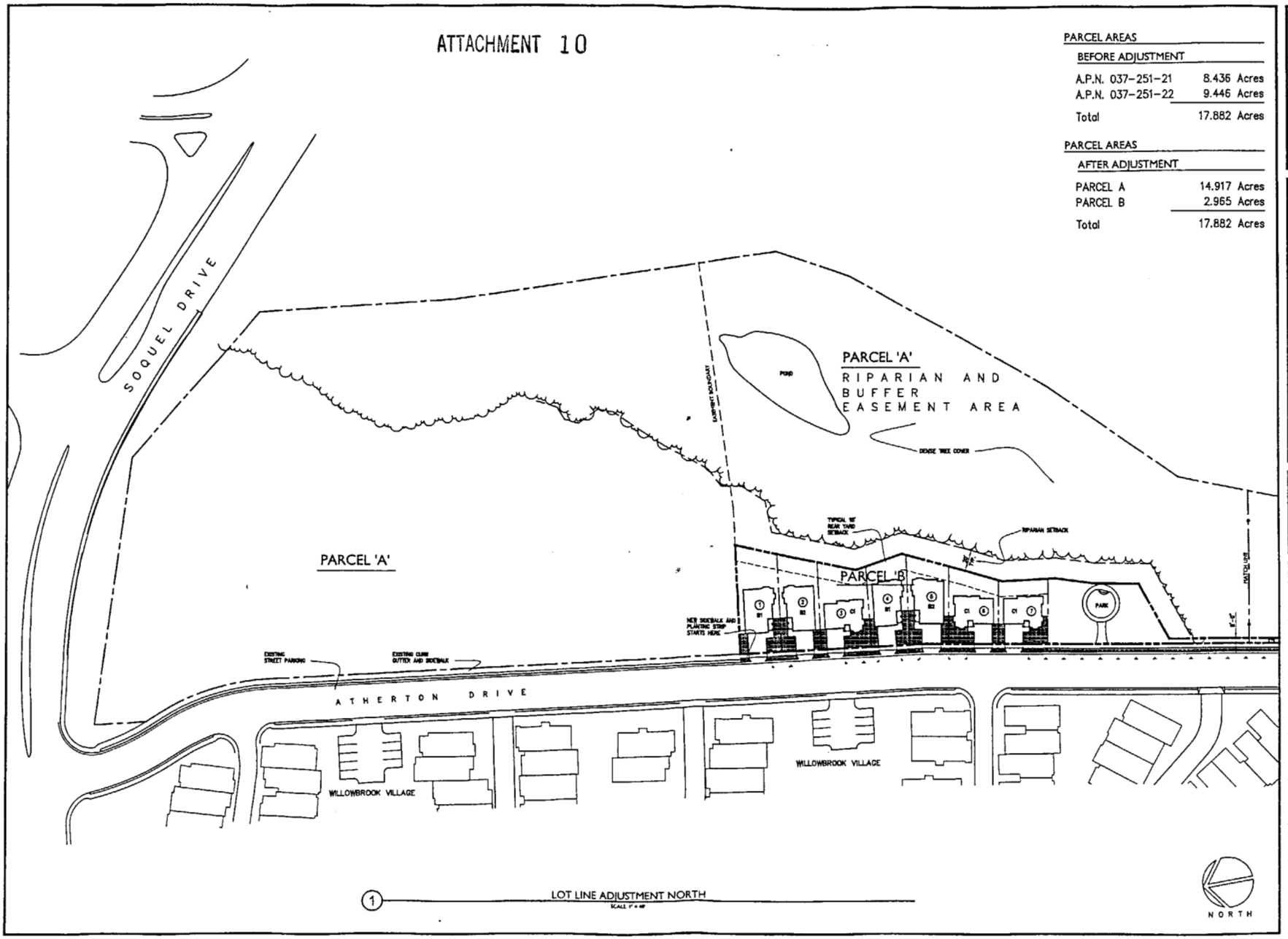
BEFORE ADJUSTMENT

A.P.N. 037-251-21	8.436 Acres
A.P.N. 037-251-22	9.446 Acres
Total	17.882 Acres

PARCEL AREAS

AFTER ADJUSTMENT

PARCEL A	14.917 Acres
PARCEL B	2.965 Acres
Total	17.882 Acres



1 LOT LINE ADJUSTMENT NORTH
SCALE 1" = 40'

THACHER & THOMPSON ARCHITECTS
300 WASHINGTON STREET
SANTA CRUZ, CA 95060
831 457-3939

ATHERTON PLACE
6260 SOQUEL DRIVE, APTOS, CALIFORNIA
LOT LINE ADJUSTMENT

DRAWING DATE: FEBRUARY 20, 2002
CONSTRUCTION RELEASE:
CLIENT NAME: BOWERS/BOWMAN
PROJECT NAME: ATHERTON PLACE 99.20

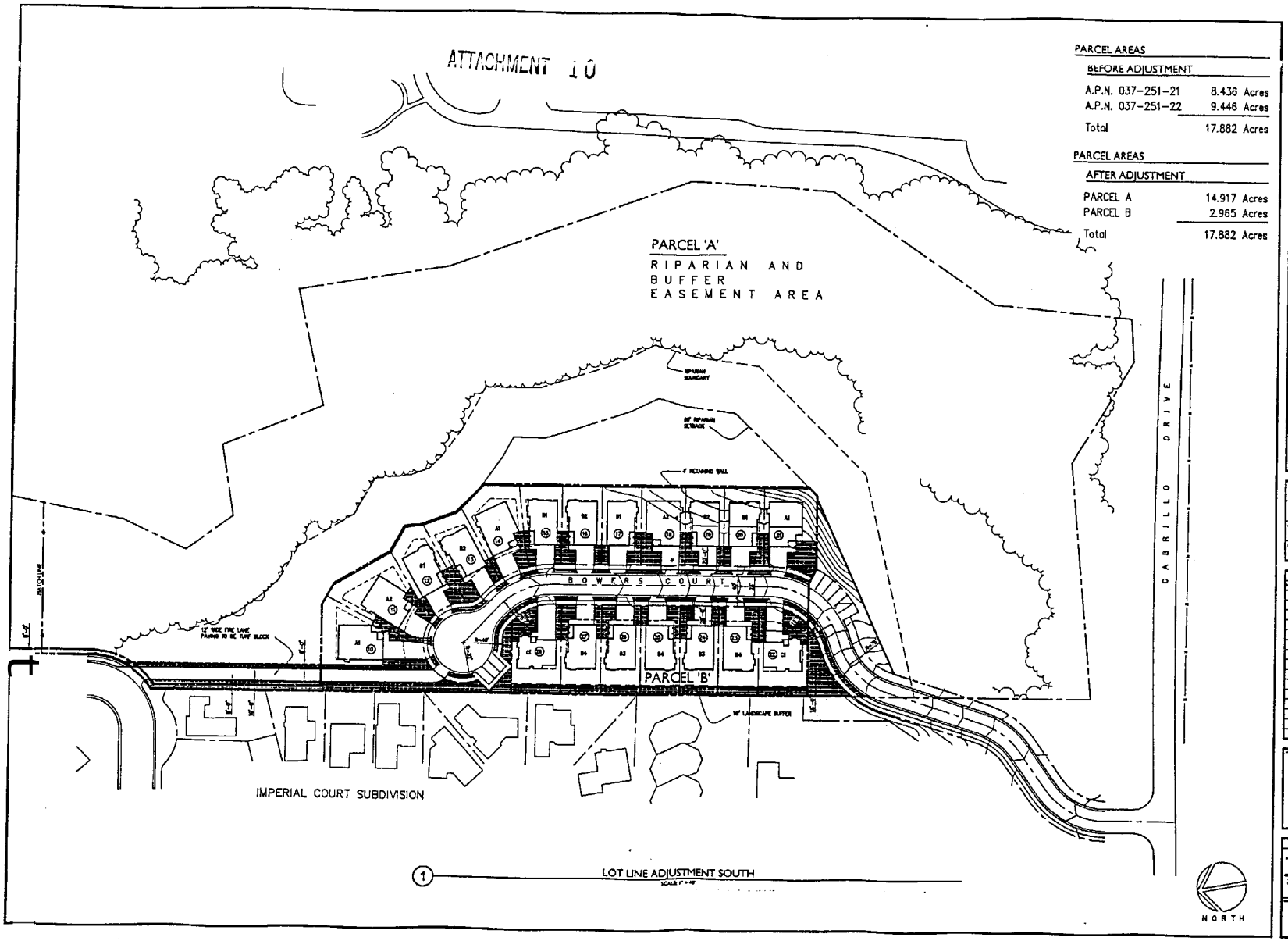
REVISIONS

No.	DESCRIPTION	DATE
	ELIM. LOTS 869	2/13/02

DISCLAIMER

A1

ATTACHMENT 10



1 LOT LINE ADJUSTMENT SOUTH

PARCEL AREAS

BEFORE ADJUSTMENT

A.P.N. 037-251-21	8.436 Acres
A.P.N. 037-251-22	9.446 Acres
Total	17.882 Acres

PARCEL AREAS

AFTER ADJUSTMENT

PARCEL A	14.917 Acres
PARCEL B	2.965 Acres
Total	17.882 Acres

THACHER & THOMPSON ARCHITECTS

ATHERTON PLACE
6360 SOQUEL DRIVE, APTOS, CALIFORNIA
LOT LINE ADJUSTMENT

DRAWING DATE: FEBRUARY 20, 2002
CONSTRUCTION RELEASE:
CLIENT NAME: BOWERS/BOWMAN
PROJECT NAME: ATHERTON PLACE 99.50

REVISIONS

NO.	DESCRIPTION	DATE

DISCLAIMER

A2

J:\Active\Bowers & Bowman\Atherton Place\Drawings\County Submittal 3\^ ^2Rev1 Site Plan South.dwg, 02/20/2002 03:21:23 PM, Mark

2-17-02

ATTACHMENT 11

Board of Supervisors
701 ocean st.
Santa Cruz, CA 95060

This is to voice my opposition to project # 98-0146: Alterra Plan. development. I am concerned about the impact on drainage, open space, traffic and noise. — and the fact that the planning commission is ignoring it.

Alternative methods of providing affordable housing need to be looked at - which are within walking distance to town and/or public transportation.

Thank you for your attention to this.

Sincerely,

Rick Macleod
9930 Monroe Ave
Aptos, CA 95003
831-685-3708

ATTACHMENT 11

Board of Supervisors
701 Ocean St.
Santa Cruz CA 95060

RE: Project #98-0146
Atherton Place Development
APN: 037-251-21 & 22

Dear Board of Supervisors:

1. oppose project #98-0146
2. Please protect the riparian corridor.
3. Highway 1 & parking are serious problems.
4. Choose alternate sites for low income housing, within walking distance of shopping centers.
5. Save this area for urban open space.

Thank you.

Carol Long

ATTACHMENT 11

Jukka Naukkarinen
624 National st
Santa Cruz, Ca 95062
1/26/2002

Board of Supervisors
701 Ocean
Santa Cruz, Ca 95060

Subject: Project #98-0146
Atherton Place Development, LLC
Apn: 037-251-21+22

Dear Board of Supervisors!

1) Please discontinue the project on humanitarian grounds

2) Please protect the last remnants of the riparian corridor, Porter Gulch stream, New Brighton State Beach from pollution.

3) Once the open space is gone, it is gone forever and cannot be replaced.

4) The said open space is important for entire counties ecosystem

Yours truly
Jukka Naukkarinen

Jukka NAUKKARINEN

February 29, 2002

ATTACHMENT

ATTACHMENT 1

Board of Supervisors
701 Ocean St. 5th Floor
Santa Cruz, CA 95060

RE: Project #98-0146
Atherton Place Development, LLC
APN: 037-251-21 & 22

Dear Board of Supervisors:

I am extremely concerned about the land, river and pond at Atherton Place. Santa Cruz County NEEDS to have wildlife habitats and places where people can enjoy peace and solitude. The beauty of this area is in its open places. Everyone who lives here knows that! We do not live here because we want crowded areas, full of people, with no wildlife. We have seen our crowded traffic situations become unbearable in the past 10 years, both on Hwy 1 and on city streets. Hwy 1 doesn't need more traffic, nor does Soquel Ave. I absolutely oppose project #98-0146 and demand that you protect the riparian corridor, Porter Gulch stream and New Brighton State Beach from pollution. Please choose alternate sites for low-income housing projects that are walking distance to shopping and metro stations.

Thank you, Michelle Newman

2018 Bobwhite Lane
Santa Cruz, CA 95065

ATTACHMENT 11

150 Lions Field Dr.
Santa Cruz, CA 95065
January 14, 2001

Bd of Supervisors
701 Ocean Street
Santa Cruz, CA 95060

Dear Bd. of Supervisors:

I am concerned about project # 99-0146 APN: 037-251-21 and 22 Atherton Place Development. This project is planned for 17 acres of beautiful land that is habitat for bird, animals, frogs, insects. It is a steep hillside that will have to be terraced. There is no parking in that area and traffic is already heavy. Please deny the building permit to these developers.

If we need housing build it on flat areas where you can build up. The golf park by the freeway "Par 3" would be an excellent area for houses.

STOP THIS HOUSING DEVELOPMENT.

Sincerely,
Diane Connell
Santa Cruz Co. resident

150 Lions Field Drive
Santa **Cruz, CA** 95065
January 20,2002

County Board of Supervisors
701 Ocean St., Suite 500
Santa Cruz, CA 95060-4069

ATTACHMENT 1

Dear Board of Supervisors:

We are concerned about the Atherton Place project and the plan for construction of homes on natural wildland. The project is planned for a steep hillside where construction would require terraces with eventual erosion and water runoff problems. It is a unique and irreplaceable wildlife habitat that should be saved as wildland. It **is** one of the **only** places **left** for the birds, deer, and the red-legged frog. Housing should be built on land where nature is already spoiled like the Par **3** golf course beside the freeway. There is already overcrowding of cars in the Atherton Project area from the temple and Cabrillo College. We urge you to **stop this** development.

We would like to save this area for a byway from Nisene Marks State Park to the Sea. We need to save areas of adjoining natural land in our county.

Thank you
Sincerely,

	NAME	ADDRESS
1.	Diana Duque	1992 Serenata Ct. Santa Cruz CA 95065
2.	Ellison Harlow	1669 Nelson Rd #7 Scotts Valley 95066
3.	Donna Shaw	5005 Garnet st. Capetola, Ca. 950
4.	Catherine O'Kelly	505 Bethany Dr. Scotts Valley CA 95066
5.	CAROLYN R. MITCHELL	1555 Merrill St. #10 SANTA CRUZ, CA 95062
	Carolyn R. Mitchell	
6.	BRITTA ZETTERBERG	4300 Soquel Dr. #91 Soquel, CA 95073
	Britt Zetterberg	
7.	LynorA L'White	3033 Wisteria Wy APTOS, CA 95003

ATTACHMENT 11

TELEPHONE MESSAGES FOR ALL MEMBERS OF THE BOARD REGARDING ATHERTON PLACE PROPOSED DEVELOPMENT

Diana Rose
147 Bar Harbor Court
Aptos, CA 95003

Comment: Opposed to the Atherton Place development

Bob Dinga
147 Bar Harbor Court
Aptos, CA 95003

Comment: Opposed to the Atherton Place development

ATTACHMENT 11

Beatrice Di Duca
6250 Cobblestone Ct.
Aptos, CA 95003-3182

February 10,2002

Santa Cruz County Board of Supervisors
Santa Cruz County Government Building, Room 525
701 Ocean Street
Santa Cruz, California

Regarding: Atherton Place Development

I have lived at Willowbrook Village since 1987. I was told when I purchased my town house that the property along Atherton that is to be ruined with bastard architecturally designed high-density housing ,was DONATED BY THE LAST DESCENDANT OF THIS HISTORICAL PIECE PROPERTY TO THE BAPTIST CHURCH AND FOR THEIR USE ONLY.

I have requested information over and over again regarding this matter and have been completely ignored. How did it happen that this property became available to be sold off by the Baptist Church? Did the Church change it's name so that they could effectively get rid of it for money in their pockets instead? When property is donated to a church - how can that be set aside without some political maneuvering, or those little legalities that smother us, and allow such a travesty to happen?.

Along with that, this is one of the few park-like areas remaining in Santa Cruz County, that if anything it should be developed as a park. This area is a refuge for owls, a variety of birds, beautiful flora and fauna, and now you will allow it to be ruined because of greed?

Housing in Santa Cruz County is at an all time low? Good. We don't need anymore population or traffic congestion than we already have. The developers want to build single family homes expected to sell from $350,000 to $500,009? In today's market that means cheap housing that in time will further ruin this area. Will these "cheap" homes be purchased by the developers to be used as rentals? Further filling their pockets?

When I cast my vote for Supervisor Pirie, I did so assuming she would be a great supporter of open spaces and development of park areas, and not of additional housing that will ultimately ruin this entire area, and many other similar areas.

ATTACHMENT 11

I would appreciate a response from someone especially explaining how this property fell out of the hands of the Baptist Church.

Very truly yours,

Beatrice Di Duca

CC: Willowbrook Village Homeowners Association
Board of Directors, Diana Hunter, Charles Summers, Reed Geisreiter, Pricilla Weiss and Terrel Hoffman

County of Santa Cruz

PLANNING DEPARTMENT

701 OCEAN STREET, 4TH FLOOR. SANTA CRUZ. CA 95060-4000

(831) 454-2580 FAX (831) 454-2131 TDD: (831) 454-2123

ALVIN D. JAMES, DIRECTOR

NEGATIVE DECLARATION AND NOTICE OF DETERMINATION

98-01-18 RICHARD **BEALE** LAND **USE CONSULTANTS FOR ATHERTON PLACE DEVELOPMENT LLC**

Proposal to construct **4** semi-detached townhouses and **29** detached townhouses, in two phases, on a common parcel with a minimum "restricted common area" of **3,000** square feet minimum per dwelling unit; **2** new roads: "Bowman Court", "Bower Court" and an emergency access drive; 5 parking areas totaling **24** spaces; drainage systems discharging to an existing gully along Porter Gulch Creek; two retaining walls up to four feet in height and one retaining wall up to six feet in height. Grading consists of 7,690 cubic yards of cut and fill, balanced on site. The rear (riparian woodland) of both parcels, an area totaling **8.537** acres, would be maintained as open space. A Lot Line adjustment is proposed to transfer approximately 5.05 acres from APN **037-251-21** to APN **037-251-22** to result in two parcels of **3.38** acres and **14.5** acres respectively. The project requires a Subdivision, Lot Line Adjustment, Roadway/Roadside Exceptions, Riparian Exception for the drainage systems releasing to the riparian corridor, and a preliminary grading approval. The property is located on the north side of Cabrillo College Drive and the south side of Soquel Drive, just east of Atherton Drive.

APN: 037-251-21 & 037-251-22

JOAN VANDERHOVEN, PROJECT PLANNER **ZONE DISTRICT: RM-3**

Negative Declarations with Mitigations

Review period ends OCTOBER 10,2001

Findings:

This project, if conditioned to comply with required mitigation measures or conditions shown below, will not have significant effect on the environment. The expected environmental impacts of the project are documented in the Initial Study on this project attached *to* the original of this notice on file with the Planning Department, County of Santa Cruz, 701 Ocean Street, Santa Cruz, California.

Reauired Mitigation Measures or Conditions:

____ None

_XX_ Are Attached

Review Period Ends October 31, 2001

Date Approved By Environmental Coordinator October 31, 2001

for: KEN HART Paia Levine

Environmental Coordinator

(831) 454-3127

If this project is approved, complete and file this notice with the Clerk of the Board:

NOTICE OF DETERMINATION

The Final Approval of This Project was Granted by _____

on _____. No EIR was prepared under CEQA

THE PROJECT WAS DETERMINED TO NOT HAVE SIGNIFICANT EFFECT ON THE ENVIRONMENT.

Date completed notice filed with Clerk of the Board: _____

CALIFORNIA DEPARTMENT OF FISH AND GAME

CERTIFICATE OF FEE EXEMPTION

De minimis Impact Finding

Project Title/Location (Santa Cruz County):
98-0148 **RICHARD BEALE LAND USE CONSULTANTS FOR ATHERTON PLACE DEVELOPMENT LLC**

Project Description:

Proposal to construct 4 semi-detached townhouses and 29 detached townhouses, in two phases, on a common parcel with a minimum "restricted common area" of 3,000 square feet minimum per dwelling unit; 2 new roads: "Bowman Court", "Bower Court" and an emergency access drive; 5 parking areas totaling 24 spaces; drainage systems discharging to an existing gully along Porter Gulch Creek; two retaining walls up to four feet in height and one retaining wall up to six feet in height. Grading consists of 7,690 cubic yards of cut and fill, balanced on site. The rear (riparian woodland) of both parcels, an area totaling 8.537 acres, would be maintained as open space. A Lot Line adjustment is proposed to transfer approximately 5.05 acres from APN 037-251-21 to APN 037-25 1-22 to result in two parcels of 3.38 acres and 14.5 acres respectively. The project requires a Subdivision, Lot Line Adjustment, Roadway/Roadside Exceptions, Riparian Exception for the drainage systems releasing to the riparian corridor, and a preliminary grading approval. The property is located on the north side of Cabrillo College Drive and the south side of Soquel Drive, just east of Atherton Drive.

Findings of Exemption (attach as necessary):

An Initial Study has been prepared for this project by the County Planning Department according to the provisions of CEQA. This analysis shows that the project will not create any potential for adverse environmental effects on wildlife resources.

Certification:

1 hereby certify that the public agency has made the above finding and that the project will not individually or cumulatively have an adverse effect on wildlife resources, as defined in Section 711.2 of the Fish and Game Code.

Dan Carl

KEN HART
Environmental Coordinator
for Alvin D. James, Planning Director
County of Santa Cruz

Date: 10/31/01

NAME: Richard Beale for Atherton Place Development, LLC
APPLICATION: 99-0148
A.P.N: 37-251-21,22

NEGATIVE DECLARATION MITIGATIONS

A: In order to ensure that mitigation measures B through K are properly implemented, prior to any site disturbance the applicant shall organize a pre-construction meeting on site to review the mitigation measures and conditions of approval. The Grading Contractor, Department of Public Works inspector, Project Biologist and Environmental Planner shall participate.
Protective fencing for riparian and native grass protection must be in place and will be inspected at the meeting. Pre-disturbance biotic survey results will be verified.

B: In order to mitigate disturbance to three types of bird that are of special concern, Loggerhead shrike *{Lanius Ludovicianus]* , Yellow warbler *{Dendroica petechia brewsteri }* and various species of raptor, the following shall occur:

1. Between thirty days and twenty one days prior to the start *of* disturbance on the property the project biologist shall conduct pre-construction surveys to determine whether any nests of the above types of birds are present. The biologist shall submit this survey to the Environmental Coordinator for review at least 14 days prior to site disturbance.

a) If nest(s) are found, the location shall be plotted on the improvement plans along with a 200 foot radius no-disturbance zone around each nest. To avoid accidental incursion into the no disturbance zone chain link fencing with "no entry" signs shall be installed on the perimeter of the zone. Prior to site disturbance, the applicant/owner shall arrange for field inspection by Environmental Planning staff to verify proper installment of the fencing.
The no-disturbance zone signs and fencing shall remain in place until the Environmental Coordinator approves written documentation from the project biologist that certifies that the young in the nest(s) have fledged and the nest(s) are no longer active;

b) If none of the above listed birds are nesting on site, the owner/applicant shall obtain written acceptance of the survey and permission to begin site disturbance from the Environmental Coordinator.

2. Prior to filing the tentative map, the applicant/owner shall add a notation on the improvement plans indicating that there are restrictions regarding bird populations and referring to the required pre-construction survey;

3. Prior to site disturbance the applicant/owner shall organize a pre-construction meeting on site among the contractor, Department of Public Works inspector, and Environmental Planning staff to ensure that all parties are aware of restrictions to mitigate impacts to birds.

C. In order to minimize disturbance in the riparian buffer and corridor the following shall occur:

1.The proposed location of the drainage pipes and dissipaters shall be staked in the field

and shall be inspected by the project biologist prior to any ground disturbance. The project biologist shall submit a letter to Environmental Planning staff verifying that the drainage works are located such that the minimum possible amount of vegetation is being removed and that no mature trees are being removed. The biologist shall calculate the amount of lost vegetation and shall provide a plan for replacement at 3:1 of in-kind native species. Non-native vegetation need not be replaced;

2. Ground disturbance for the installation of drainage pipes and dissipaters shall not occur after October 1st. Erosion control and replanting shall be in place prior to October 15th;

3. The Homeowner's Association (HOA) documents shall include a requirement that external light sources be shielded and directed away from the riparian corridor.

D. In order to prevent accidental incursion into the riparian buffer, riparian corridor, and areas of native grass, prior to public hearing, the improvement plans shall be revised to clearly show temporary, four foot chain link fencing placed along the boundary of the riparian buffer and a minimum of twenty feet outward from the edge of native grass areas. Fencing shall be in place prior to the start of grading and construction activities and shall remain until subdivision improvements are completed, revegetation is in place and the improvement bond is released by the Department of Public Works.

E. In order to prevent erosion, off site sedimentation, and pollution of creeks, the erosion control plan shall be revised to include the following items: a clearing and grading schedule that limits grading to the period of April **15** - October **15,** clearly marked disturbance envelope, revegetation specifications, silt barrier installed to protect the riparian area, temporary road surfacing and construction entry stabilization, sediment barriers around drain inlets, etc. This plan shall be integrated with the improvement plans that are approved by the Department of Public Works, and shall be submitted to Environmental Planning staff for review and approval prior to recording of the final map.

F. To prevent drainage discharges from carrying silt, grease, and other contaminants into Sesnon Pond or Porter Gulch, the silt and grease trap(s) shown on the improvement plans shall be maintained by the Homeowners Association according to the following monitoring and maintenance schedule:

- The trap(s) shall be inspected to determine if they need cleaning or repair prior to October 15 of each year;
- The applicant shall provide manufacturer's recommended maintenance procedures for the "Stormceptor" model to Department of Public Works staff;
- **A** brief annual report shall be prepared by the inspector to at the conclusion of the October inspection and submitted to the Drainage Section of the Department of public Works within *5* days of inspection. The report shall specify any repairs that have been done or that are needed for the trap to function well.

G. In order to preserve native grass areas and encourage the spread of native grasses into grasslands dominated by non natives the applicant/owner shall implement the approved maintenance and mowing plan, **K.** Lyons, July 6, 2000) .Further, the applicant shall ensure that the HOA agreement includes language which specifies how the maintenance and mowing plan

will be funded and implemented by the Association and which includes references to the cost estimates that appear in the plan.

H. In order to prevent conflicts with adopted General Plan policies regarding noise, prior to the approval of building permits for units 26 and 27, the owner/applicant shall submit a letter from the project acoustic consultant verifying that the recommendations contained in "Revised Noise Environment and Design Recommendations", Environmental Consulting Service, July 10, 2001, have been incorporated into the plan.

I. In order to increase traffic safety the owner/applicant shall, prior to public hearing, 'revise the project plans as follows:

1. Delete the curb returns at Atherton Drive/Bowman Court

2. Place stop signs at Atherton Dr./Bowman Court and Bowers Court/Cabrillo College Dr.

3. Submit details of the clearing, grading and/or retaining walls that will be required to create adequate sight distance at the southwest corner of Atherton Drive and Soquel Drive and at the north side of Cabrillo College Drive at Willowbrook, to Department of Public Works (DPW) traffic engineering staff. Obtain DPW approval of the proposal and revise grading estimates and plans as necessary to incorporate any proposed grading or new retaining walls;

2. Revise the plans to add curb, gutter and sidewalk on Cabrillo College Drive from the end of the existing curb, gutter and sidewalk to the property frontage.

K. In order to mitigate the contribution of additional traffic to existing traffic flow, the owner/applicant shall pay Transportation Improvement Area (TIA) fees at the rate of $4000 per lot, to be used as a fair share contribution towards future traffic improvements, including a traffic signal at the intersection of Willowbrook/Soquel Drive, the striping of a left turn lane from Willowbrook onto Cabrillo College Drive, and the construction of a left turn lane on Cabrillo College Drive to Willowbrook Lane.

COUNTY OF SANTA CRUZ
PLANNING DEPARTMENT

Date: September 10, 2001
Staff Planner: Joan Van der Hoeven

ENVIRONMENTAL REVIEW
INITIAL STUDY

APPLICANT: Richard Beale

APN: 037-251-21 & 037-251-22

OWNER: Atherton Place Development LLC

USGS Quad: Soquel

Application No: 98-0148

Supervisorial District: Second

Site Address: No Situs

Location: On the north side of Cabrillo College Drive and the south side of Soquel Drive, just east of Atherton Drive.

EXISTING SITE CONDITIONS

Parcel Size: 17.8 (Ifland Estimate)

Existing Land Use: Vacant

Vegetation: Primarily Meadow Grasses & Riparian Corridor

Slope: 0-15% 9.2 , 16-30% 4.0 , 31-50% 4.6 , 51+% —— acres

Nearby Watercourse: Porter Gulch Creek (Intermittent Stream)

Distance To: On site

Rock/Soil Type: Soil 133 (Elkhorn Sandy Loam, 2-9% slope)
Soil 174 (Tierra-Watsonville Complex, 15-30% slope)
Soil 177 (Watsonville Loam, 2-15% slope)
Soil 179 (Watsonville Loam, thick surface, 2-15% slope)

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

Groundwater Supply: N/A
Water Supply Watershed: N/A
Groundwater Recharge: Yes
Timber or Mineral: N/A
Agricultural Resource: N/A
Biologically Sensitive Habitat: Yes
Fire Hazard: N/A
Floodplain: N/A
Erosion: N/A
Landslide: N/A

Liquefaction: Low potential
Fault Zone: N/A
Scenic Corridor: Mapped
Historic: N/A
Archaeology: N/A
Noise Constraint: *Yes*
Electric Power Lines: N/A
Solar Access: N/A
Solar Orientation: N/A
Hazardous Materials: N/A

SERVICES

Fire Protection: Central Fire
School District: Soquel
Water Supply: Soquel Creek Water

Sewage Disposal: County Sanitation

Drainage District: Zone 5
Project Access: Atherton Drive to Bowman Court, Cabrillo Colllege Drive to Bowers Court

Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

PLANNING POLICIES

Zone District: "RM-3"
General Plan: "O-U" & "R-UH"
Coastal Zone: N/A

Within USL: Yes
Special Designation: Scenic
Special Community: N/A

PROJECT SUMMARY DESCRIPTION:

Proposal to construct 4 semi-detached townhouses and 29 detached townhouses, in two phases, on a common parcel with a minimum "restricted common area" of 3,000 square feet minimum per dwelling unit; 2 new roads: "Bowman Court", "Bower Court" and an emergency access drive; (5) parking areas totaling 24 spaces; drainage systems discharging to an existing gully along Porter Gulch Creek; two retaining walls up to four feet in height, and one retaining wall up to six feet in height. Grading consists of 7,690 cubic yards of cut and fill, balanced on site. The rear (riparian woodland) of both parcels, an area totaling 8.537 acres, would be maintained as open space. A Lot Line adjustment is proposed to transfer approximately 5.05 acres from APN 037-251-21 to APN 037-251-22 to result in two parcels of 3.38 acres and 14.5 acres respectively. The project requires a Subdivision, Lot Line Adjustment, Roadway/Roadside Exceptions, Riparian Exception for the drainage systems releasing to the riparian corridor, and a preliminary grading approval.

DETAILED PROJECT DESCRIPTION:

Construction phasing includes:

Phase I (Lots 1-14): **(2)** affordable, semi-detached townhouses; and
(12) market-rate, detached townhouses;
(14) Subtotal

Phase II (Lots 15-33): (3) affordable, detached townhouses; and
(16) market-rate, detached townhouses;
(19) Subtotal

(33) TOTAL: *(5)* affordable & (28) market-rate

PROJECT SETTING:

The subject properties are contiguous and total approximately 17.8 acres (Surveyor's Estimate). The parcels are located on the north and west sides of Cabrillo College Drive and the south side of Soquel Drive, just east of Atherton Drive, in the Soquel Planning Area. Both parcels are currently undeveloped. The most level areas of the parcels occur along their western frontages, and are vegetated primarily with meadow grasses and some mature trees. The "rear" (eastern edge) of the parcels slope down towards Porter Gulch Creek. The rear of both parcels is mapped as riparian woodland.

Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

Surrounding development includes single- and multi-family residential, neighborhood parks, Cabrillo College, and the Twin Lakes Baptist Church.

This project supercedes a previous version, which was for 58 lots covering both parcels from the area between Cabrillo College Drive to Soquel Drive. Major differences between the two versions of the project are as follows:

- 58 houses reduced to 33 houses (9 affordable reduced to 5 affordable houses);
- 17.8 acres reduced to 14.5 acres for the project;
- lot line adjustment creates 3.4 acre parcel adjacent to Soquel Drive for which no development is proposed at this time;
- drainage system has been removed from the natural pond;
- grading is now balanced on the site and reduced from 10,000 to 7,690 cubic yards;
- secondary emergency access has been added, as has access through the adjacent commercial property on Cabrillo College Drive.

Overall, the revised project has fewer environmental impacts.

Note: Attachments to this document are printed in white if they relate to the original proposal and in green if they are specific to the current, revised proposal.

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

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 structures in the County are subject to the possibility of earthquake damage. This site is not, however, located within a mapped fault zone. The structures shall be engineered to meet seismic requirements of the Uniform Building Code, and the recommendations of the project Soil Report and the County's soil report review.

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	—

The soil report was reviewed and accepted by County Environmental Planning on April 28, 1999 (See Attachment 4). An update letter addressing the 33 unit alternate was reviewed and accepted by the Civil Engineer 9/7/01 (See Attachment 50).

3. Develop land with a slope exceeding

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
30%?	___	___	X	___

The proposed grading plans are shown on Attachment47 (Ifland Engineers, Sheets 7 and 8) dated 7/10/01.

No buildings or roads are proposed on slopes greater than 30%. However, the proposed drainage pipe at the outlet may traverse slopes greater than 30% within the riparian corridor. With adequate erosion control and revegetation, this will not create a significant impact.

Preliminary grading quantities for the site (APN 037-251-21 and –22) are 7,690 cubic yards of cut and 7,690 cubic yards of fill, thereby balancing the grading on site. The cut would occur on the western half of the parcel and the fill would be placed on the eastern half of the parcel.

This would necessitate the construction of retaining walls on the southern portion of the development. The retaining wall would range in height from four feet to six feet. It runs along the eastern side of Bowers Court to Cabrillo College Drive.

All elements of the grading plan must be engineered, reviewed by the project geotechnical engineer and project drainage engineer, and accepted by the County Department of Public Works and Environmental Planning. Drainage shall not be allowed to free flow over the retaining walls into the ripariadopen space easement.

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

___ X ___ ___

There is a moderate erosion hazard associated with the project while grading and construction are underway.
Site grading has the potential to increase siltation rates and degrade water quality in the adjacent riparian corridor of Porter Gulch Creek. Engineered grading plans, which include detailed erosion control plans, including the installation of stormceptor silt and grease traps on the drainage pipes, shall be required during preparation of the final improvement plans, and shall be reviewed and approved by Environmental Planning. No winter grading will be allowed on the project site.

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

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

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

The project will be served by public sewer.(Attachment 35.)

7.	Result in Coastal Cliff Erosion?	____	____	____	__X__

B. Hydrology, Water Supply and Water Qualitv

Could the project affect, or be affected by, the following:

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

All development occurs on the upper portion of the parcels, well above the creek.

2.	Place development within the floodway resulting in impedence or redirection of flood flows?	___	___	___	_X_

See B.1.

3.	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 property is in a mapped groundwater recharge area. Full retention of all runoff on site is not feasible in this situation because of limiting soil conditions. The project will, however, provide detention such that the post development runoff rate does not exceed the predevelopment runoff rate, and therefore the project does comply with the General Plan Policy 7.23.1 The natural area between the rear retaining wall and Porter Gulch Creek will continue to recharge with sheet flow.

Lastly, the actual amount of lost recharge will be limited because of the proximity of Porter Gulch Creek at the base of the slope. Refer to Attachment 47 and Attachment 40 for drainage calculations and the Department of Public Works Drainage staff comments.

4.	Degrade a public or private water supply? (Including the contribution of urban cont-aminants, nutrient enrichments, or other agricultural chemicals or seawater intrusion?	____	____	_X__	____

	Significant Or Potentially Significant impact	**Less** Than Significant With Mitigation Incorporation	**Less** Than Significant Impact	No Impact

Run-off from the project site during grading operations could contribute silt to Porter Gulch Creek if erosion is not prevented by the implementation of erosion control. Detailed erosion and sediment control will be required (See **A.8).** Storm drainage traps will be required on all drainage pipes from paved areas. The private Homeowners Association will be responsible for maintaining the silt and grease traps. Annual inspection and clean out will be required.

5. Degrade septic system functioning? — — — X

No septic systems will be installed on site. See Section A-6.

6. 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

All drainage will be routed toward Porter Gulch, preserving the current drainage direction. No water will be diverted to the street system. The drainage plan includes the installation of three drainage pipes which release to Porter Gulch (See Attachment 47, Ifland). Street drainage will enter an 18" storm drainpipe with an inlet at Bowman Court, will terminate in an energy dissipator, which will serve as detention, and then exit via a control release outlet into Porter Gulch. A second 18" storm drain pipe with an inlet at Bowers Court will direct street drainage to an energy dissipator and then release to Porter Gulch. The three drainage outlets will be in the riparian corridor of Porter Gulch, and therefore will require a Riparian Exception and a stream alteration permit from the California Department of Fish and Game (CDFG).

7. 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- —

The proposed subdivision will increase impervious area, and therefore increase drainage. The applicant prepared a preliminary analysis showing adequate capacity downstream. The analysis was reviewed and accepted by the County of Santa Cruz, Department of Public Works/Drainage Division. Drainage Zone 5 fees will be assessed at a rate which is currently $0.75 per square feet on the net increase in impervious area. See also a letter regarding drainage prepared by Ifland Engineers dated September 24,1999 (Attachment 14), and August 27,

	Significant or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

2001 (Attachment 41) and the County's response dated November 17, 1999 (Attachment 14a) and August 31,2001 (Attachment 40).

Note: A "stormceptor" is a pollution prevention device that removes oil and sediment from stormwater. Storm water flows through the mechanism, collecting contaminants in a lower chamber. An upper by-pass chamber prevents the resuspension and scour of settled materials during storm events. (See Attachment 14.)All drainage leaving paved areas will be routed through a Storrnceptor.

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

The project is providing detention, such that the post development runoff rate will not exceed the natural condition. Therefore, flood levels will be relatively unaffected.

9. Otherwise substantially degrade water supply or quality?	—	—	—	X

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 biological report, prepared by Biotic Resources Group, dated June 7, 1999, no special status plant species are present on site (See Attachment 9, page 7.) The report has been updated to address project revisions (Attachment 39).

The same report indicates that three types of birds which are of special concern may be present on site: loggerhead shrike (Lanius ludovicianus), yellow warbler (Dendroica petechia brewsteri), and various raptors. Grading and removal of coyote brush/scrub habitat has the potential to destroy shrike nests if they are present at the time of the clearing. In addition, noise from construction can disrupt all three types of birds.

The following mitigation measure is therefore required to reduce the potential impact

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

to less than significant:

Pre-construction surveys shall be conducted within 30 days prior to the beginning of construction to determine if Loggerhead shrike, warblers, or raptors are nesting on the project site. If active nests are found, construction shall either be delayed until after nesting season or prohibited within 200 feet from nests until all young have fledged. The study and the determination that young have fledged shall be made by the project biologist and/or the county biologist.

Note also that while other bird species may frequent the riparian corridor, the corridor is not being developed, and a buffer around it will also remain undeveloped except for installation of drainage pipes. See also B-2.

Focused surveys for California red-legged flogs, a listed species, were conducted in May 1999. No red-legged frogs were observed on the property (See Attachment 9, Page 6). Further, no southwestern pond turtles, another listed species, were observed during this same observation period. Note: The month of May is also the time of year when pond turtles are active and detectable. (See Attachment 10, page 1.)

Other species that were mentioned in comments received during the review period included Pacific tree frogs, Santa Cruz Long Toed Salamanders (SCLT), bobcats, deer, and Monarch butterflies.

Pacific tree frogs are locally abundant and are not a special status species. The salamander seen in the area was identified as an arboreal salamander, distinct from the SCLT salamander, and is not a protected species. Bobcats and deer area, similarly not special status species.

In order to evaluate concerns about Monarch butterflies roosting in the Eucalyptus trees on the parcel, and to follow up on an earlier recommendation by the project biologist, a wildlife biologist was engaged by the applicant to perform surveys for the butterflies. The survey undertaken during the correct time to identify overwintering butterfly colonies, did not reveal butterflies.

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

The project site encompasses approximately 18 acres: approximately 6 acres are proposed for residential development and approximately 8.5 acres are proposed to be designated as open space, and the remaining 3.3 acres are currently vacant.

Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

Non-native grassland and riparian woodland dominate the project site. Coyote brush, coast live oak woodland, an area of native grasses and groves of eucalyptus and pine are also present (See Attachment 9, Figures 2a and 2b, Plant Community Maps). Porter Gulch, an intermittent drainage, transverses the eastern portion of the parcels and supports a dense band of riparian woodland vegetation. An in-channel pond ("Sesnon Pond") occurs in the south-eastern section of Parcel 037-251-21. Porter Gulch enters an underground culvert at Cabrillo College Drive and travels under Highway 1 towards New Brighton State Beach.

The area proposed to be developed consists solely of non-native grassland, and the drainage systems described in B-9.

The sensitive plant community that will be disturbed is the riparian area which will be temporarily disturbed by the placement of drainage improvements. The project biologist has confirmed in writing that the potential impacts of the proposed drainage systems will be limited to temporary disturbance of loss of riparian vegetation. A map shall be prepared which overlays the drainage systems onto the biotic map. Any riparian vegetation that is disturbed or removed must be restored under the supervision of the professional biologist at a ratio of 3:1.

The area to be held in open space includes: coast live oak woodland, willow riparian woodland, coyote brush scrub, non-native and all native grasslands, eucalyptus, Monterey Pine, and seasonal wetland.

Further, construction activities could result in impacts to wetland, riparian, and native grassland stands if operations unintentionally enter these areas that are shown as being avoided in the project plans. The following mitigation measures will reduce these potential impacts to a less than significant level:

i. The existing riparian woodland and seasonal wetlands shall be protected from construction disturbance. Four-foot tall chain link fencing shall be temporarily placed at the outside edge of the riparian woodland buffer: This fencing will be installed and inspected prior to any site disturbance, and shall remain in place until construction is complete. Construction equipment and debris shall not enter these areas.

ii. The existing native grass stands shall be protected from construction disturbance. Four-foot tall chain link fencing shall be temporarily placed at a minimum of 20 feet outward from the edge of the native grass stands. This fencing shall remain in place until construction is complete. Construction equipment and debris shall not enter these areas.

iii. Grading activities adjacent to the riparian woodland, oak woodland and eucalyptus/pine groves shall be scheduled to occur outside the nesting season

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

for the protected bird species likely to occur on site: yellow warbler (March-August), Loggerhead shrike (March-August), and various raptors (February-July). (See Attachment 9, Table **2,** Pages ***8*** & 9). If grading is proposed during an identified nesting season, a qualified biologist shall perform surveys to determine if protected species are nesting adjacent to grading areas. If any raptors, yellow warblers, or Loggerhead shrike are found nesting, construction shall not take place within 200 feet of nests, until the project biologist certifies that all young have fledged. (Also see D-1 for a quantitative discussion of noise impacts.)

iv. The open space grassland areas shall continue to be seasonally mowed and managed as a means to preserve the existing native grassland plant species. Mowing shall be timed to discourage the spread of non-native grasses and encourage the growth of native grasses and forbs. Mowing shall be conducted in the spring and fall, mowing grass to **4** inches. The applicant has submitted a full management plan which includes management specifications and the language to be included in the Homeowner's Agreement to fund the program. (See Attachment **48).**

v. Prior to approving the Final Map, a survey shall be conducted by a qualified biologist during the appropriate winter season to determine if Monarch butterflies are currently roosting on site. If the site is determined to be occupied by Monarch butterflies as a winter roost site, the project applicant / owner shall install only gas fireplaces.

Staff has received numerous letters from the public expressing concern over the potential biological impact of the proposed project, and particularly impacts to birds that use the riparian resource. Noise disturbances to species of special concern will be controlled by prohibiting site work and construction within 200 feet of nests. The riparian woodland, wetland, and buffer zone will only be disturbed for the temporary installation of drainage improvements, which will be installed under the terms of a Riparian Exception. The Riparian Exception will require oversight by the project biologist, revegetation, protective fencing, etc. No other development is allowed within the woodland or buffer.

3. Interfere with the movement of any native resident or migratory fish or wildlife corridors, or impede the use of native or migratory wildlife nursery sites?

—	—	—	X	

See C.I & 2 above

4. Produce night time lighting that will illuminate

	Significant Or Potentially significant Impact	Less Than Significant With Mitigation incorporation	Less Than Significant Impact	No Impact
animal habitats?	—	—	X	—

Lighting associated with the 33 single-family residences and street lighting shall be limited to the area west of the 8.5 acre open space/riparian area. No lighting shall be directed toward the open space. See also Section E.4.

5. Make a significant contribution to the reduction of the number of species of plants or animals?	—	—	—	X
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-inches Diameter or greater?	—	—	—	X
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
3. Encourage activities which 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				

	Significant or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
resources)?	___	___	___	X

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 view of Porter Gulch from Atherton Drive, a public street, is a valuable resource that will be partially blocked by the new homes. However, for the purpose of CEQA review, the threshold of significance for the loss of a public view is typically that the public area itself has special physical qualities, such as a beach or coastal bluff, or a special use that amplifies the importance of the view. Such a place, for example, would be an area of public trails in a wilderness park, such as Wilder Ranch or Nisene Marks. In this case the loss of the view, which is on private land, from a standard neighborhood street, is not considered to be a significant impact.

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

The parcels are visible from State Highway One, a scenic corridor. However, the parcels are only seen intermittently through existing trees. Even this intermittent glimpse however, will be required to be softened by the use of neutral earth tone exterior colors on buildings, textured surfaces and earth-toned, neutral colors on visible retaining walls (Attachment 37) and additional vegetative screening.

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 ridgeline?	___	___	X	___

A retaining wall measuring four to six feet in height in the south portion of the project shall be intermittently visible from Highway One and shall be constructed of neutral earth tone colors with a textured surface. See Section E.2.

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

	Significant or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

All site, building, security and landscape lighting shall be directed onto the site and away from adjacent properties. Light sources shall not be visible from adjacent properties. Light sources shall be shielded by landscaping, structures, fixture design, or other physical means. Building and security lighting shall be integrated into the building design as per County Code Section 13.11074(d)(1). Light standards to a maximum height of 15 feet are allowed.

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

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 parcels do not appear on maps or inventories of historic resource or pre-historic resources.

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

See F-1.

3. Disturb any human remains, including those interred outside of formal cemeteries?	___	___	___	X
4. Directly or indirectly destroy a unique paleontological resource or site?	___	___	___	X

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?	___	___	___	X

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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
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
6. Release bioengineered organisms or chemicals into the air outside of project buildings?	___	___	___	X

H. **Transportation/Traffic**

Does the project have the potential to:

1. Cause an increase in traffic which 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	___

This project proposes the construction of **4** semi-detached townhouses and 29 detached townhouses. The traffic impact of the proposed project is therefore **4** semi-detached dwelling units and 29 detached dwelling units:

4 semi-detached townhouses x 10 vtd	=	40 vtd (vehicle trips/day)*
29 detached townhouses x I 0 vtd	=	290 vtd (vehicle trips/day)*
TOTAL: 33	=	330 vtd (vehicle trips/day)*

Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

* The traffic impact of all proposed units are estimated to be the same as that of single-family dwellings.

Transportation Improvement Area (TIA) fees are required to mitigate the impact of constructing the proposed dwellings. . The current fee is $2,000.00 for Roadside Improvement and $2,000.00 for Transportation Improvement, for a total of $4,000.00 per lot. Fees assessed for 33 lots currently total $132,000.00 (Reference Attachment 16.)

A traffic study was prepared by Higgins Associates, Civil & Traffic Engineers, dated June 17,1999 and addenda were produced March 2000 (see Attachment 19) July 3, 2001, and August 28, 2001, (Attachments 32 & 33). These studies analyzed existing, existing plus project, and cumulative conditions on three roadway segments and nine intersections.

The County threshold for acceptable level of service is LOS C, with LOS A representing free-flow conditions and LOS F representing forced flow conditions. Results of the traffic study indicate that all intersections will operate at a level of service of LOS C or better after the project is developed.

The consulting traffic engineer recommendations are as follows:

I. Improvements Warranted for Existing Conditions:
Re-grade the existing slope and remove shrubs on the north side of Cabrillo College Drive at Willowbrook Court to improve existing stopping sight distance to 550 feet for a design speed of 50 mph.

ii. Project Mitigation:

* The project shall be responsible for paying the County-required TIA fees.

iii. Cumulative Mitigation:

* Through TIA fees, install a separate northbound Willowbrook Lane left turn lane at Soquel Drive, and an eastbound left lane turn lane at the Cabrillo College Drive/Willowbrook Lane intersection. Funding to be the responsibility of all cumulative developments.

Department of Public Works/Road Engineering reviewed the traffic study and recommended:

i. Payment of $132,000 in TIA fees (See I.1).

	Significant Or Potentially Significant impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

ii. Improvement of the sight distance at Cabrillo College/Willowbrook Lane. Cost to be borne by applicant.

iii. Improvement of the sight distance at Atherton Drive/Soquel Drive. Cost to be borne by applicant.

Revision of the preliminary improvement plans to show Bowman Ct. as one new driveway cut and no curb returns.

In response to community comments concerning traffic safety in the vicinity of the park at Baseline and Willowbrook, the project traffic engineer analyzed the need for a three way stop at that location. It was determined that traffic volume will not meet warrants for a three way stop at this location. See traffic study addendum dated March 2000, Attachment 19. Safety at that intersection is a function of vehicle speed, and the traffic engineer includes suggestions for "traffic calming" measures if these are desired by the residents. See also the letter from the Department of Public Works, Traffic Engineering staff, dated March 29, 2000, Attachment 25, indicating that they have reviewed and accepted this addendum.

Also in response to comments, the Department of Public Works has evaluated traffic safety at intersections of new driveways with Atherton, and traffic engineers are now requiring the addition of stop signs at the intersection of Bowman Ct. with Atherton Drive and the intersection of Bowers Ct. with Cabrillo College Drive.

Lastly, the March addendum to the traffic study also addresses the contribution to the traffic made by Cabrillo College growth (a factor for that growth was included in the original traffic study) and special events at Twin Lakes Church (such events will contribute little to peak time traffic volume). See also the Department of Public Works response to a community comment requesting ability for left turns onto and from Atherton from Soquel Drive, Attachment 26.

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

County Code Section 13.10.552 requires that all residential uses have a required number of on-site parking spaces based on the number of proposed bedrooms per dwelling unit. The project proposes the construction of four semi-detached dwelling units with three bedrooms each, and 29 attached dwelling units with three bedrooms each. 3-bedroom dwelling units require 3 on-site parking spaces. In this case, each proposed unit includes four on-site parking spaces, thereby exceeding the minimum required parking by 25%. Additionally, the proposal includes **(5)** guest parking

areas, for a total of 24 spaces over the minimum.

Note that even though the project accommodates the new demand created by the project within the development bounds, the proposed two new road cuts for "Bowman Court" and 8 driveway encroachments on the east side of Atherton Drive will eliminate approximately 12 existing off-street parking spaces. This number of lost spaces was calculated using the standard size space, 8.5' x 18', per County Code Section 13.10.554. (Note that the minimum size spaces required is typically 22 feet long, so this count of 12 spaces is a conservative amount). This loss does not meet the test to be considered a significant impact under CEQA however, because the project meets the minimum number of spaces required by the County Code Section 13.10.552(a). It does, however, suggest that it is appropriate that the development provides more than the minimum number of required spaces, in order to ensure adequate parking. When a project includes greater than 10% more than the minimum spaces a separate approval by the decision making body is required. In this case the extra 24 spaces are recommended to be approved.

It is also important to note the potential effects of the subject project on the adjacent property to the west. Access to the proposed project crosses that commercial parcel, and will cause the internal circulation and parking on that parcel to change. The applicant has submitted a map showing that there is at least one configuration of the new access and parking that does not decrease the number of parking spaces that serve the existing commercial use (Attachment 43). Therefore, a loss of parking on the adjacent parcel does not necessarily occur due to this project.

	Significant or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
3. Increase hazards to motorists, bicyclists, or pedestrians?	___	___	___	X

Improvements proposed to improve sight distances would decrease traffic hazards. See H-1.

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	___

Focused traffic studies were conducted for the proposed project. The traffic impact of the 33 residences totals approximately 330 vehicle trips per day. The County threshold for acceptable level of service is LOS D, with LOS A representing free-flow conditions and LOS F representing forced flow conditions.

	Significant Or Potentially Significant impact	Less Than Significant With Mitigation incorporation	Less Than Significant Impact	No Impact

Results of the traffic study indicate that all intersections will operate at a LOS D or better after the project is developed.

Caltrans has provided the comment that Highway One, which currently functions at LOS F during peak periods, will be incrementally impacted by additional traffic. This is accurate. However, the adopted threshold for determining that the incremental contribution of a given project to cumulative traffic conditions is significant is a contribution of greater than 1% of the existing traffic load (Santa Cruz County General Plan Policy 3.12.1). The project does not exceed this threshold.

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 addition of **(4)** semi-detached townhouses and (29) detached townhouses will increase the noise level in the area over that of the existing undeveloped parcels. The parcels are, however, zoned for residential use and are surrounded by residential uses. The project is therefore compatible with the existing development and the planned intent of the properties' zoning and General Plan designations.

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

The project site is located within the noise corridors of Soquel Drive to the north and Highway 1 to the south. General Plan Noise Element Objective 6.9.1 requires all new residential development to conform to a noise exposure standard of 60 dB Ldn (day/night average noise level) for outdoor noise and 45 dB Ldn for indoor noise.

Acoustical studies were prepared by Environmental Consulting Services dated June 8, 1999 (Attachment 6), October 11, 1999 (Attachment 7) and July 10, 2001 (Attachment **38).**

The June 8, 1999 study estimated the architectural Design Noise Level for the most highly impacted new lots 26 and 27 to be 66 dBA projected to year 2005 traffic volumes. The study proposes to provide a minimum interior noise reduction of 21 dB by a combination of design elements in the building shells, including: double-glazed windows, solid exterior doors, ventilation systems that allow all windows and

	Significant Or Potentially Significant Impact	**Less** Than Significant With Mitigation Incorporation	**Less** Than Significant Impact	No Impact

doors to be closed, and sealants around structural penetrations. The sound attenuating qualities of the building materials specified will reduce the minimum interior noise standard to **45** dB Ldn as required by the General Plan. The project acoustical engineer has submitted mitigation measures that will decrease the exterior noise to meet the General Plan standard for exterior noise of 60 dB Ldn and the plans shall show such measures (noise report July 10, 2001).

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

Increased noise levels during construction can negatively effect Loggerhead shrike, yellow warblers and raptors if they are nesting on the site. The October 11, 1999 acoustical study and July 10, 2001 update (See Attachments 7& 38) quantifies the existing noise environment in the riparian corridor and estimates the impact which may be caused by the proposed construction activity. The existing noise impact is identified as being in the 40-50 dBA range. Estimated construction equipment noise levels run up to 85 dB with the actual impact contingent on the number of equipment units operating concurrently and the distance to the receptor.. The project biologist reviewed this acoustical report and has recommended that no site work or construction activity occur within 200 feet of nests as mitigation to decrease the impact of noise on the loggerhead shrike. See C-2.iii for proposed mitigation.

A temporary increase in ambient noise levels for adjacent residences will occur during construction and shall be mitigated by limiting the time and days construction activity may occur to weekdays, 7:30 – 5:00.

J. Air Qualitv

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

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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:

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	___

The addition of (4) semi-detached townhouses and (29) detached townhouse units will increase the demand for fire protection. The size and location of the project will not, however, create significant demands for new services, nor will it require additional personnel.

Additionally, staff shall include as a Condition of Approval, all requirements mandated by the Central Fire Protection District (Reference Attachments 11 & 36). Requirements include two fire hydrants and sprinkling of the proposed dwellings.

B. Police protection?	___	___	X	___

The addition of **(4)** semi-detached townhouses and (29) detached townhouses will increase the demand for police protection. The size and location of the project will not, however, create significant demands for new services, nor will it require additional personnel.

C. Schools?	___	___	X	___

The addition of (4) semi-detached townhouses and (29) detached townhouses will increase the demand for school services by adding new homes which will, with great probability, house families with school age children. The developer shall be required, as a Condition of Approval, to submit a written statement signed by an authorized representative of the

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant impact	No Impact

Soquel School District confirming payment in full of all applicable developer fees prior to release of any building permit for a new dwelling.

D. Parks or other recreational facilities? ___ X ___

The addition of (4) semi-detached townhouses and (29) detached townhouses will increase the demand for park services. The project will have a cumulative impact on an area with a park deficit. General Plan Figure 7-3, Park Acreage Needed at General Plan Build-out, indicates a 36 acre deficit in neighborhood park land and a 24-36 acre deficit in community park land in the Soquel Planning Area. The County of Santa Cruz, Parks Department, conditions approval on receiving the Park dedication fee for Soquel, which is currently $800.00/bedroom, to mitigate for this impact. Land division fees to be paid, per the architecture submitted, will be (33) three-bedroom units (for a total of $2,400.00 per dwelling minus (5) affordable three-bedroom units. Fees assessed for (33) three-bedroom units currently total $69.600.00. (Note: Affordable units are exempt from park dedication fees per County Code Section 15.01.080.)

E. Other public facilities; including the maintenance of roads? ___ ___ ___ X

Project frontage exists along Atherton Road, a public road. Atherton Road is County maintained. Proposed driveway access to (4) semi-detached units and (3) detached units would be directly off Atherton Drive.

Attachment 47 (Ifland, Street Improvement Plans) illustrates the proposed street improvement plans for “Bowman Court” and “Bowers Court”.

“Bowman Court” is proposed as a 40-foot wide right-of-way with separated sidewalk onboth sides, a 24-foot paved roadway, and a 3-foot 6-inch landscape strip. A right-of-way less than 56 feet in width requires a roadway exception. Additionally, a landscaping strip less than 4 feet in width requires a roadside exception.

“Bowers Court” is proposed as a 40-foot wide right-of-way with separated sidewalk on both sides with standard four-foot landscape strip for most lengths of the proposed roadway and a 24-foot paved roadway. A right-of-way less than 56 feet in width and the elimination of a segment of separated sidewalk requires a roadway exception.

County Code Section 15.10.050(f)(4) allows for an exception to roadway and roadside improvement standards when the improvements would be located in an environmentally sensitive area as shown by information on file with the

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

Planning Department, where construction of full improvements would cause impacts which could not be satisfactorily mitigated if the project is developed to a density which approaches the zoning of "RM-3" on the lands outside of the biotic reserve.

An emergency access road constructed of turf block is proposed as a 12-foot wide road which would connect "Bowers Court" to Atherton Drive (See Attachment **47).** A locked gate would be located at each end.

Improvement of existing right-of-ways includes construction of new curb, gutter, and sidewalks along Atherton Drive by abandoning an existing section of the right-of-way. No improvements have been proposed along Soquel Drive, the northern project boundary.

Also see H.1 for discussion of Development Impact fees.
The Transit District is requiring a bus stop on Soquel Drive in front of Sesnon House (Attachment 31).

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

The project site has been evaluated relative to its downstream capacity, which was found to be adequate to handle the additional runoff. The site is subject to Zone 5 drainage fees for the increase in impervious area.

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 was reviewed and approved by the Santa Cruz County Sanitation District on 8/31/01 (Attachment 35).

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

	Significant Or Potentially Significant Impact	**Less** Than Significant With Mitigation Incorporation	**Less** Than Significant Impact	**No** Impact
5. Create a situation in which water supplies are inadequate to serve the project or provide fire protection?	___	___	___	X
6. Result in inadequate access for fire protection?	___	___	___	X

The project was reviewed and approved by Central Fire Protection District on 7/17/01 (Attachment 36).

7. Make a significant contribution to a cumulative reduction of landfill capacity or ability to properly dispose of refuse?	___	___	___	X
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 subject parcels are designated "0-U", Urban Open Space, and "R-UH", High Density Urban Residential, under the County 1994 General Plan.

The objective of "O-U" is to preserve lands within the Urban Services Line which are not suited to development due to the presence of natural resource values or physical design constraints.

The preservation of 8.5 acres, or slightly more than half of the 14.5-acre site, as urban open space protects the biological resources and, as conditioned, reduces biological impact of the project to less than significant. See C-1 and C-2 for a discussion of proposed biological impact and mitigation measures, and Attachments 9 & 39 (Biotic Reports).

The objective of "R-UH" is to provide higher density residential development (10.9 to 17.4 units per net developable acre) in areas within the Urban Services Line **(USL).** These areas shall be located where increased density can be accommodated by a full range of urban services and in locations near collector and arterial streets,

	Significant Or Potentially Significant Impact	**Less** Than Significant With Mitigation Incorporation	**Less** Than Significant Impact	*NO* Impact

transit service, and neighborhood, community, or regional shopping facilities. Housing types appropriate to the Urban High Density designation may include: small lot detached houses, "zero lot line" houses, duplexes, townhouses, garden apartments, mobile home parks, and congregate senior housing.

The construction of townhouses at the proposed density, which is substantially lower than the density allowed by the RM-3 zoning, is consistent with the requirements of the General Plan. See J.3 for a discussion of housing density.

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

The subject parcel *is* zoned RM-3, Multi-family Residential with a minimum of 3,000 sq. *ft.* per unit. The submitted Tentative Map proposes the creation of (33) "townhouse parcels" on a common parcel. The average project density, as proposed, is 6,777 square feet per dwelling unit. Also see J-3 for a discussion of housing density.

The project is consistent with all requirements of County Code Section 13.10.323, Development Standards for Residential Districts. The proposed building envelopes reflect a 15-foot front setback to the residence, a 20-foot setback to the garage; a 5-foot interior side yard setback, a 15-foot street side yard setback, and a 15-foot rear yard setback. Additionally, no structure shall exceed the maximum allowable height of 28 feet, floor area to lot area ration of 0.5:1, nor lot coverage of 40%. (Note: floor area ratio has been calculated as all units proposed for Parcel 037-251-21 divided by developable area exclusive of roadways: 0.49:1, and as all units proposed for parcel 037-251-22 divided by developable area exclusive of roadways: 0.43:1. See Attachment 2, Sheet AO, Thacher and Thompson.)

Per County Code Section 13.11.040, Projects Requiring Design Review, the applicant has submitted proposed architectural floor plans and elevations which shall be incorporated as Conditions of Approval. See Project Plans, Sheets A3-11, Thacher and Thompson. The architectural style is modern cottage with varied roof lines. Four townhouse models are proposed, with living area square footage (exclusive of the typical 2-car garage) as follows:

Townhouse A I & A2:	2,044 sq. ft.
B1 - B4:	1,839 sq. ft.
C1 & C2:	1,619 sq. ft.

The proposed units include **(4)** semi-detached units (attached only at the garage) and (29) detached units. All dwellings are 2-story. The semi-detached units have (3) bedrooms each, and the detached units have (3) bedrooms each. Proposed

	Significant Or Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact

exterior finishes include stucco, cedar shingle siding, and horizontal wood siding; and composition shingle roofing

Ownership shall consist solely of the building footprint of the residence. Each owner shall have an "exclusive common area easement" for the rear yard area to landscape at their pleasure. The "rear yards" shall be separated by a solid wood fence six feet in height and a welded wire mesh fence six feet in height where rear yards face the open space easement.

Finally, the proposed landscape plans exceed the minimum planting requirements of County Code Section 13.11.074(c) and 13.11.075 and provide densely landscaped parking areas and front yards, numerous street trees, and vegetative screens between existing and proposed development.

3.	Physically divide an established community?	___	___	___	X
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

The project will be built well below the maximum density planned for and evaluated in the General Plan.

5.	Displace substantial numbers of people, or amount of existing housing, necessitating the construction of replacement housing elsewhere?	___	___	___	X

M. **Non-Local Approvals**

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

Which agencies? California Department of Fish and Game

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, 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 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

3. 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*	NIA
APAC REVIEW			X
ARCHAEOLOGIC REVIEW			X
BIOTIC ASSESSMENT		XX	
GEOLOGIC HAZARD ASSESSMENT			X
GEOLOGIC REPORT			X
RIPARIAN PRE-SITE		XX	
SEPTIC LOT CHECK			X
SOILS REPORT		XX	
OTHER:			
Acoustical Reports ((Attachments 6, 7, 38)		XX	
Traffic Studv (Attachments 19. 32,33)		XX	

*Attach summary and recommendation from completed reviews

List any other technical reports or information sources used in preparation of this initial study:

ENVIRONMENTAL REVIEW ACTION

On the basis of this initial evaluation:

___ 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 mitigation measures described below have been added to the project. A MITIGATED NEGATIVE DECLARATION will be prepared.

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

9/11/01

Date

Signature Dara Levine

For: Ken Hart
Environmental Coordinator

Attachments:

1. Project Maps (Location, General Plan, Zoning & Assessor's Map)
2. Project Plans: on file with the Planning Department
3. Memorandum from Mike Cloud, Environmental Planning, dated April 8, 1998.
4. Soil Report review prepared by Joel Schwartz and Joe Hanna, dated April 18, 1999.
5. Soil Report prepared by Harza Consulting Engineers and Scientists dated July 25, 1997.
6. Acoustical Report prepared by Environmental Consulting Services dated June 8, 1999.
7. Acoustical Report prepared by Environmental Consulting Services dated October 11, 1999.
8. Biotic Letter from Kathleen Lyons, Biotic Resources Group, dated June 4, 1998.
9. Biotic Report from Kathleen Lyons, Biotic Resources Group, dated June 7, 1999.
10. Biotic Letter from Kathleen Lyons, Biotic Resources Group, dated October 21, 1999.

10a Biotic Letter from Kathleen Lyons, Biotic Resources Group, dated November 17, 1999.

11. Memorandum from Eric Sitzenstatter, Central Fire Protection District, dated March 24, 1998.
12. Memorandum from Cherry McCormick, Housing, dated April 29, 1998.
13. Memorandum from Glenn Goepfert, Department of Public Works/Drainage, dated April 10, 1998.
14. Drainage Study prepared by Ifland Engineers dated September 24, 1999.

14a. Drainage letter from Glenn Ifland, Ifland Engineers, dated November 17, 1999.

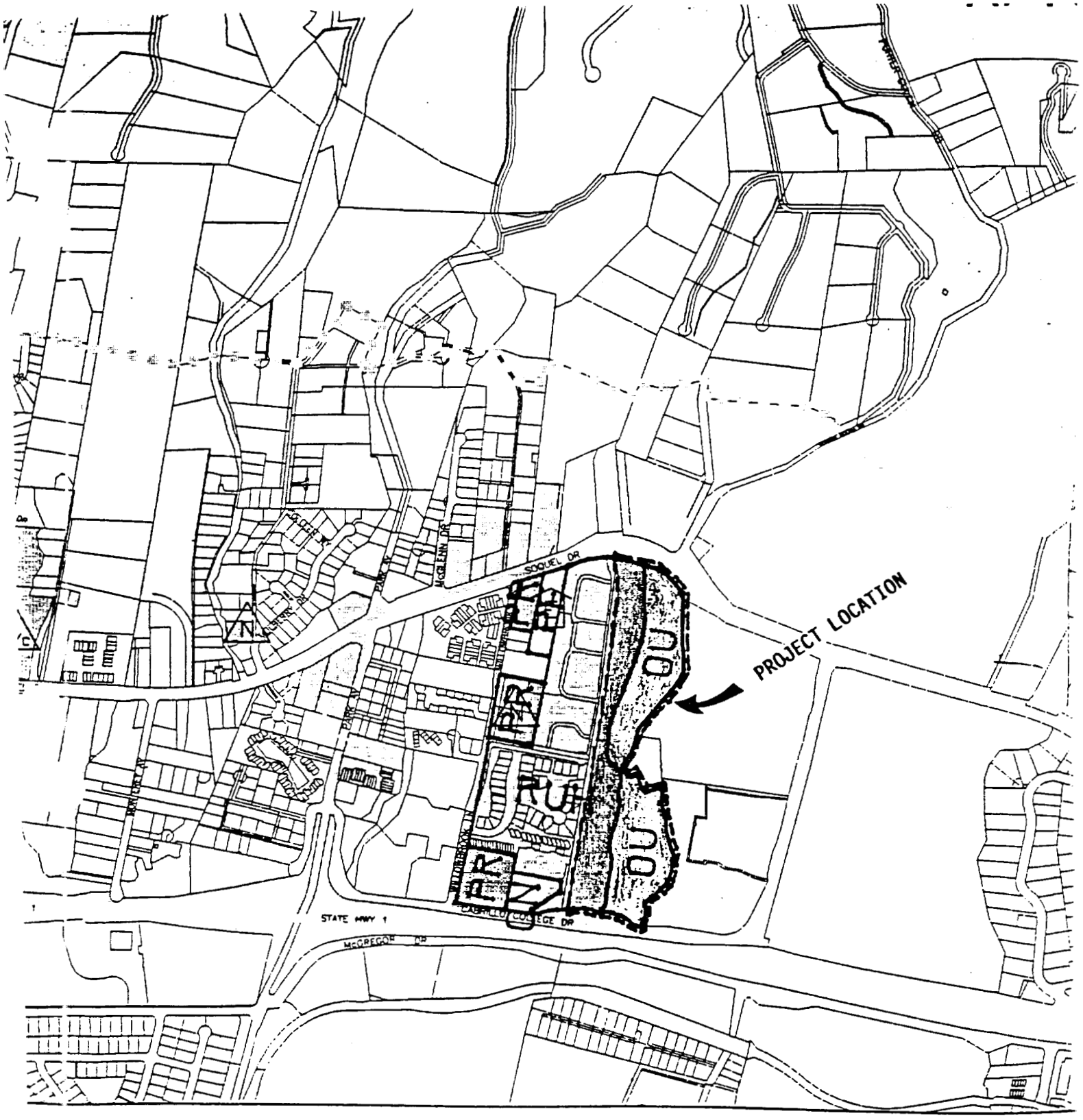
15. Memorandum from Department of Public Works, Driveway/Encroachment, dated March 27, 1998.
16. Memorandum from Jack Sohriakoff, Department of Public Works/Road Engineering, dated November 10, 1999.
17. Memorandum from Jack Sohriakoff, Department of Public Works/Road Engineering, dated November 5, 1998.
18. Memorandum from John Presleigh, Department of Public Works/Road Engineering, dated September 15, 1999.

18a Memorandum from Jack Sohriakoff, Department of Public Works/Road Engineering, dated November 10, 1999.

19. Traffic Study, prepared by Keith Higgins, dated June 17, 1999, and an addendum dated March 3,2000.
20. Memorandum from Diane Romeo, County Sanitation, dated May 1, 1998.
21. Memorandum from Tom Burns, County Redevelopment, dated April 9, 1998.
22. Letter from Toni Cantrell, Pacific Bell, dated March 24, 1998.
23. Will Serve letter from Soquel Creek Water District dated December 9, 1999.
24. Letter of Dana Bland, Consulting Biologist, dated February 1, 2000.

25. Letter of Department of Public Works/Road Engineering, review of traffic study addendum, dated March **29, 2000.**
26. Letter of Department of Public Works/Road Engineering, response to public comment, dated February 9, 2000.
27. Letter of Urban Designer, Larry Kasparowitz, dated **7/26/01**
28. Letter of Greg Lewis, Landscape Architect, dated **8/14/01**
29. Memo from Tom Thacher, Architect, dated **8/14/01**
30. Letter of Chris Shaeffer, CalTrans, dated 7/30/01
31. Letter of David Konno, SC Metro Transit District, dated **8/1/01**
32. Memo from Higgins Associates, Traffic Engineers, dated **7/3/01**
33. Memo from Higgins Associates, Traffic Engineers, dated **8/28/01**
34. Memo from Jack Sohriakoff, Public Works Traffic Engineering, dated **8/3/01**
35. Memo from Conrad Yumang, County Sanitation District, dated **8/31/01**
36. Central Fire Protection District letter of **7/17/01**
37. Keystone Retaining Wall System brochure
38. Noise Environment Recommendations, Environmental Consulting Services 7/10/01
39. Biotic Resources Group update letter of **7/12/01**, Kathleen Lyons
40. Discretionary Application comments **8/31/01** Alyson Tom, Public Works
41. Memo from Ifland Engineers, Geln Ifland, dated **8/27/01**
42. Montgomery/Watson/Harza Grading Plan Review letter of **8/14/01**
43. Imperial Courts Alternative Parking Plan, Thacher & Thompson dated **8/23/01**
44. Cabrillo College Enrollment IO-year Projection
45. General Plan and Zoning surrounding landuse designations
46. Board letter of **8/7/01** regarding project access
47. Reduced site plans dated 7/10/01
48. Grassland Maintenance Plan, K. Lyons, dated July 6, 2000
49. Storm drainage calculations, Ifland Engineers dated **9/5/01**
50. Review of Soils report update letter, Rachel Lather, September **7, 2001.**

* Letters of public comment are on file at the Planning Department.

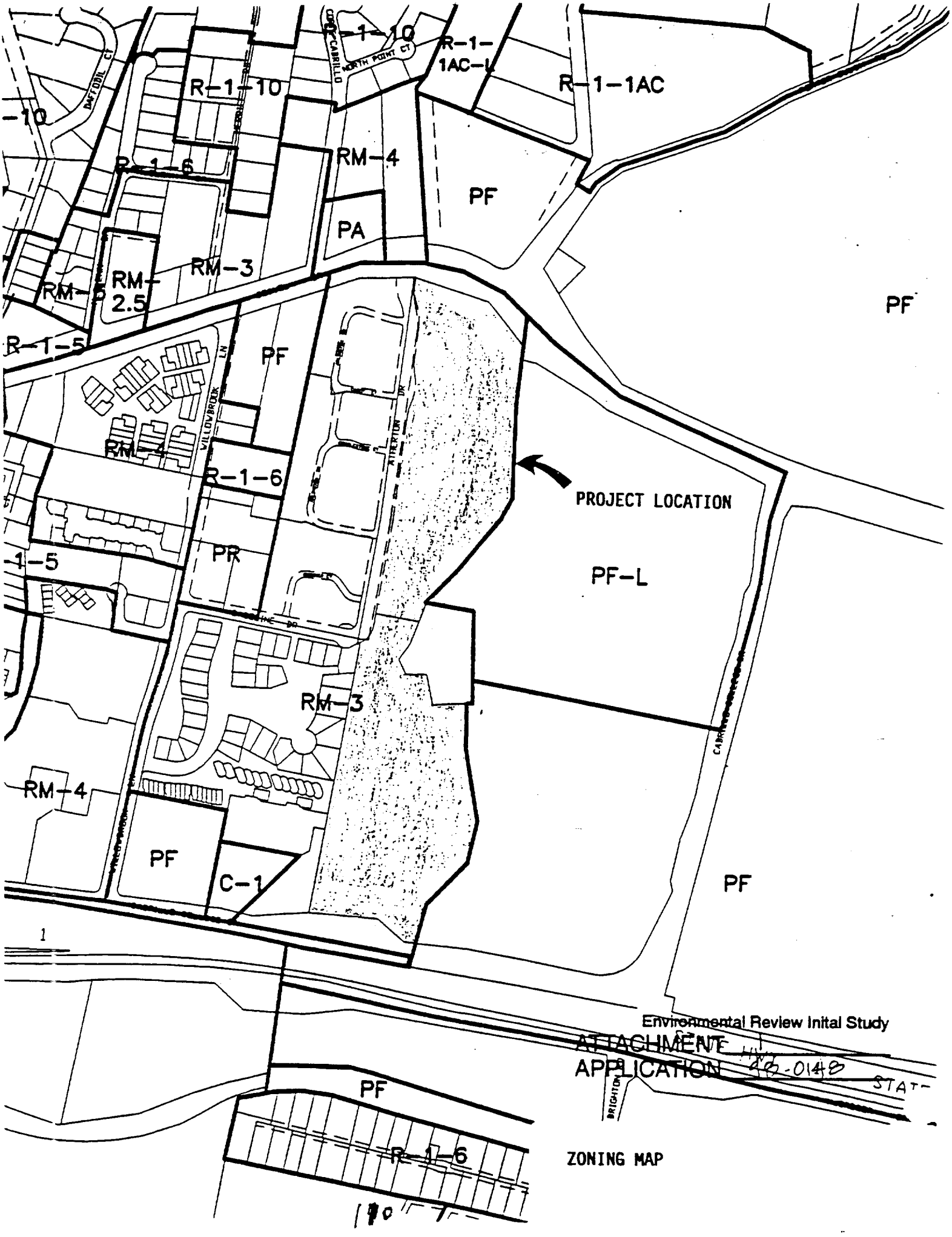


Environmental Review inital *Study*

ATTACHMENT 1

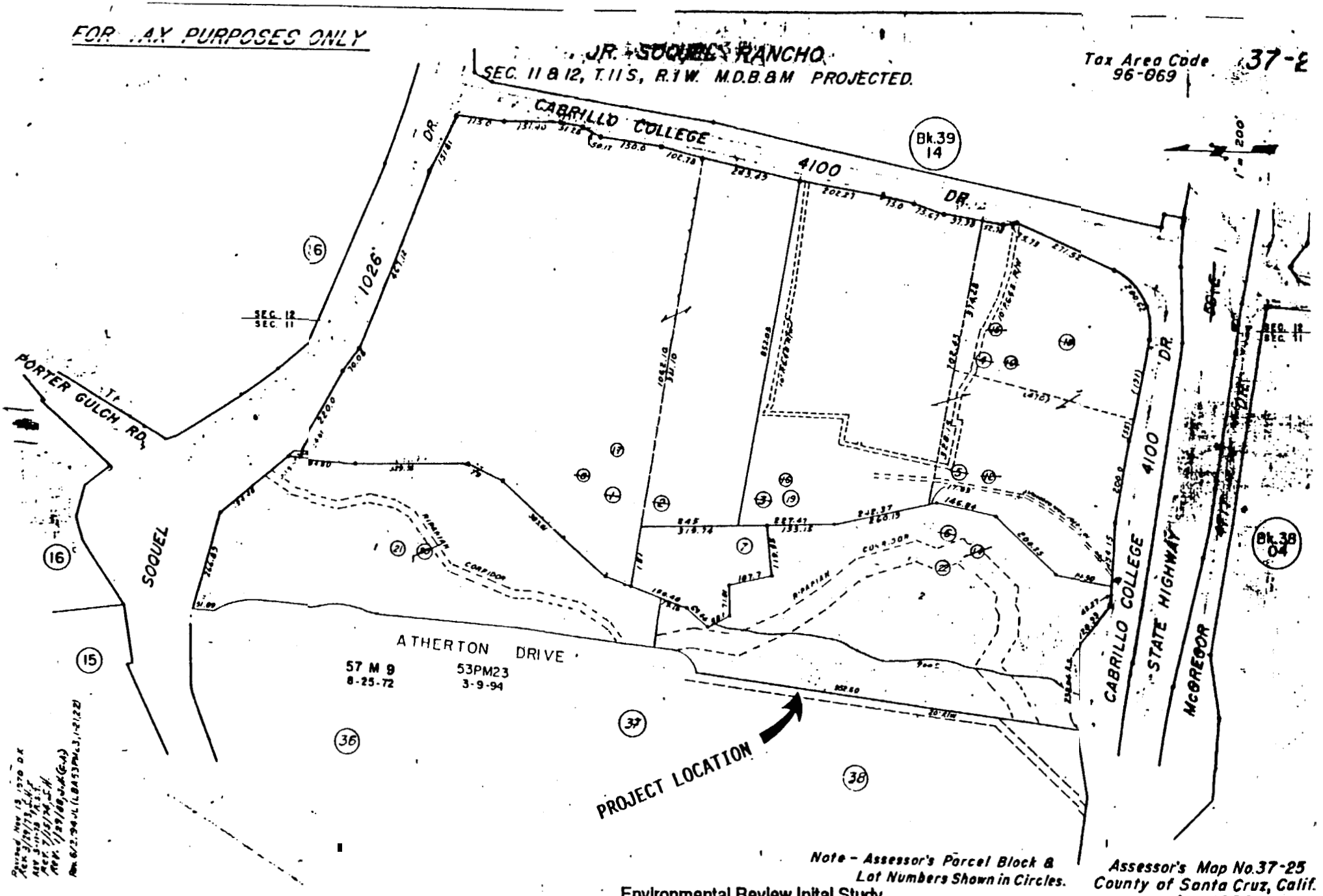
APPLICATION 98-0148

GENERAL PLAN MAP



Environmental Review Inital Study

ATTACHMENT
APPLICATION 88-0148

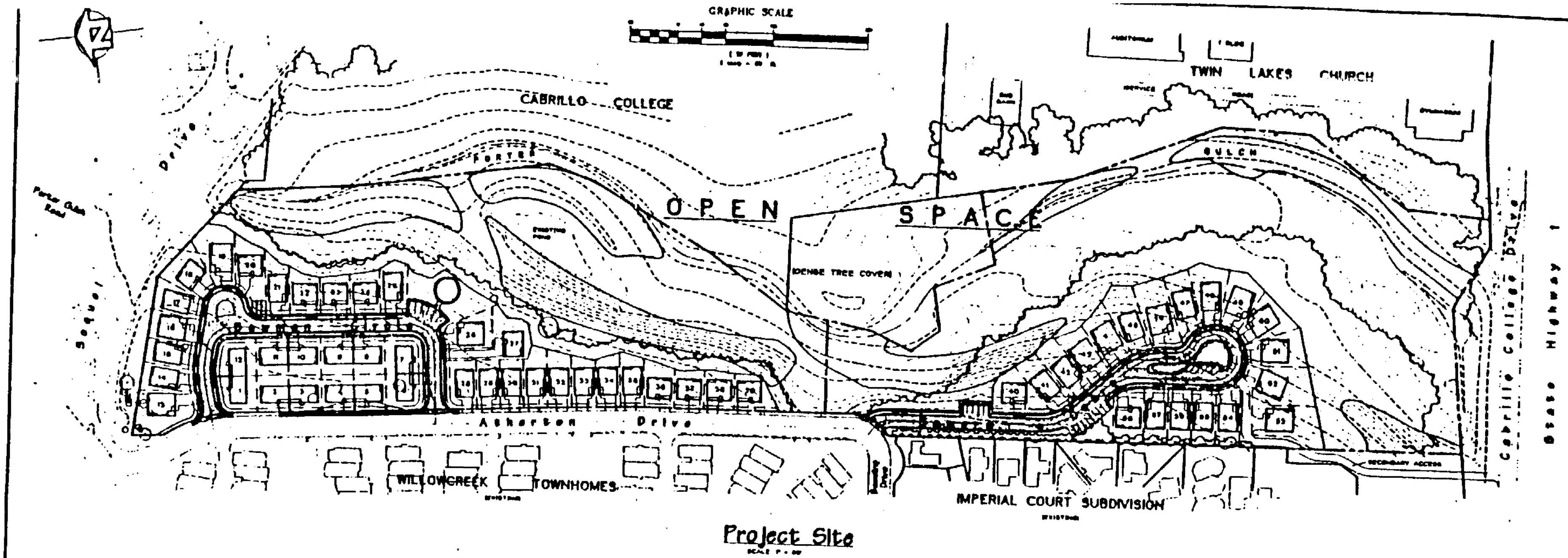


Environmental Review Inital Study

ATTACHMENT 1

APPLICATION 90-0148

ASSESSOR'S MAP



Project Site

Statement of Improvements to be Installed

1. Concrete curbs, gutters and sidewalks along the south side of Soquel Drive from Atherton Drive to the northeast corner of property
2. Full street improvements and utilities along all proposed streets
3. Sanitary sewer main extension along the existing, or northerly section of Atherton Drive
4. Sanitary sewer main extension along the westerly property line from the southerly section of the proposed subdivision to the existing sewer pipeline in Cabrillo College Drive
5. Storm drain detention system in existing pond along the side of Porter Gulch
6. Any damaged curb, gutter and/or sidewalk that currently exists along the westerly side of Atherton Drive shall be repaired as a part of this project
7. A Transit District bus shelter shall be constructed at the southwesterly corner of the Soquel Drive and Porter Gulch Road intersection at the existing bus pull-out
8. Sight distance at the southwesterly corner of Soquel Drive and Atherton Drive to be improved to the extent possible within the existing right-of-way

RM-3 Zone District Site & Structural Dimensions

MINIMUM LOT AREA PER DWELLING	= 3,000 Sq Ft (RESTRICTED COMMON AREA)
FRONT SETBACK	= 15 feet - (20 feet at garage)
SIDE SETBACK	= 5 feet each side
REAR SETBACK	= 10 feet
CORNER LOTS	= Side - 5 feet (interior) / 15 feet (street side)
LOT COVERAGE	= 40% maximum
BUILDING HEIGHTS	= 28 feet
LOT WIDTH	= 30 feet minimum
LOT FRONTAGE	= 35 feet minimum

EACH LOT BUILDING ENVELOPE TO BE BASED ON THESE DIMENSIONS

Construction Phasing

PHASE I - LOTS 2 THRU 5 AND 28 THRU 39	= 16 UNITS
PHASE II - LOTS 1 AND 6 THRU 27	= 23 UNITS
PHASE III - LOTS 40 THRU 58	= 19 UNITS
TOTAL	= 58 UNITS

Unit Density

TOTAL AREA OF DEVELOPABLE LAND	= 377,626 SQ. FT
LESS AREA WITHIN STREETS	= 63,420 SQ. FT
NET DEVELOPABLE LAND	= 314,206 SQ. FT.
LAND PER UNIT, (314,206/58)	= 5,417 SQ. FT.

Open Space Parcel

BALANCE OF LAND NOT DEVELOPABLE	= 9.213 ACRES (401,318 SQ. FT.)

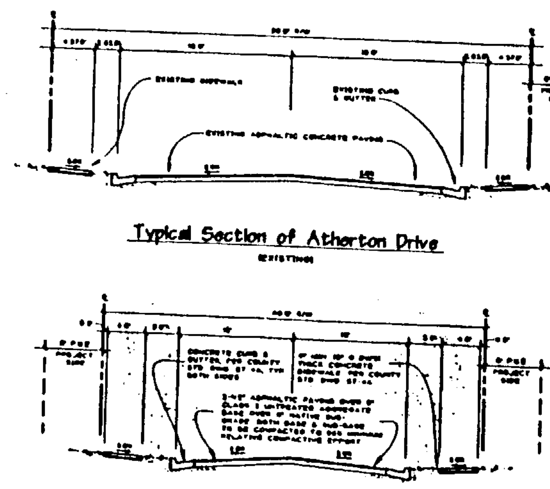
Storm Drainage Calculations

TOTAL SITE AREA	= 17.882 acres
PRE-DEVELOPMENT CONDITION	= Grassland, dense tree cover and riparian corridor
RAINFALL INTENSITY	= 1.60 isopluvial - 1.6 inches/hr
RAINFALL INTENSITY	= 10 year storm - 10 min TC = 2.2 inches per hour
COEFFICIENT OF RUN-OFF	= 0.10

PRE-DEVELOPMENT STORM RUN-OFF
Q10 = (0.10)(2.2)(17.882) = 3.93 cubic feet per second
Q100 = (0.638)(...) = 14.88 cubic feet per second

POST-DEVELOPMENT STORM RUN-OFF
Q10 = (0.25)(2.2)(10.381) + (0.10)(2.2)(7.501) = 13.08 cubic feet per second
Q100 = (13.868)(...) = 20.80 cubic feet per second

STORM DRAIN DETENTION REQUIRED PER 90-6	= 400 cubic feet per acre (400)(17.882) = 7,153 cubic feet
EXISTING POND ON SITE TO BE USED	= Approx. size - 40' x 130' x 2' deep 10,400 cubic feet



Typical Section of Atherton Drive
(EXISTING)

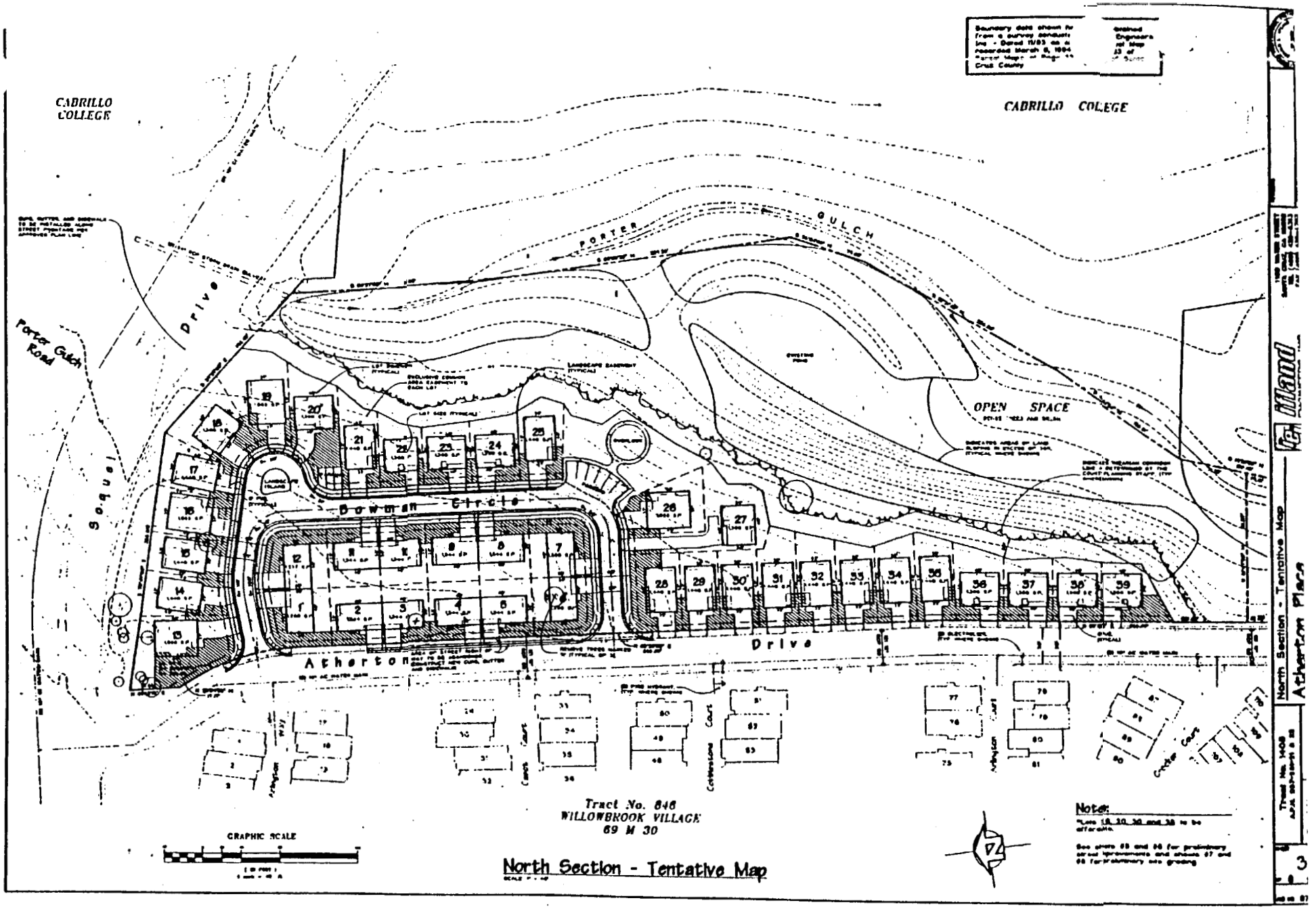
(NO ON STREET PARKING)
Typical for Proposed Streets

Typical Street Sections
NOT TO SCALE

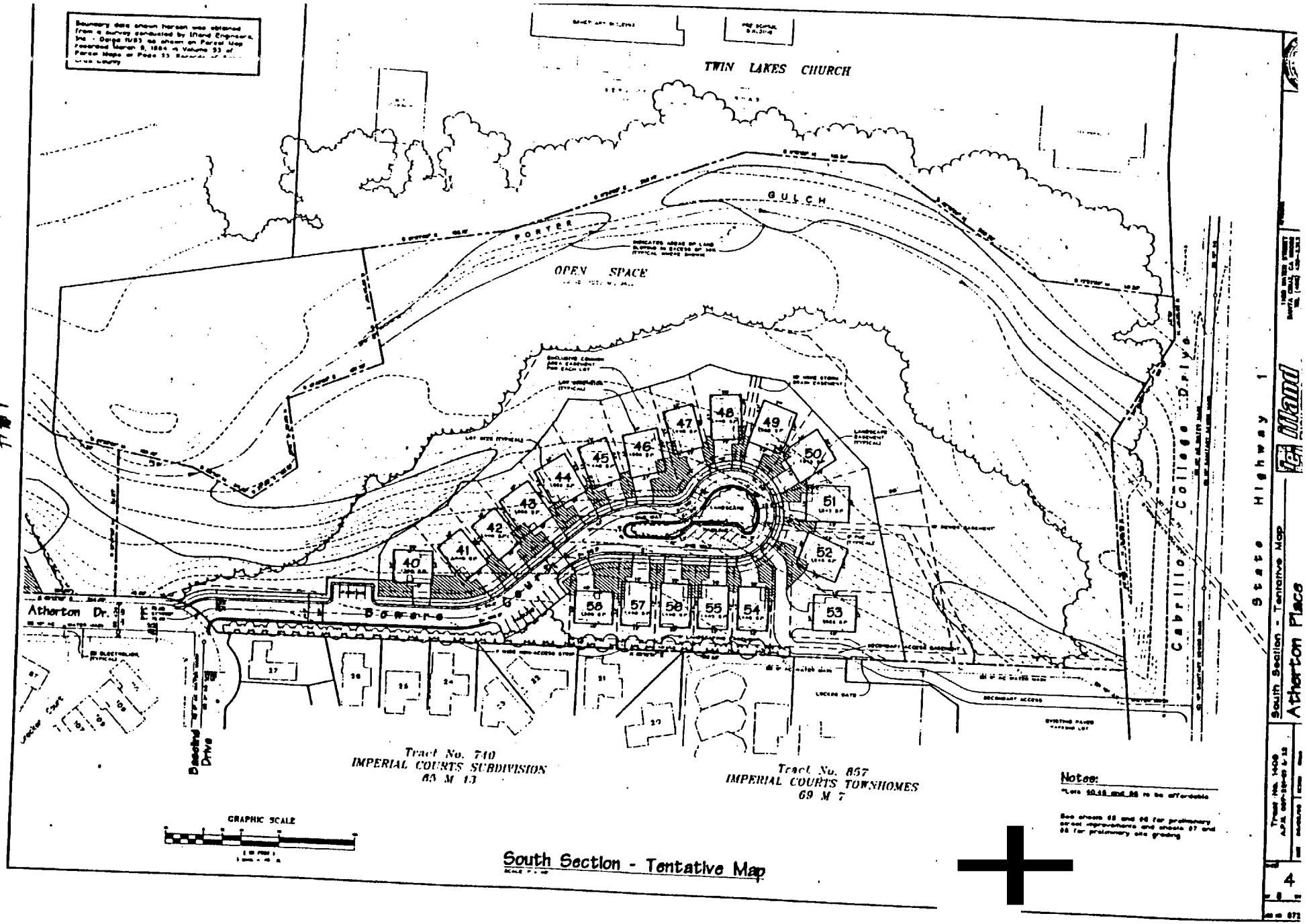
Ifland Engineers, Inc.
Project Site - Typical Street Sections
Atherton Place
Tract No. 1408
2

~~##~~ 112

Environmental Review Inital Study
ATTACHMENT 2
APPLICATION 98-0148



Environmental Review Initial Study
ATTACHMENT 2
APPLICATION 98-0148



Environmental Review Initial Study
ATTACHMENT 2
APPLICATION 98-0148

APPL.NO: 98-0148 REVIEW AGENCY: ENVIRONMENTAL PLANNING
ENT TO PLNR: 4/08/1998 REVIEWER: MAC
ROUTING NO: 1 VERSION NO: 1
) MENTS:----------

COMPLETENESS COMMENT:

This site needs a biotic survey conducted to evaluate for the ce of the endangered tarplant (Holocarpha macrophylla) and ilsner's Yampah (Pendicularis dudleyi). The results of this rvey will determine what, if any, additional requirements are needed.

Have a wetlands delineation performed in the southern half of e pxoposed development. If the low lying area below the proposed me sites is determined *to* be a wetland, then a setbackof 30-feet, us a 10-foot buffer, will be required between the edge of the tland and any development.

This project needs to have a geotechnical study conducted. In e report the geotechnical engineer should issues including, but, t limited to site conditions, soil types, grading, foundation, taining walls, drainage designs, and pavement R values. The port should also address the slope stabilitybehind the proposed ts and evaluate the berm thatretains the pond for long term ability.

The grading plans propose to place fill behind ts 3.9, 20, and 21. The placement of fill in the riparian tback is not permitted. The plans will need to be revise to clude fill in this area. Note that structures, including ining walls must have an additional 10-foot buffer beyond the parian setback.

MISCELLANEOUS COMMENT:

No future development may occur within the proposed riparian al area.

All recommendations of the geotechnical report must be llowed.

7/8=PREV/NXT AGCY 10/11=PAGE COMM THIS RTNG 12/13=OTHER RTNGS-THIS AGCY
PF19-PREVIOUS SCREEN PA2-EXIT

7/22/98
MIKE,
PLEASE
COMMENT.
DCH

Environmental Review Inttal *Study*
ATTACHMENT 3
APPLICATION 98-0148

County of Santa Cruz

PLANNING DEPARTMENT

701 OCEAN STREET, SUITE 330, SANTA CRUZ, CA 95060-4073
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123

ALVIN D. JAMES, DIRECTOR

April 28, 1999

Richard Beale Land Use Planning Inc.
100 Doyle St., Ste. E
Santa Cruz, CA 95062

SUBJECT: Review of soil report by Hazra Consulting Engineers Scientists
dated July 1997, PROJECT NUMBER: L879-G
APN: 037-251-21, APPLICATION NUMBER: 98-0148

Dear Applicant:

Thankyou for submitting the soil report for the parcel referenced above. The report was reviewed for conformance with County Guidelines for Soils/Geotechnical Reports and also for completeness regarding site specific hazards and accompanying technical reports (e.g. geologic, hydrologic, etc.). The purpose of this letter is to inform you that the Planning Department has accepted the report and the following recommendations become permit conditions:

1. All report recommendations must be followed.

2. Final plans shall show the deepened strip footings or engineered pier and grade beam foundations as detailed in the report.

3. Final plans shall show the special grading as detailed in the report.

4. Final plans shall show the drainage system as detailed in the soils engineering report including outlet locations and appropriate energy dissipation devices.

5. Final plans shall reference the approved soils engineering report and state that all development shall conform to the report recommendations.

6. Prior to building permit issuance and public hearing, the soil engineer must submit a brief building, grading and drainage plan review letter to Environmental Planning stating that the plans and foundation design are in general compliance with the report recommendations. If, upon plan review, the engineer requires revisions or additions, the applicant shall submit

Environmental Review Inital Study
EXHIBIT 4
APPLICATION 98-0148

to Environmental Planning two copies of revised plans and a final plan review letter stating that the plans, as revised, conform to the report recommendations.

7. The soil engineer must inspect all foundation excavations and a letter of inspection must be submitted to Environmental Planning and your building inspection prior to pour of concrete.

0. For all projects, the soil engineer must submit a final letter report to Environmental Planning and your building inspector regarding the compliance with all technical recommendations of the soil report prior to final inspection. For all projects with engineered fills, the soil engineer must submit a final grading report (reference August 1997 County Guidelines for Soils/Geotechnical Reports) to Environmental Planning and your building inspector regarding eh compliance with all technical recommendations of the soil report prior to final inspection.

The soil report acceptance is only limited to the technical adequacy of the report. Other issues, like planning, building design, septic or sewer approval, etc, may still require resolution.

The Planning Department will check final development plans to verify project consistency with report recommendations and permit conditions prior to building permit issuance. If not already done, please submit two copies of the approved soil report at the time of building permit application for attachment to your building plans.

'lease call 454-3164 if we can be of any assistance.

Sincerely,

JOEL SCHWARTZ
Geotechnical Associate

FOR: JOE HANNA
County Geologist CEG 1313

cc: Jackie Young, Project Planner
Soils engineering firm

98-0418s.wpd

Envimnmental Review Inital Stu
ATTACHMENT 4
APPLICATION 98-0418

FINAL SOILS-GRADING REPORTS

Prior to final inspection clearance a final soils report must be prepared and submitted for review for all projects with engineered fills. These reports, at a minimum, must include:

1. Climatic Conditions

   Indicate the climatic conditions during the grading processes and indicate any weather related delays to the operations.

2. Variations of Soil Conditions and/or Recommendations

   Indicate the accomplished ground preparation including removal of inappropriate soils or organic materials, blending or unsuitable materials with suitable soils, and the keying and benching of the site in preparation for the fills.

3. Ground Preparation

   The extent of ground preparation and the removal of inappropriate materials, blending of soils, and keying and benching of fills.

4. Optimum Moisture/Maximum Density Curves

   Indicate in a table the optimum moisture maximum density curves. Append the actual curves at the end of the report.

5. Compaction Test Data

   The compaction test locations must be shown on same topographic map as the grading plan and the test values must be tabulated with indications of depth of test from the surface of final grade, moisture content of test, relative compaction, failure of tests (i.e. those less than 90% of relative compaction), and re-testing of failed tests.

6. Adequacy of the Site for the Intended Use

   The soils engineer must re-conform her/his determination that the site is safe for the intended use.

Environmental Review Inital Stud)
ATTACHMENT 4
APPLICATION 90 C 148

Geotechnical Investigation

Twin Lakes Residential Development

Aptos, California

July 25,1997

Prepared For:

Kaufman and Broad, Monterey Bay, Inc.
1604 North Main Street
Salinas, CA 93906

Prepared By:

Harza Consulting Engineers and Scientists
425 Roland Way
Oakland, CA 94621

Corey T. Dare, P.E., G.E.
Project Manager

Ronald L. Bajuniemi, P.E., G.E.
Chief Geotechnical *Engineer*

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Environmental Review Inital Study
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HARZA

July 25, 1997

Mr. Augie Dent
Kaufman and Broad, Monterey Bay, Inc.
1604 North Main Street
Salinas, CA 93906

Re: Geotechnical Investigation
Twin Lakes Residential Development, Aptos, California
Project No.: L879-G

Dear Mr. Dent:

As requested, Harza has performed a geotechnical *investigation* for the proposed Twin Lakes residential development project. The accompanying report presents the results of our field investigation, laboratory tests, and engineering analysis. The soil and foundation conditions are discussed and recommendations for the soil and foundation engineering *aspects* of the project are presented. Conclusions and recommendations contained herein are based upon applicable standards of our profession at the time this report has been prepared. Copies of this report are furnished only *to* provide the factual data which were gathered and summarized.

Submittal of this report completes our current scope of work on Ute project. Plan IWCW. representation at public meetings. consultation,. performance of any further studies required by review agencies, and subsequent earthwork observation and testing services are beyond our current scope of work and would require separate contracts.

Should you have any questions or require additional information. please do not hesitate *to* contact me.

Sincerely,

Harza Consulting Engineers and Scientists

Patrick Stevens, P.E., G.E.
Vice President

CTD/PS:mac\encl.
Copies: Addressee (3)
Mr. Norman Schwartz (Bolton Hill Company - 1)

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Geotechnical Investigation
Twin Lakes Residential Development
Aptos, California

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed Twin Lakes Residential Development project. The proposed project will be located on *two* irregularly-shaped, adjoining parcels bounded by Soquel Drive to the north, Atherton Drive and private property to the west, Cabrillo College Drive to the south, and the Tannery Gulch creek channel to the east. According to a parcel and topographic map provided to us, the total area of the two parcels is 18.2 acres, of which approximately 9.2 acres has been classified as developable.

Based on *our* conversations with Mr. Barry Freeland of Kaufman and Broad, and Mr. Norman Schwartz of the Bolton Hill Company, it is our understanding *that* the project will consist of the construction of a yet-to-be-determined number of wood-frame, single-family residential structures on the portion of the parcels classified as developable. The site slopes moderately to the east toward the creek bed, and therefore will require a moderate degree of site grading, depending on the proposed configuration of the development. We understand that construction of cut and fill slopes will be required to create level building pads at the site. Based on the existing topography of the site, recommendations are presented for construction of cut and fill slopes 20 feet in height or less.

2.0 SCOPE OF WORK

The scope of work of this investigation included a review of a previous geotechnical investigation for the property by others; site reconnaissance, subsurface exploration, laboratory testing, engineering analysis of the field and laboratory data and preparation of this report. The data obtained and the analyses performed were for the purpose of providing design and construction criteria for site earthwork, building foundations, slab&-grade floors, retaining walls and pavements.

This report has been prepared in accordance with generally accepted geotechnical engineering practices, and with *our* agreement with Kaufman and Broad, Monterey Bay, Inc. for the exclusive use of Kaufman and Broad, Monterey Bay, Inc. and their consultants for specific application to

the proposed Twin Lakes Residential Development project as described herein. In the event that there are any changes in the ownership, nature, design or location of the proposed Twin Lakes project or if any future additions are planned, the conclusions and recommendations contained in this report shall not be considered valid unless 1) the project changes are reviewed by Harza and 2) conclusions and recommendations presented in this report are modified or verified in writing. Reliance on this report by another must be at their risk unless of course, we are consulted on the use or limitations. We cannot be responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services without our further consultation. We can neither vouch for the accuracy of information supplied by others, nor accept consequences for unconsulted use of segregated portions of this report.

3.0 SITE INVESTIGATION

Subsurface exploration was performed using a truck-mounted, 8-inch diameter, continuous flight hollow stem auger. Six exploratory brings were drilled on June 30 through July 1, 1997, to a maximum depth of about 42 feet. These borings were intended to supplement the subsurface information available from 6 borings drilled on site in 1987 by a previous investigator. The approximate locations of both present and previous borings are shown on the Site Plan, Figure 1. Logs of the borings and details regarding the field investigation are included in Appendix A. A summary table of materials encountered in borings drilled previously on-site is also included in Appendix A. The results of our laboratory tests are discussed in Appendix B.

3.1 *surface*

The site property is irregular in shape, and consists of *two* parcels bounded on the east by the meandering Tannery Gulch creek channel. Parcel 1, comprising the northern ponion of the site, is bounded on the west by Athenon Drive, and is virtually separated from Parcel 2 to the south by the creek channel, which intersects Athenon Drive at Baseline Drive. Parcel 2 is located south of Baseline Drive, is bounded on the west by private developed property. The site property has a total plan area of 18.2 acres, of which approximately 9.2 acres has been classified as developable. The site slopes moderately downward to the east toward the creek channel, ranging from about 5H:1V (horizontal to vertical) on the western side of the property to on the order of 3H:1V east toward the creek channel.

At the time of our field investigation, the site was predominantly covered with native trees and grassy vegetation, becoming thickly wooded within the creek channel. The remnants of old concrete foundations, a wood shack, and pavement were noted on the northwest corner of Parcel Number No. 1. The remainder of the site, including Parcel 2, was observed to be vacant and undeveloped.

3.2 Subsurface

The surface soils encountered in our exploratory borings generally consisted of a surficial layer of stiff silty clay underlain by interbedded, medium dense to dense, silty to clayey sands which extended to the maximum depth explored of about 42 feet. The surficial clays were encountered to depths of 1 to 3½ feet, and appeared to be moderately weak and compressible. Detailed descriptions of the soils encountered in each of the exploratory borings are presented on the boring logs in Appendix A.

The attached boring logs and related information depict location-specific subsurface conditions, encountered during our field investigation. The approximate locations of the borings were determined by pacing and should be considered accurate only to the degree implied by the method used. The passage of time could result in changes in the subsurface conditions due to environmental changes.

3.3 Ground Water

Free ground water was encountered in Borings EB-3 and EB-5 at depths of about 13 to 37 feet at the time of drilling. Borings EB-3 and EB-5 were left open for a periods of approximately 1 to 2 hours at which time ground water was measured at depths of 10½ and 36 feet, respectively. All other borings were backfilled immediately after drilling. It should be noted that the boring may not have been left open for a sufficient period of time to establish equilibrium ground water conditions. In addition, fluctuations in the ground water level could occur due to change in seasons, variations in rainfall, and other factors.

3.4 Geology and Seismicity

The subdivision is located in Aptos, California which is bounded by the Gabilan Range to the north and northeast and the Pacific Ocean to the south. According to available geologic maps, portions of the site: not bordering the Tannery Gulch creek channel to the east are underlain by Pleistocene emergent coastal terrace deposits consisting of semiconsolidated, generally well-sorted

sand with a few thin, relatively continuous layers of gravel. Portions of the site bordering the Tannery Gulch creek channel are underlain by very thick bedded yellowish-grey tufaceous and diatomaceous siltstone containing thick interbeds of bluish-gray, semifriable, fine-grained andesitic sandstone.

Earthquake intensities will vary throughout the Monterey Bay Area, depending upon the magnitude of earthquake, the distance of the site from the causative fault, and the type of materials underlying the site. The site will probably be subjected to at least one moderate to severe earthquake that will cause strong ground shaking. The site is located approximately 8 miles southwest, 5 milts northeast, and 10 miles northeast, respectively, of the Zayante, Monterey Fault Complex and San Gregorio fault zones. In addition, the site is also located about 11, 24 and 27 miles southwest of the active San Andreas, Calaveras and Hayward fault zones, respectively. Other faults in the site vicinity which are not considered active include the Ben Lomond fault variably located 2 *to* 5 miles to the north of the site. It should be noted that ground surface accelerations on the order of 0.47g to 0.54g were recorded in the City of Santa Cruz during the *1989* Loma Prieta Earthquake.

3.5 Liquefaction

Soil liquefaction is a phenomenon primarily associated with saturated cohesionless soil layers located close to the ground surface. These soils lose strength during cyclic loading, such as *imposed* by earthquakes. During the loss of strength, the soil acquires a "mobility" sufficient to permit both horizontal and vertical movements. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands that lie close to the ground surface, a depth usually considered to be 50 feet.

Based on the present and previous borings, the near-surface soils are primarily medium dense to very dense and contain significant amounts of silt and clay. Therefore, the liquefaction potential on-site is considered to be low.

4.0 CONCLUSIONS AND RECOMMENDATIONS

It is our opinion that the site is suitable for the proposed residential development from a geotechnical engineering standpoint. The conclusions and recommendations presented in this report should be incorporated in the design and construction of the project to avoid any possible soil and/or foundation related problems. The moderately weak and compressible clayey surface soils encountered on-site, and the potential existence of cut/fill transitions and differential fill

thicknesses below building pads are the primary considerations for foundation design. To minimize potential damage to the proposed residences due to future settlements, we recommend in areas where the surficial clays are not removed by mass grading, the upper one foot of exposed subgrades following clearing be reworked and recompacted. To minimize the potential for differential settlements across building pads situated on cut/fill transitions, we recommend building pads across such transitions be underlain by a minimum three-foot thickness of fill, or by a thickness equivalent to the maximum thickness of the fill layer below the fill portion of the pad, whichever is less. In addition, the proposed grading should be designed so that no more than 5 feet of differential fill thickness exists below any residential foundation. Detailed earthwork and foundation recommendations for use in design and construction of the project are presented below.

We recommend that our firm review the final design and specifications to check that the earthwork and foundation recommendations presented in this report have been properly interpreted and implemented in the design and project specifications. We can assume no responsibility for misinterpretation of our recommendations if we do not review the plans and specifications.

4.1 Earthwork

4.1.1 Clearing and Site Preparation

The site should be cleared of all obstructions including any buried tanks and foundations, abandoned utilities, pavements, concrete slabs, trees, roots, septic tanks and leach lines, and debris. Holes resulting from the removal of underground obstructions extending below the proposed finish grade should be cleared and backfilled with suitable material compacted to the requirements given below under Item 4.1.5, 'Compaction". We recommend backfilling operations for any excavations to remove deleterious material be carried out under the observation of the geotechnical engineer.

At least two weeks prior to grading, the site should be disced to remove standing surface vegetation. However, portions of the site containing heavy surface vegetation should be stripped to an appropriate depth to remove these materials. At the time of our field investigation, we estimate that a stripping depth of approximately 2 inches would be required. The amount of actual stripping should be determined in the field by the geotechnical engineer at the time of consauction. Stripped materials shouid be removed from the site or stockpiled for later use in landscaping, if desired.

4.1.2 Cut and Fill Pads

The proposed grading should be designed so *that* no more than 5 feet of differential fill thickness exists below *any* residential foundation. If any portion of a foundation is bearing on *cut* and other portions of the foundation are bearing on compacted fill, we recommend *that* the portion of the foundation bearing on cut be overexcavated at least 3 feet or the maximum thickness of the fill portion of *the* pad, whichever is less, *such* that the entire foundation is bearing on an equivalent thickness of fill or on at least 3 feet of compacted fill, whichever is less. No foundation slab should be allowed to be supported directly on both fill and cut. Figure 2 provides an illustration of recommended grading at cut/fill transition lots and differential fill thickness lots.

4.1.3 Subgrade Preparation

After the completion of clearing and stripping, soil exposed in areas to receive structural fill, slabs-on-grade or pavements should be scarified to a depth of 12 inches, moisture conditioned to slightly above optimum water content and compacted to the requirements for structural fill.

4.1.4 Fill Material

On-site soil below the stripped layer and having an organic content of less than 3 percent by volume *can* be used as fill except where non-expansive import is required beneath the slabs. All fill placed at the site including on-site soils should not contain rocks or lumps larger than 6 inches in greatest dimension with not more than 15 percent larger than 2.5 inches. In addition, imported fill should be predominantly granular with a plasticity index of 12 or less.

4.1.5 ,Compaction

All structural fill, including the upper 12 inches of subgrade soils beneath pavements, should be compacted to at least 95 percent relative compaction as determined by *ASTM* Designation D1557-(latest edition). Fill material should be spread and compacted in lifts not exceeding 8 inches in uncompacted thickness.

Based on results of our field and laboratory investigation, on-site soil that is removed and recompacted to an average relative compaction of 97 percent, as determined by ASTM Test Designation D 1557, will *shrink* in volume. We estimate that the surficial native *soils* will likely experience a volume shrinkage of about 15 percent when reused as compacted fill.

4.1.6 Cut and Fill Slopes

Fill placed on slopes should be constructed in accordance with the recommendations shown on Figure 3, Typical Fill Placement on Slopes. Engineered fill slopes using on-site or import soils, and cut slopes should have a maximum inclination of 2H:1V.

Where fills are placed on slopes steeper than 6H:1V, the fills should be keyed a minimum of 5 feet into competent, undisturbed native soil. Keyways should be a minimum of 15 feet wide, and in general, a subdrain should be placed at the bottom and to the rear of each keyway. Keyways should be sloped at least 2 percent back into the hillside toward the subdrain.

Subdrains should consist of rigid, perforated pipe, surrounded by at least 18-inches of ¼-inch uniformly *graded,* crushed drain rock and Mirafi 140N filter fabric or equivalent. As an alternative to using ¾-inch drain rock and filter fabric, Caltrans Class 2 Permeable Material may surround the drain pipe. The pipe should consist of 4-inch diameter SDR35 perforated pipe. Subdrains should be connected to solid collector pipe that channel the water to suitable discharge facilities. Subdrain clean-outs should be provided as appropriate. Subdrain systems may be omitted where the maximum thickness of fill is less than four feet, or where approved by the Geotechnical Engineer during fill construction.

For cut or fill slopes 20 feet or greater in height, Harza should be consulted for further design recommendations.

4.1.7 Setbacks

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Residential structures should be set back at least 15 feet from the top of slopes less than 20 feet in height, as measured laterally from the edge of the foundation to the slope face. Residential structures should also be set back at least 10 feet from *the* bottom of slopes that are less than *20* feet in height.

Residential structures may be located closer to slope edges provided the foundations are engineered *to* accommodate potential slope ravelling, sloughing, creep, or erosion. Harza *can* provide additional recommendations if requested for structures located closer to the edges of slopes than the setback distances previously presented.

4.1.8 Trench Backfill

Pipeline trenches should be backfilled with fill placed in lifts of approximately 8 inches in uncompacted thickness. However, thicker lifts can be used provided the method of compaction is approved by the geotechnical engineer, and the required minimum degree of compaction is achieved.

If on-site soil is used as trench backfill it should be compacted to at least 90 percent relative compaction by mechanical means only (no jetting will be allowed). Imported sand can be used for trench backfill if it is compacted to at least 95 percent relative compaction and sufficient water is added during backfilling operations to prevent the soil from "bulking" during compaction.

The upper 3 feet of trench backfill in slab and pavement areas should be compacted to at least 95 percent relative compaction.

4.1.9 Surface Drainage

The surface grads adjacent to tops of slopes should be graded at least 2 percent away from the top of slope to minimize ponding of water. No surface drainage should be allowed to flow over the top of slopes. Concrete-lined, steel-bar reinforced V-ditches should be provided at the top of all cut and fill slopes for the project. Concrete V-ditches should be installed with the lip of the gutter cut at least 2-inches below adjacent surface grade. Forming and backfilling around V-ditches should not be allowed.

Positive surface gradients of at least 2 percent should be provided adjacent to the residential structures to direct surface water away from foundations and slabs toward suitable discharge facilities. Roof downspout water should be collected in closed pipes and directed away from the residences to suitable discharge facilities. Ponding of surface water should not be allowed adjacent to the residences, on pavement, nor at toes or tops of slopes. Also, collected water should not be allowed to flow onto slopes. Area drains shouid be provided at all landscape and lawn areas around individual residences.

All V-ditches should discharge to suitable discharge facilities. Provisions should be made for the long-term maintenance of the site drainage system. Any damage to the drainage system should be repaired in an expedient manner to eliminate the possibility of concentrating surface flow and causing erosion.

4.1.10 Erosion Control

Long-term erosion control is critical for the stability of cut and fill slopes at the site. We recommend all exposed cut and fill slopes be planted with appropriately designed erosion-resistant vegetation, including ground cover and trees. In addition, appropriate erosion control should be designed by the Civil Engineer at the intake and outlet works of any culverts.

4.1.11 Construction During Wet Weather Conditions

If construction proceeds during or shortly after wet weather conditions, the moisture content of the on-site soils could be appreciably above optimum. Consequently, subgrade preparation, placement and/or reworking of on-site soil as structural fill might not be possible. Alternative wet weather construction recommendations can be provided by the geotechnical engineer *in* the field at the time of construction, if appropriate.

4.1.12 Guide Specifications

All earthwork should be performed m accordance with the Guide Specifications - Site Earthwork presented in Appendix C. These specifications are general in nature and the final specifications should incorporate ail recommendations presented in this report.

4.2 Foundation Support

4.2.1 Spread Footings

We recommend that the buildings be supported on conventional continuous and isolated spread footings bearing on either undisturbed native soils or compacted fills. The exterior walls should be underlain by a continuous spread footing providing total enclosure of the perimeter of the building. Footings should be at least 12 inches wide and should be founded at least 18 inches below lowest adjacent finished grade. Footings located adjacent *to* other footings or utility trenches should bear below an imaginary 1.5:1 (horizontal to vertical) plane projected upward from the bottom edge of the adjacent footings or utility trench.

At the above depths, the footings should be designed for an allowable bearing pressure of 1,500 pounds per square foot due to dead loads, 2,000 pounds per square foot due to dead plus live loads and 3,000 pounds per square foot for all loads, including wind or seismic. These allowable bearing pressures are net values; therefore, the weight of the footing can be neglected for design purposes.

Continuous footings should be designed with adequate steel reinforcement, both top and bottom, to provide structural continuity and permit spanning of local irregularities.

Any visible cracks in the bottoms of the footing excavations should be closed by wetting prior to construction of the foundations. We recommend that we observe the footing excavations prior to placing reinforcing steel or concrete, to check that footings are founded on appropriate material.

Settlement of spread footing foundations under the proposed building loads is anticipated to be within tolerable limits for the proposed residential structures.

4.2.2 Structural Slab Foundations and Interior Slabs-on-Grade

As an alternative to footing foundations, the residential structures may be supported on structural slab foundations bearing on properly compacted structural fill. The following structural slab design recommendations are provided for use in accordance with the parameters presented in the *1994* edition of the Uniform Building Code, Volume 2, Section 1815. The subgrade materials beneath the slabs should be considered to have an unconfined compressive strength of 1,500 pounds per square foot, and a Weighted Plasticity Index of 20 percent. The supporting subgrade should be considered capable of supporting a dead plus live load of 2,000 pounds per square foot. The slabs should be at least 8 inches thick and be appropriately reinforced so that they are capable of cantilevering a minimum distance of 3 feet and free spanning a minimum diameter of 8 feet.

Settlement of the structural slab foundations supported on the engineered fill is estimated to be within tolerable limits for the proposed residential structures.

Where structural slabs are located adjacent to utility trenches, the slab bearing surfaces should bear below an imaginary 1.5 horizontal to 1 vertical plane extending upward from the bottom edge of the adjacent utility trench. Alternatively, the slab reinforcing could be increased to span the area defined above assuming no soil support is provided.

Slab foundation and slab-on-grade subgrade surfaces should be proof-rolled to provide a smooth, unyielding surface for slab support.

Migration of moisture through slab foundations and slabs-on-grade should be minimized by providing a moisture barrier between the subgrade soils and the bottom of the slabs. We recommend the moisture barrier consist of 4 inches of uniformly graded, free draining gravel overlain by an impermeable membrane at least 10 mil thick. The impermeable membrane should be overlain by 2 inches of sand that is moistened *just* prior to placing of the concrete.

A minimum 12-inch wide concrete barrier or "thickened edge" that is supported directly on the subgrade materials should be provided at the perimeter of the slab to provide a water cutoff for the moisture barrier. In addition, interior areas of the slab which support point or line loads should also be thickened a minimum of 12 inches and supported directly on the subgrade.

Concrete slabs retain moisture and often take *many* months to *dry*. We recommend that carpets that allow air to pass through them be used over concrete floor slabs. Additionally, if vinyl floor tiles are used, the concrete floor slab should be given sufficient time to air *dry* before the tiles are applied. Alternatively, a floor sealant could be applied over the concrete to minimize moisture from accumulating under the floor tiles.

4.2.3 Drilled, Cast-in-Place Piers

As an alternative to footing foundations, sound or retaining walls may be supported on drilled, cast-in-place friction piers. The pier foundations should have a minimum diameter of 12 inches and a minimum center-to-center spacing of three times the pier diameter. The piers should be designed using an allowable dead plus live load skin friction of 500 pounds per square foot with a one-third increase for all loads, including wind and seismic.

4.2.4 Reraining Walls

Retaining walls must be designed to resist both lateral earth pressures and any additional lateral loads caused by surcharging.

We recommend that unrestrained walls be designed to resist an equivalent fluid pressure of 35 pounds per cubic foot. This assumes a level backfill. Restrained walls should be designed to resist an equivalent fluid pressure of 35 pounds per cubic foot plus an additional uniform lateral pressure of 7H pounds per square foot where H = height of backfill above the top of the wall

footing in feet. In addition, walls with inclined backfill should be designed for an additional equivalent fluid pressure of 1 pound per cubic foot for every 2 degrees of slope inclination.

Wall subjected to surcharge loads should be designed for an additional uniform lateral pressure equal to one-third or one-half the anticipated surcharge load for unrestrained or restrained walls, respectively.

The recommended lateral pressures assume walls are fully-backdrained to prevent the build-up of hydrostatic pressures. Adequate drainage could be provided by means of either weep holes with permeable material installed behind the walls or by means of a system of subdrains. For the subdrain system, the top of the perforated pipe should be below the bottom of the adjacent floor slab.

Retaining wall backfill less than 5 feet deep should be compacted to at least 90 percent relative compaction using light compaction equipment. Backfill greater than 5 feet deep should be entirely compacted to at least 95 percent relative compaction. If heavy compaction equipment is used, the walls should be appropriately designed to withstand loads exerted by the heavy equipment and/or temporarily braced.

Reraining walls should be supported on spread footing foundations designed in accordance with the recommendations presented previously under Item 4.2.1, "Spread Footings", or on drilled pier foundations designed in accordance with the recommendations presented previously under Item 4.2.3, "Drilled, Cast-in-Place Piers." Lateral load resistance for the walls can be developed in accordance with the recommendations presented below under Item 4.2.5, "Lateral Load Resistance."

4.2.5 Lateral Load Resistance

Lateral load resistance for the proposed building and retaining walls can be developed by friction between the foundation bottom and the supporting subgrade. A friction coefficient of 0.35 is considered applicable. As an alternative, a passive resistance equal to an equivalent fluid weighing 350 pounds per cubic foot acting against the vertical face of the foundations could be used. If foundations are poured neat against the soil, the friction and passive resistance can be used in combination.

4.3 Pavements

One "R" (resistance) value test was performed on a bulk sample of the near-surface clayey materials on-site. The results of this test are presented in Appendix B and indicate an "R" value of 5. However, due to anticipated mass grading necessary to develop the site, a large proportion of future pavements may be expected to be founded on sandy subgrade soils currently underlying the site. We developed the following alternative preliminary pavement sections using Topic 608 of the State of California Department of Transportation Highway Design Manual, an assumed "R" value of 20, and assumed traffic indices. Pavement design for pavement lives of 1 to 5 years, 6 to 10 years, and 11 to 20 years are presented below.

RECOMMENDED PAVEMENT DESIGN ALTERNATIVES

Location	Anticipated Pavement Life (years)	Pavement Components		Total Thickness (inches)
		Asphaltic Concrete (inches)	Aggregate Base Class 2 (inches)	
Minor Residential Streets and Cul-de-Sacs (T.I. = 5.0 for 20-year life)	11-20	2.5	9.0	11.5
	6-10	2.5	7.0	9.5
	1-5	2.5	6.0	8.5
Collector Streets (T.I. = 6.5 for 20-year life)	11-20	3.5	12.0	15.5
	6-10	3.5	10.0	13.5
	1-5	3.5	8.0	11.5

The traffic indices used in our design were established assuming a typical mix of automobile and "delivery or garbage" truck type of use in the proposed residential development once construction has been completed. Selection of the design traffic parameters, however, was based on engineering judgment, and not on an equivalent wheel load analysis developed from a traffic study or furnished to us. If the pavements are planned to be placed prior to or during construction, however, the traffic indices and pavement sections may not be adequate for support for what is typically more frequent and heavier construction traffic. Therefore, if the pavement sections will be used for construction access, our firm should be consulted to provide recommendations for alternative pavement sections capable of supporting the heavier use. In addition, we could provide recommendations for a phased placement of the asphalt concrete to minimize the potential for mechanical scars caused by construction traffic in the finished grade.

Since grading has not yet been designed for the site, we recommend that "R" value tests be performed on representative samples of actual pavement subgrades to confirm the preliminary pavement designs.

Asphaltic concrete, aggregate base and preparation of the pavement subgrade should conform to and be placed in accordance with the Guide Specifications - Asphalt Paving presented in Appendix D.

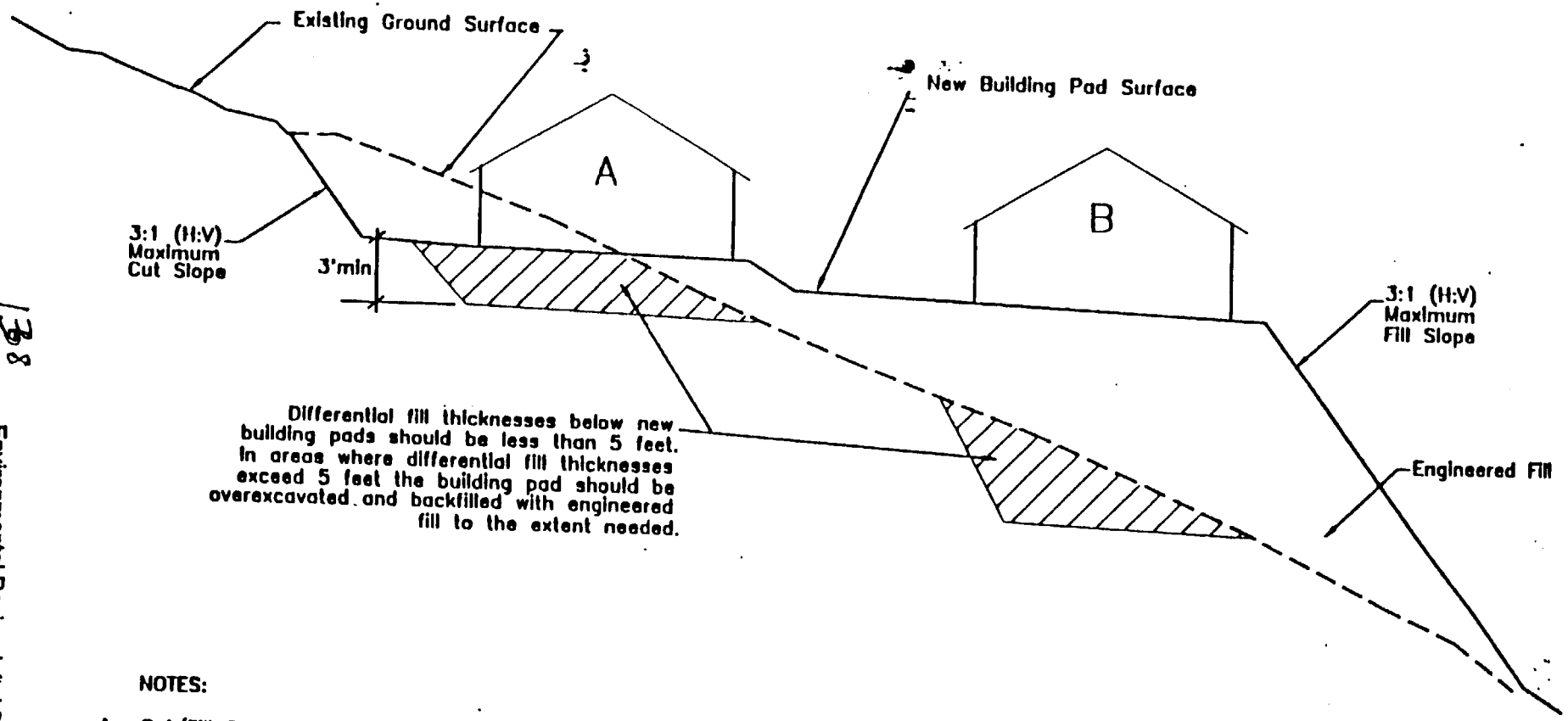
In areas where the pavements will abut planted areas, the pavement baserock layer should be protected against saturation from irrigation. Planned concrete curbs should extend to the bottom of the baserock layer, forming a cut-off wall between the planter and the pavement section.

4.4 Construction Observation

The analysis, designs, opinions, and recommendations submitted in this report are based in part upon the data obtained from the six soil borings, and upon the conditions existing when services were performed. Variations of subsurface conditions from those analyzed or characterized in the report are possible as may become evident during construction. In that event it may be advisable to revisit certain analyses or assumptions.

We recommend that our firm be retained to provide geotechnical services during site grading and foundation installation, to observe compliance with the design concepts, specifications and recommendations presented in this report. Our presence will also allow us to modify design if unanticipated subsurface conditions are encountered.

FIGURES



NOTES:

A. Cut/Fill Transition Pad

B. Fill Pad

SCHEMATIC ONLY
NOT TO SCALE

Date 7/97	HARZA	TYPICAL OVEREXCAVATION BELOW TRANSITION AND FILL LOTS	Figure
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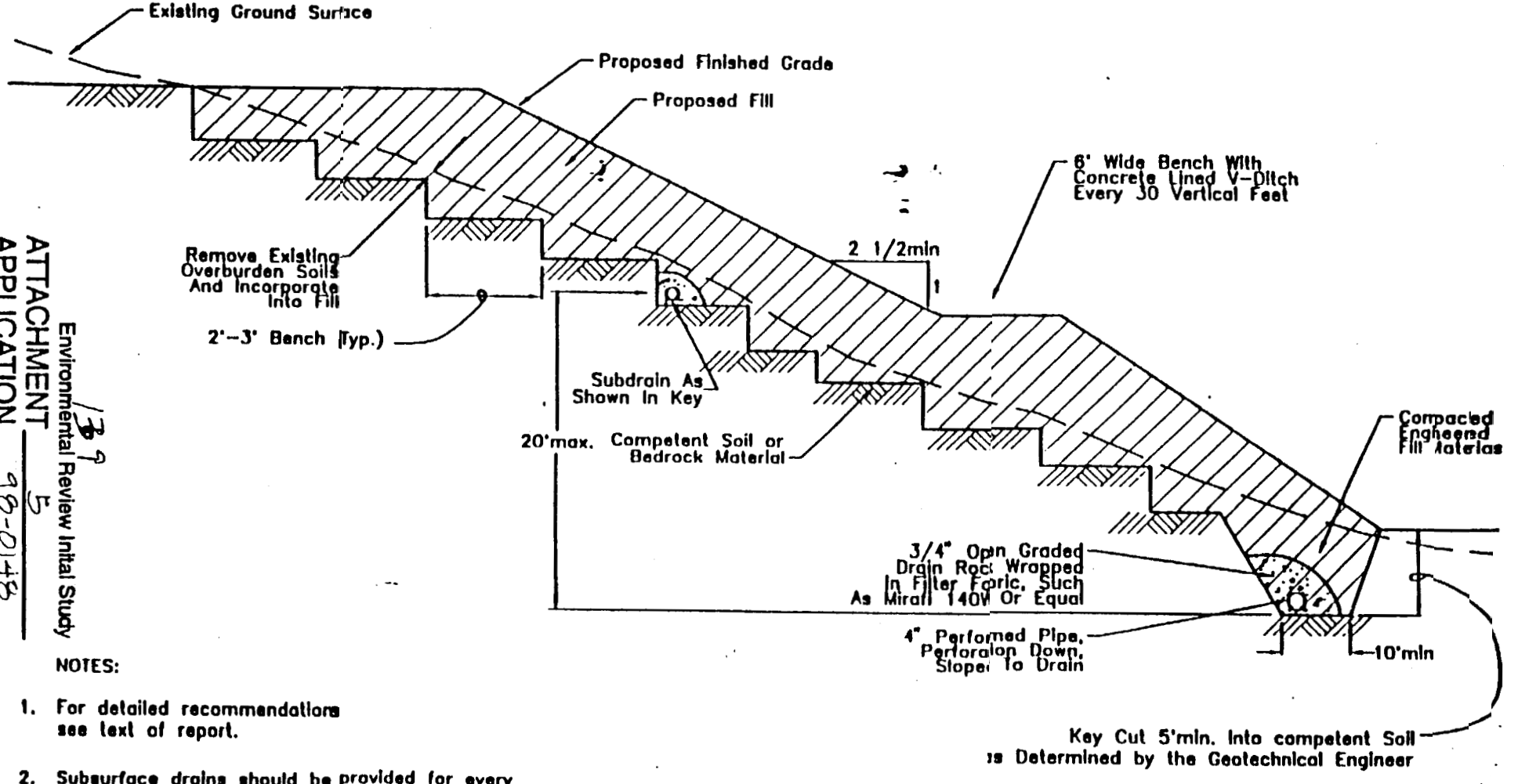

ATTACHMENT 5
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Environmental Review Initial Study

NOTES:

1. For detailed recommendations see text of report.
2. Subsurface drains should be provided for every 20 feet of vertical elevation change. Collector pipes should drain to discharge facility.
3. Class 2 permeable material may be used in lieu of 3/4" drain rock and filter fabric.

SCHIMATIC ONLY
NOT TO SCALE

Date		TYPICAL FILL PLACEMENT ON SLOPES	Figure
7/97	HARZA	TWIN LAKES RESIDENTIAL DEVELOPMENT Aptos, California	3
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APPENDICES

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HARZA

APPENDIX A

. Field Investigation

The field investigation consisted of a surface reconnaissance and a subsurface exploration program using a truck-mounted, continuous flight auger. Three 8-inch diameter exploratory borings were drilled on June 30 through July 1, 1997 to a maximum depth of 42 feet. The location of the exploratory borings are shown on the Site Plan, Figure 1. The soils encountered in the borings were continuously logged in the field by our representative. The soils are described in accordance with the Unified Soil Classification System (ASTM D-2487). The logs of the borings as well as a key for the classification of the soil (Figure A-1) are included in this appendix.

Representative soil samples were obtained from the exploratory borings at selected depths appropriate to the soil investigation. Undisturbed samples were obtained using a 3-inch O.D. Modified California sampler and disturbed samples were obtained using the 2-inch O.D. split spoon sampler. All samples were transmitted to our laboratory for evaluation and appropriate testing. Both sampler types are indicated in the "Sampler" column of the boring logs as designated in Figure A-1.

Resistance blow counts were obtained with the samplers by dropping a 140-pound hammer through a 30-inch free fall. The sampler was driven 18 inches, or a shorter distance where hard resistance was encountered, and the number of blows were recorded for each 6 inches of penetration. The blows per foot recorded on the boring logs represent the accumulated number of blows that were required to drive the last 12 inches, or the number of inches indicated where hard resistance was encountered. When the split spoon sampler was used, these blow counts are the standard penetration resistance values. However, due to the large diameter of the Modified California sampler, the blow counts recorded for this sampler are not standard penetration resistance values. In order to convert these values to approximate standard penetration resistance values, the indicated blow counts should be multiplied by a factor of 0.56.

The elevations noted on the boring logs and in this report are approximate and were obtained from topographic data shown on a plan titled "Proposed Parcel Adjustment For Twin Lakes Baptist Church" developed by Ifland Engineers, Inc., Santa Cruz, California, October, 1991.

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The attached boring logs and related information show our interpretation of the subsurface conditions at the dates and locations indicated, and it is not warranted that they are representative of subsurface conditions at other locations and times.

A summary of materials encountered in the six borings drilled previously by others, as interpreted from the published boring logs, is shown in Table A-1.

Table A-1
Summary of Previous Geotechnical Borings by Jacobs, Raas & Associates

Boring	Depth (feet)	General Description
PB-1	0 - ½	Fill: sandy, some gravel, loose, dry
	½ - 3	Sand (SM): silty, dense, damp
	3 - 7	Sand (SM): silty, dense, damp
	7 - 10½	Sand (SC): clayey, dense, very damp
	10½ - 25	Sand (SM): silty, dense, damp
	- Groundwater was not encountered	
PB-2	0 - ½	Sand (SM): silty, loose, dry
	'A - 4	Sand (SC): clayey, dense, moist
	4 - 8	Sand (SM): silty, dense, damp
	8 - 18	Sand (SC): clayey, medium dense, very moist
	18 - 25	Sand (SM): silty, with gravel, dense, wet
	- Groundwater was not encountered	
PB-3	0 - ½	Sand (SM): silty, loose, dry
	½ - 2	Sand (SC): clayey, medium dense, dry
	2 - 4	Sand (SC): clayey, dense, *damp*
	4 - 7½	Sand (SM): silty, very dense, damp
	7½ - 10	Sand (SC): ciayey, dense, very moist
	10 - 15	Sand (SM): silty, dense, very damp
	15 - 20	Sand (SM): silty, with gravel, very dense, moist
	- Groundwater was not encountered	
PB-4	0 - 'A	*sand* (SM): silty, loose, dry
	'A - 3	Sand (SC): chycy, dense, damp
	3 - 10	Sand (SM): silty, dense, damp
	10 - 20	Sand (SM): silty, dense, very moist
	20 - 21	Sand (SM): silty, with gravel, dense, very moist
	21 - 25	Sand (SC): clayey, dense, very moist

- Groundwater was not encountered

PB-5	0 - ½	Sand (SM): silty, loose, dry
	½ - 3	Sand (SC): clayey, very dense, dry
	3 - 12	Sand (SM): silty, some clay, medium dense, very moist
	12 - 15	Sand (SM): silty, medium dense to dense, moist

- Groundwater was not encountered

PB-6	0 - 1½	Sand (SM): silty, loose, dry
	1½ - 3½	Sand (SM): silty, medium dense, damp
	3½ - 4½	Sand (SC): clayey, medium dense, very damp
	4½ - 13	Sand (SC): clayey, dense, moist
	13 - 16	Sand (SM): silty, with gravel, dmse, moist
	16-23	Sand (SM): silty, dcnse, moist
	23-25	Sand (SM): silty, with gravel, dense, very damp

- Groundwater was not encountered

DEPTH TO GROUND WATER Not Encountered	BORING DIAMETER 8-inch	DATE DRILLED 7/1/97

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
CLAY (CL), light brown, silty, some sand (fine-grained), trace fine root debris, dry	Stiff				21	17	94		
					29				R = 5
SAND (SM), light to dark brown with mottled orange, fine-grained, with silt, dry to damp	Med. Dense		5		28				
			10		29				
SAND (SW), brown with mottled orange, fine-to coarse-grained, trace silt, trace gravel (fine-to coarse-grained, subangular), dry	Dense		15		33				
SAND (SC), brown with mottled orange and red, fine-grained, with clay, damp to moist	Med. Dense		20		24				

EXPLORATORY BORING LOG

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TWIN LAKES RESIDENTIAL DEVELOPMENT
Aptos, California

PROJECTNO.	DATE	BORING NO.
L879G	July 1997	EB-1

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Mobile Home	SURFACE ELEVATION	136 ft	LOGGED BY
DEPTH TO GROUND WATER Not Encountered	BORING DIAMETER	8-inch	DATE DRILLED 7/1/97

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
SAND (SP), orange with mottled red, fine-to coarse-grained, trace silt, trace gravel (fine-grained, subangular), damp (grades to tan)	Very Dense				72				
			30						
SAND (SW), tan with mottled red-orange, fine-to coarse-grained, trace gravel (medium-grained, subangular), red-auburn staining throughout, damp	Very Dense				76				

Bottom of Boring = 31-1/2 Feet

Notes:

1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.
2. For an explanation of penetration resistance values, see the first page of Appendix A.
3. Groundwater was not encountered at the time of drilling.
4. The boring was backfilled with native soil cuttings immediately upon completion.

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EXPLORATORY **BORING** LOG

TWIN LAKES RESIDENTIAL DEVELOPMENT
Aptos, California

PROJECT NO.	DATE	BORING NO.
L879G	July 1997	**EB-1**

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DRILL RIG Module 540	SURFACE ELEVATION 140 ft	LOGGED BY	MEL
DEPTH TO GROUND WATER Not Encountered	BORING DIAMETER 8 in.	DATE DRILLED	7/1/97

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
CLAY (CL), brown, silty, some sand (fine-grained), dry	Firm to Stiff				16	15			
SAND (SM), light brown to tan, fine-grained, some silt, dry,	Dense		5		27				
SAND (SM), light brown to tan, fine-to coarse-grained, some silt, trace gravel (fine-grained, subangular), damp	Med. Dense		10		26				%Pass #200=20
SAND (SM), light brown to tan, fine-to coarse-grained, trace to some silt, trace gravel (fine-grained, subangular), damp	Dense		15		31				
SAND (SC), light gray with mottled [illegible] fine grained with clay, trace gravel, (fine-grained, subangular), damp	Dense				48				

Bottom of Boring = 18-1/2 Feet

Notes:
1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.
2. For an explanation of penetration resistance values, see the first page of Appendix A.
3. Groundwater was not encountered at the time of drilling.
4. The boring was backfilled with native soil cuttings immediately upon completion.

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EXPLORATORY BORING LOG

TWIN LAKES RESIDENTIAL DEVELOPMENT
Aptos, California

PROJECT NO.	DATE	BORING NO.
L879G	July 1997	EB-2

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DEPTH TO GROUND WATER 10.5 feet	BORING DIAMETER 8-inch	DATE DRILLED 7/1/97

DESCRIPTION AND CLASSIFICATION			DEPTH	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	(FEET)						
CLAY (CL), brown, silty, trace sand (fine-grained), trace fine root debris, dry	Stiff				25	9			LL=23 PL=12 P %Pass #200=44
SAND (SC), tan, fine-grained, clayey, trace gravel (fine-grained, subangular), damp	Dense				35				
SAND (SM), light brown to brown, fine-grained, with silt, trace gravel (fine-grained, subangular), damp	Med. Dense		5		25	14	108		
(grades with orange to red staining)			10		19				
SAND (SP), gray, medium-to coarse-grained, saturated	Dense								
SAND (SC), light brown to brown, fine-to coarse-grained, with clay, trace gravel (fine-grained, subangular), saturated	Dense		15		44				
SAND (SP), gray, medium-to coarse-grained, saturated	Dense								
SAND (SC), light brown to brown, fine-to coarse-grained, with clay, trace gravel (fine-grained, subangular), saturated (grades to gray - orange)	Dense		20		38				

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Bottom of Boring = 21-1/2 Feet

Notes:

1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.
2. For an explanation of penetration resistance values, see the first page of Appendix A.
3. Ground water was encountered during drilling at 13 feet and was measured 1 hour after the completion of drilling at 10-1/2 feet.
4. The boring was backfilled with native soil cuttings immediately upon completion.

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EXPLORATORY BORING LOG

TWIN LAKES RESIDENTIAL DEVELOPMENT
Aptos, California

PROJECT NO.	DATE	BORING NO.
L879G	July 1997	EB-3

DEPTH TO GROUND WATER Not Encountered	BORING DIAMETER 8-inch	DATE DRILLED 7/1/97

DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
CLAY (CL), tan to brown, sandy (fine-grained), dry	Stiff				24	14	93		
	Very Stiff				31				
SAND (SM), light brown to brown, fine-grained, silty, dry	Dense		5		85	21	103		
(grades to damp to moist)	Med. Dense				23				
(grades with intermingled layers of black silt)			10		24				
(grades with mottled orange)			15		22				
			20		25				

Bottom of Boring = 21-1/2 Feet

Notes:

1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.
2. For an explanation of penetration resistance values, see the first pep of Appendix A.
3. Groundwater was not encountered at the time of drilling.
4. The boring was backfilled with native soil cuttings immediately upon completion.

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EXPLORATORY BORING LOG

TWIN LAKES RESIDENTIAL DEVELOPMENT
Aptos, California

PROJECT NO.	DATE	BORING NO.
L879G	July 1997	EB-4

Module B40	SURFACE ELEVATION 171 ft	LOGGED BY	MARL
DEPTH TO GROUND WATER 36 feet	BORING DIAMETER 8-inch	DATE DRILLED	6/30/97

DESCRIPTION AND CLASSIFICATION			DEPTH	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	(FEET)						
SILT (ML), dark brown, sandy (fine-to coarse-grained), dry	Stiff				17	10	89		
SAND (SM), red to brown with mottled orange, fine-grained, silty, dry	Med. Dense				28				
CLAY (CL), tan to brown, sandy (fine-grained), damp	Very Stiff		5		48	21	107		
SAND (SC), brown with mottled orange, fine-grained, clayey, damp	Dense				66				
(grades to light orange to brown)	Med. Dense		10		24				%Pass #200=46
(grades with red staining and intermittent black silt pockets)			15		19				
SAND (SM), black to red, fine-grained, silty, dry to damp	Dense		20		47				
(grades to some gravel (fine-grained, subangular), occasional red stains, fragments of black glittery cemented sand)	Very Dense		25		59				

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EXPLORATORY BORING LOG

TWIN LAKES RESIDENTIAL DEVELOPMENT
Aptos, California

PROJECT NO.	DATE	BORING NO.
L879G	July 1997	EB-5

DRILL RIG	Mobile B46	SURFACE ELEVATION	171 ft.	LOGGED BY	MHL
DEPTH TO GROUND WATER	36 feet	BORING DIAMETER	8-inch	DATE DRILLED	6/30/97

DESCRIPTION AND CLASSIFICATION			DEPTH	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	(FEET)						
SAND (SM), light brown to tan, fine-grained, some silt, trace gravel (fine-to coarse grained, subangular), damp	Dense				33				
	Med. Dense		35		16				%Pass #200 = 18
(grades to gray with mottled orange, some gravel, wet)									
	Dense		40		43				

Bottom of Boring = 41-1/2 Feet

Nom:

1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.
2. For an explanation of penetration resistance values. see the first p a p of Appendix A.
3. Ground water was encountered during drilling at 37.4 feet and was measured 1 hour after the completion of drilling at 36 feet.
4. The boring was backfiiled with native soil cuttings immediately upon completion.

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PROJECT NO.	DATE	BORING NO.
L879G	July 1997	EB-5

DEPTH TO GROUND WATER Not Encountered	BORING DIAMETER 8-inch	DATE DRILLED 6/30/97

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
CLAY (CL), tan to brown, silty, trace sand (fine-to coarse grained), dry	Very Stiff				40				
(grades to some gravel (fine-to coarse-grained, subangular)	Stiff				36	19	110		
SAND (SM), light brown with mottled orange, fine-grained, with silt, damp	Med. Dense		5						
(grades to trace gravel (fine-grained, subangular))					24				
			10						
					20				
	Dense		15						
SAND (SW), light brown to tan with occasional orange to red staining, fine-to coarse-grained, trace silt, some gravel (fine-grained, subangular), dry to damp					33				

Bottom of Boring = 16-1/2 Feet

Notes:

1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.
2. For an explanation of penetration resistance values, see the first page of Appendix A.
3. Groundwater was not encountered at the time of drilling.
4. The boring was backfilled with native soil cuttings immediately upon completion.

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EXPLORATORY BORING LOG

TWIN LAKES RESIDENTIAL DEVELOPMENT

Ab[illegible], California

PROJECT NO.	DATE	BORING NO.
L879G	July 1997	EB-6

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APPENDIX B
Laboratory Investigation

The laboratory testing program was directed toward a quantitative and qualitative evaluation of the physical and mechanical properties of the soils underlying the site.

The natural water content was determined on nine samples of the materials recovered from the borings in accordance with ASTM Test Designation D-2216. These water contents are recorded on the boring logs at the appropriate sample depths.

Dry density determinations were performed on seven samples of the subsurface soils to evaluate their physical properties. The results of these tests are shown on the boring logs at the *appropriate* sample depths.

Atterberg *Limit* determinations were performed on one sample of the subsurface soils to determine the range of water content over which these materials exhibit plasticity. The Atterberg Limits were determined in accordance with ASTM Test Designations D-428 and D-424. These values are used to classify the soil in accordance with the Unified Soil Classification System and to indicate the soil's compressibility and expansion potential. The results of these tests are presented on Figure B-1 and on the logs of the borings at the appropriate sample depths.

The percent passing the #200 sieve was determined on three samples of the subsurface soils to aid in the classification of these soils. These tests were performed *in* accordance with ASTM Designation D-1140. The results of these tests are shown on the boring logs at the appropriate sample depths.

A laboratory compaction test was performed on one representative sample of the subgrade soils to determine the maximum *dry* density and *optimum* moisture content of these materials. The test was performed in accordance with ASTM Test Designation D1557-78. The results of the test are presented on Figure B-2.

A resistance "R" value test was performed on a sample of the on-site near-surface soils to provide data for pavement design. The test was performed in accordance with California Test Method 301-F and indicated an "R" value of *5 at* an exudation pressure of 300 pounds per *square* inch.

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The results of the test are presented below:

RESULTS OF "R" VALUE TEST					
Description of Material	Dry Density (pcf)	Water Content (%)	Exudation Pressure (psi)	Expansion Pressure (psf)	"R" Value
Tan to brown Silty Clay (CL)	94.2	24.0	199	0	3
	98.2	22.9	350	0	6
	101.8	21.8	493	0	13
"R" Value = 5 at Exudation pressure of 300 psi					

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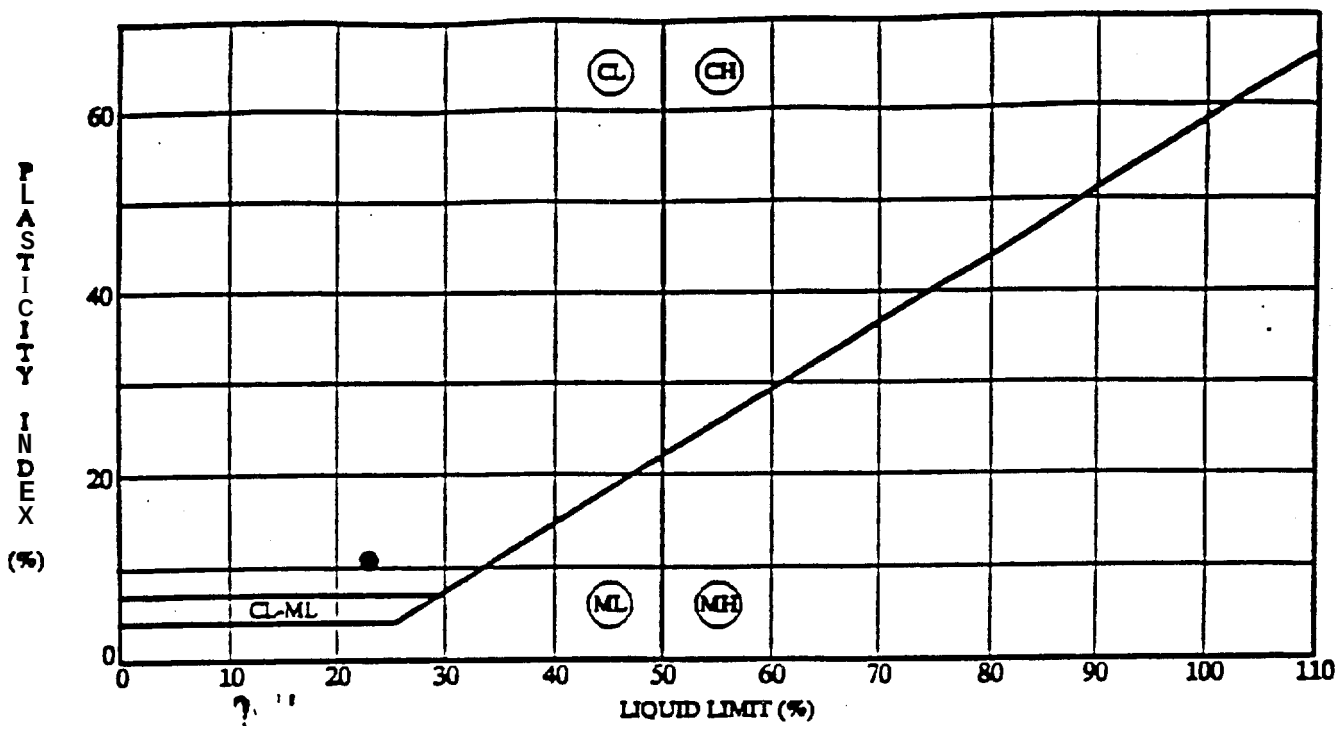

Key Symbol	Boring No.	Depth (Feet)	Liquid Limit (%)	Plasticity Index (%)	Liquidity Index (%)	Water Content (%)	% Passing #200 Sieve	USCS
●	EB-3	1.0	23	11	-33	9	44	SC

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PLASTICITY CHART AND DATA

TWIN LAKES RESIDENTIAL
Aptos, California

PROJECT NO.	DATE	FIGURE NO.
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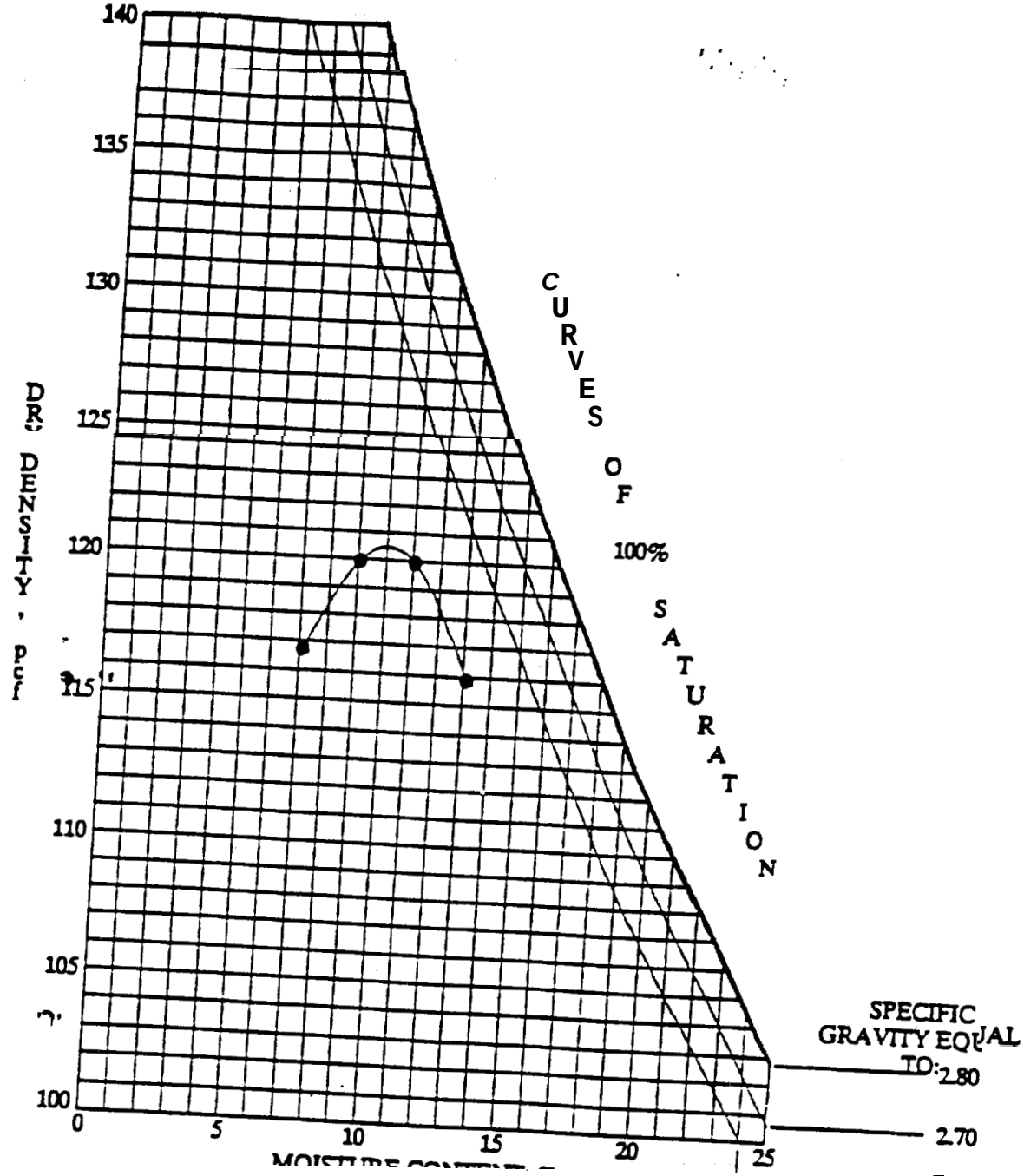

Key Symbol	Location	Depth (Feet)	Sample Description (USCS)	Maximum Dry Density (pcf)	Optimum Water Content (%)	Test Designation
●	EB-5	1.0	Dark brown sandy SILT (ML/SM)	120.0	10.0	ASTM D1557-91

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COMPACTION TEST RESULTS

TWIN LAKES RESIDENTIAL
Aptos, California

PROJECT NO.	DATE	FIGURE NO.
L879G	July 1997	B-2

APPENDIX C
Guide Specifications - Site Earthwork
for
Twin Lakes Residential Development
Aptos, California

1.0 GENERAL

1.1 Scope of Work

These specifications and applicable plans pertain to and include all site earthwork including, but not limited to, the finishing of all labor, tools, and equipment necessary for site clearing and stripping, disposal of excess materials, excavation, preparation of foundation materials for receiving fill, and placement and compaction of fill to the lines and grades shown on the project grading plans.

1.2 Performance

The Contractor warrants all work to be performed and all materials to be furnished under this contract against defects in materials or workmanship for a period of ____ year(s) from the date of written acceptance of the entire construction work by the Owner.

Upon written notice of any defect in materials or workmanship during said ____ year period the Contractor shall, at the option of the Owner, repair or replace said defect and any damage to other work caused by or resulting from such defect without cost to the Owner. This shall not limit any rights of the Owner under the "acceptance and inspection" clause of this contract.

The Contractor shall be responsible for the satisfactory completion of all site earthwork in accordance with the project plans and specifications. This work shall be observed and tested by a representative of Harza, hereinafter known as the Geotechnical Engineer. Both the Geotechnical Engineer and the Architect/Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory as determined by the Geotechnical Engineer and the Architect/Engineer. No deviation from the specifications shall be made except upon written approval of the Geotechnical Engineer or Architect/Engineer.

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No site earthwork *shall* be performed without the physical presence or approval of the Geotechnical Engineer. The Contractor shall notify the Geotechnical Engineer at least twenty-four hours prior to commencement of *any* aspect of the site earthwork.

The Geotechnical Engineer shall be the Owner's representative to observe the grading operations *during* the site preparation work and the placement and compaction of fills. He shall make enough visits *to* the site to familiarize himself generally with the progress and quality of the work. He shall make a sufficient number of tests and/or observations to enable him to form an opinion regarding the adequacy of the site preparation, the acceptability of the fill material, and the extent to which the compaction of the fill, as placed, meets the specification requirements. Any fill that does not meet the specification requirements shall be removed and/or recompacted until the requirements are satisfied.

In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job *site,* including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal work hours.

Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures in, on or near the construction site.

Upon completion of the construction work, the Contractor shall certify that all compacted fills and foundations are in place at the correct locations, have the correct dimensions, are plumb, and have been constructed in accordance with sound construction practice. In addition, he shall certify that the materials used are of the types, quantity and quality required by the plans and specifications.

1.3 Site and Foundation Conditions

The Contractor is presumed to have visited the site and *to* have familiarized himself with *existing* site conditions and the soil report titled, "Geotechnical Investigation, Twin Lakes Residential Development, Aptos, California", dated July 25, 1997. The Contractor shall not be relieved of liability under the contract for any loss *sustained* as a result of *any* variance between conditions indicated by or deduced from the soil report and the actual conditions encountered during the course of the work.

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The Contractor shall, upon becoming aware of surface and/or subsurface conditions differing from those disclosed by the original soil investigation, promptly notify the Owner as to the nature and extent of the differing conditions, first verbally *to* permit verification of the conditions, and then in writing. No claim by the Contractor for *any* conditions differing from those anticipated in the plans and specifications and disclosed by the soil investigation will be allowed unless the Contractor has so notified the Owner, verbally and in writing, as required above, of such changed conditions.

1.4 Dust Control

The Contractor shall assume responsibility for the alleviation or prevention of any dust nuisance on or about the site or off-site borrow areas. The Contractor shall assume all liability, including court costs of codefendant, for all claims related to dust or windblown materials attributable to his work.

2.0 DEFINITION OF TERMS

Structural Fill:	All soil or soil-rock material placed on-site in order to raise grades or *to* backfill excavations, and upon which the Geotechnical Engineer has conducted sufficient tests and/or observations to enable him to issue a written statement that, in his opinion, the fill has been placed and compacted *in* accordance with the specification requirements.
On-Site Material:	Material obtained from the required site excavations.
Import Material:	Material obtained from off-site borrow areas.
ASTM Specifications:	The American Society for Testing and Materials Standards, latest edition.
Degree of Compaction:	The ratio, expressed as a percentage, of the in-piact *dry* density of the compacted fill material to the maximum dry density of the same material as determined by *ASTM* Test Designation D1557-91.

3.0 SITE PREPARATION

3.1 Clearing and Grubbing

The contractor shall accept the site in its present condition and shall remove from the area of the designated project earthwork all obstructions including any buried tanks and foundations, abandoned utilities, pavements, concrete slabs, trees, roots, septic tanks and leach lines, and any other matter determined by the Geotechnical Engineer to be deleterious. Such material shall become the property of the Contractor and shall be removed from the site. Holes resulting from the removal of underground obstructions that extend below finish grades shall be cleared and backfilled with structural fill.

3.2 Stripping

Where vegetation exists, the site shall be disced, or stripped to a minimum depth of 2 inches or to such greater depth, as the Geotechnical Engineer in the field may consider as being advisable to remove all surface vegetation and organic laden topsoil. Stripped topsoil with an *organic* content in excess of 3 percent by volume shall be stockpiled for possible use in landscaped areas.

4.0 EXCAVATION

All excavations shall be performed to the lines and grades and within the tolerances specified on the project *grading* plans. All overexcavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the specifications. The Contractor shall assume full responsibility for the stability of all temporary construction slopes on-site.

5.0 SUBGRADE PREPARATION

Surfaces to receive compacted fill, and those on which concrete slabs and pavements will be constructed, shall be scarified to a minimum depth of 12 inches and compacted. All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of *any* fill materials. All areas which are to receive fill material shall be approved by *the* Geotechnical Engineer prior to placement of any fill material.

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6.0 *GENERAL* REQUIREMENTS FOR FILL MATERIAL

All fill material must be approved by the Geotechnical Engineer. The material shall be a soil *or* soil-rock mixture which is free from organic matter or other deleterious substances. The fill material *shall* not contain rock or rock fragments over 6 inches in greatest dimension and not more than 15 percent shall be over 2.5 inches in greatest dimension. On-site material having an organic content of less *than* 3 percent by volume is suitable for use as fill in all areas except where non-expansive import material is specified.

All imported fill material shall be non-expansive with a plasticity index of 12 or less.

7.0 PLACING AND COMPACTING FILL MATERIAL

All structural fill shall be compacted by mechanical means to produce a minimum degree of compaction of 95 percent as determined by ASTM Test Designation D1557-78. Field density tests shall be performed in accordance with either *ASTM* Test Designation D1556-82 (Sand-Cone Method) or ASTM Test Designation D2922-81 and D3017-88 (Nuclear Probe Method). The locations and number of field density tests shall be determined by the Geotechnical Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work shall be judged by the Geotechnical Engineer.

8.0 TRENCH BACKFILL

Pipeline trenches shall be backfilled with compacted structural fill placed in lifts not exceeding 8 inches of uncompacted thickness. If on-site soils is used, the material shall be compacted by mechanical means to a minimum degree of compaction of 90 percent. Imported sand may also be used for backfilling trenches provided it is compacted to at least 95 percent. If imported sand backfilling is used, sufficient water shall be added during the trench backfilling operations to prevent the soil from bulking during compaction. In all building pad and pavement areas, the upper 3 feet of trench backfill shall be compacted to a minimum degree of compaction of 95 percent.

9.0 TREATMENT AFTER COMPLETION OF EARTHWORK

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.

It shall be the responsibility of the Contractor to prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

APPENDIX D
Guide Specifications - Asphalt Paving
for
Twin Lakes Residential Development
Aptos, California

1.0 GENERAL

This portion of the work shall include all labor, **materials, tools and** equipment necessary for incidental to the completion of the pavement **shown on** the plans **and as** herein specified.

2.0 DEFINITION OF TERMS

Pavement:	Both **asphalt** concrete, **and** aggregate base materials.
Subgrade:	That portion of the construction on **which** asphalt concrete **and aggregate base** is to **be placed.**
Standard Specifications:	**Standard Specifications** of the **State** of California Department of Transportation. **July 1992.**
ASTM Specifications:	The American Society **for Testing** and Materials **Standards,** latest edition.

3.0 MATERIALS

3.1 Asphalt

3.1.1 Asphalt for prime *coat* shall **be liquid** asphalt, **grade** MC-70 conforming to **the** provisions of **Sections** *39* and 93 of the Standard Specifications.

3.1.2 Asphalt for tack coat **and seal** coat shall **be** SS-1h ***asphalt*** **emulsion** conforming **to** sections **37 and 94** of **the standard** Specifications.

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3.1.3 Paving asphalt to be mixed with aggregate shall be steam refined asphalt conforming to the provisions of Section 92 of the Standard Specifications for viscosity grade AR 4000.

3.2 Mineral Aggregate for Asphalt Concrete:

Type B Aggregate as specified in the Standard Specifications, Section 39, ½ inch maximum size, medium grading.

4.0 CONSTRUCTION

4.1 Existing Pavement

Remove the existing asphalt concrete and base to the subgrade elevation. Existing pavements which are removed can be used as fill material provided the asphalt is broken up to meet the maximum allowable size requirements for imported fill material.

4.2 Subgrade Preparation

The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades and dimensions given on the plans. Isolated unstable areas shall be stabilized by recompaction or excavation and replacement of materials. The upper 6 inches of the subgrade soil shall be compacted to a density not less than 95 percent of that obtained in the laboratory according to Test Method ASTM D1557-91.

4.3 Aggregate Base

Aggregate base shall be spread and compacted in conformance with Standard Specifications Section 26 for Class 2 Aggregate Base. Finished aggregate base shall have the minimum depth shown and finished grade shall not vary more than 0.05 foot above or below the established grade. The aggregate base shall be compacted to a density not less than 95 percent of that obtained in the laboratory according to Test Method ASTM D1557-91.

4.4 Prime Coat

Apply prime coat at an approximate total rate of ¼ gallons per square yard to all areas receiving asphalt concrete. Conform to Section 39 of Standard Specifications.

4.5 Tack Coat

Apply a "tack coat" to all vertical faces, against which asphalt concrete is to be placed. Apply at a rate of from 0.02 gallon to 0.10 gallon per square yard. Conform to Section 39 of Standard Specifications.

4.6 Seal Coat

Seal coat shall be diluted with an equal amount of water and applied at the rate of 0.10 gallon of the diluted emulsion per square yard of surface. The surface shall be free of dust and loose material prior to application.

4.7 Asphalt Concrete

Asphalt concrete shall be spread and compacted on the prepared base in conformance with the lines, grades and dimensions shown on the drawing and as specified in Section 39 of the Standard Specifications. In addition to the compaction requirements described in Section 39 of the Standard Specifications, each layer of asphaltic concrete (surface or base) shall be compacted to a density no less than 95 percent of that obtained in the laboratory according to ASTM Test Method D2041-78.

4.8 Improper Workmanship

Cracks, settling of surface, improper drainage and sloppy connection to previously laid surfaces will be construed as improper workmanship and will not be acceptable.

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		grf	ltr	Description
Coarse Grained Soils	Gravel And Gravelly Soils		GW	Well-graded gravels or gravel sand mixtures, little or no fines
			GP	Poorly-graded gravels or gravel sand mixture, little or no fines
			GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sand And Sandy Soils		SW	Well-graded sands or gravelly sands, little or no fines
			SP	Poorly-graded sands or gravelly sands, little or no fines
			SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, and-clay mixtures
Fine Grained Soils	Silts And Clays LL < 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silt-clays of low plasticity
	Silts And Clays LL > 50		MH	Inorganic silts, micaceous or diatomaceous fine or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat and other highly organic soils

GRAIN SIZES

U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENINGS		
200	40	10	4	3/4"	3"	12"

Silts and Ckyr	Sand			Gravel		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

RELATIVE DENSITY

Sands and Gravels	Blows/Foot*
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Over 50

CONSISTENCY

Silts and Clays	Blows/Foot*	Strength (tsf)**
Very Soft	0 - 2	0 - 1/4
Soft	2 - 4	1/4 - 1/2
Firm	4 - 8	1/2 - 1
Stiff	8 - 16	1 - 2
Very Stiff	16 - 32	2 - 4
Hard	Over 32	Over 4

*Number of Blows for a 140-pound hammer falling 30 inches, driving a 2-inch O.D. (1-3/8" I.D.) split spoon sampler.

**Unconfined compressive strength.

SYMBOLS

- Standard Penetration sample
- Modified California sample
- Shelby Tube sample
- Ground Water level during drilling
- Stabilized Ground Water level

Increasing Visual Moisture Content

Dry
Damp
Moist
Wet
Saturated

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HARZA
Consulting Engineers & Scientists

KEY TO EXPLORATORY BORING LOGS

TWIN LAKES RESIDENTIAL DEVELOPMENT
Aptos, California

PROJECT NO.	DATE	FIGURE NO.
L879G	July 1997	A-1

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Environmental Consulting Services **20430H Town Center** Lane **Cupertino CA 95014**
Phone: **(408) 257-1045** . **FAX: 408 257 7235**

June **8,** 1999

Mr. Richard Beale
Richard Beale Land Use **Planning** lnc
100 Doyle **Street** – Suite E
Santa Cruz, CA ***95062***

RE: Noise Environment and Design Recommendations,
Atherton Place Residential Development, Santa Cruz County

Dear Mr. Beale,

I have reviewed the acoustical **aspects** of the site and design documents for the subject project relative to Santa Cruz **County** and 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} **design** noise levels, a description **of** architectural **details** relevant to noise protection performance, and general **recommendations for** compliance **with *County*** noise planning criteria [1] and California CEQA Appendix **G.**

PROJECT DESCRIPTION

The proposed Atherton Place project includes approximately **58** single-family **units** situated on **4.8** acres. **The** project is **bounded** on the west by Atherton Drive and on the north **by** Soquel **Drive,** with open space areas **to** the **south** and **east.** The project is designed for a three-phase development. This **report** evaluates the complete build-out **scenario.**

JMMARY OF FINDINGS

The primary source of noise on the **north** end **of** the project is traffic on Soquel Drive, **and** by **the** US Route **1** freeway on the south end of the site. Typical vehicle passby **noise levels are** 60-65 **dBA at** 50 **feet.** ''rucks, motorcycles, and poorly muffled vehicles produce peak levels **5** to **15** dBA **higher on** passby. Aircraft overflights create **infrequent** noise incidents **of** *55* to 60 **dBA.** There are **no** other significant **noise sources in** the area.

Based on site noise monitoring and Atherton **Place** site **plans** [3], project noise **levels** would be highest at the residential **units** adjacent to Soquel Drive in the north and next to **US** Route 1 freeway in the **south,** since they are the closest **to** and face the traffic. **Expected** traffic noise levels on the project site for the **year 2005** are estimated based upon existing noise levels and projected **future** traffic volumes. Traffic on Soquel Drive is expected to increase no more than **3%** per **year through** the **year 2005,** a total increase of 19% in average **daily** traffic, including project traffic [2]. Traffic volume increases on **US Route** 1 are estimated at no more than **2%** per year, which would be a total **ADT** increase **of 12%** or **less in 2005.** Based upon noise **measurements,** traffic projection **data,** and noise modeling **of key** project **sites, the** ground level maximum noise levels for the units adjacent to Soquel Drive bounding the project would be ***64*** dBA Ldn, **and** *66* dBA L in **for units** closest to US Route 1 at the **south** end. The Design Noise Level is the maximum noise level the structures must mitigate **to** provide **a** satisfactory interior **environment,** which for **this** project would be *66*

dBA Ldn. This also accounts for the higher noise levels at the upper floors of the residences nearest the traffic sources.

To meet Santa Cruz County criteria and California CEQA standards for residential buildings, the following requirement must be met:

- A long-term interior noise level not exceeding 45 L_{dn} due to exterior sources must be provided for each unit, which requires a minimum total building shell noise transmission loss of at least 21 dB.

NOISE MONITORING AND DESIGN NOISE LEVEL ANALYSIS

Field noise measurements on site were made during the mid-morning period of February 3, 1999, with a Metrosonics dB-601 Community Noise Analyzer, calibrated with a B & K Model 4230 Sound Level Calibrator. The measurement locations were chosen to represent the planned residential properties closest to Soquel Drive in the north section of the site and the planned residential properties closest to US Route 1 at the south end of the site.

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 (the average energy-equivalent noise level). Measured noise levels are presented in Exhibit 1 below. The $_{dn}$ noise levels were computed as the long-term average of L_{eq} using typical daily traffic distributions, with standard weighted penalties for the nighttime hours.

EXHIBIT 1

EXISTING NOISE LEVELS (dBA)

Atherton Place Site - Santa Cruz County

Location	L_{90}	L_{50}	L_{eq}	L_1	L_{dn}
1. Property # 17 overlooking Soquel Drive	60	62	64	66	65
2. Property #51 closest to US Route 1	52	62	65	71	65

The Design Noise Level is the outdoor noise level anticipated in the year 2005 for the residential units experiencing the highest noise exposure — the maximum noise level that the building structure must mitigate. In this project the residences adjacent to Soquel Drive and US Route 1 would be exposed to the Design Noise Level (DNL), which is computed based on field measurements, future traffic projections [2], and the National Cooperative Highway Research Board traffic noise model [4]. *Present* traffic volumes and estimated increases were obtained fiom the project traffic report by Keith Higgins Associates [2]. Procedures used in field noise measurement and for traffic noise modeling are described in the Appendix, Page A-1.

No significant changes in adjacent roadway configurations are anticipated between now and the year 2005. Expected traffic noise levels on the project site for the year 2005 have been estimated based on projected future traffic volumes. Traffic on Soquel Drive is expected to increase no more than 3% per year through the year 2005, a total increase of 19% in average daily traffic, including project traffic [2]. Traffic increases on US Route 1 volume are estimated at no more than 2% per year, which would be a total ADT increase of 12% or less. Based upon traffic project noise modeling, the ground level maximum noise for the units adjacent to Soquel Drive next to the project would be 64 dBA Ldn. The anticipated noise levels are lower than the measurements for the same property because the nearest residences are further from Soquel

Drive than the location of the measurements. At the south end of the project the units closest to US Route 1 would have a maximum Ldn noise level of 66 dBA.

In addition, to obtain the Design Noise Level approximately 2 dB must be added to the first floor noise levels next to Soquel Drive to account for the higher noise exposures at the upper floors facing the street because of increased reflections from the road surface. At the south end of the site, since the distance from the nearest residences to US Route 1 is over 350 feet, the upper floor noise level would be the same as the ground floor. Hence, the estimated worst-case noise levels for any Atherton Place residence, the architectural Design Noise Level for the project, would be 66 dBA. These results are summarized in Exhibit 2 below.

EXHIBIT 2

FUTURE NOISE LEVELS – L_{dn}, dBA

Atherton Place Residences

Location	Ground Floor	Upper Floors
Unit #17 near Soquel Drive	64	66
Unit #51 near US Route 1 freeway	66	66

SANTA CRUZ COUNTY STANDARDS

Santa Cruz County requires that new housing developments provide an interior L_{dn} noise level of 45 dBA or less due to exterior noise sources. This report describes the required design criteria to meet the interior 45 dBA L_{dn} standard.

As described in the previous section, the worst-case project noise environment for architectural design purposes is 66 dBA for the units adjacent to Soquel Drive and also US Route 1. Therefore, to achieve an interior L_{dn} of 45 dBA, a minimum noise reduction of 21 dB must be provided by the combined elements of the building shell. The transmission loss of architectural building elements is designated by Sound Transmission Class (STC) ratings for wall elements, which is a method of estimating the inherent ability to attenuate noise transmission

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 21-22 STC. Typical dual-layer thermal pane windows are rated at 24-28 dB STC. Except for actual cracks and opening 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 basic wall structure.

RECOMMENDATIONS

Following are recommendations for meeting the criteria for good residential noise insulation design.

1. **WINDOWS.** Windows must have an STC rating of at least 21 dB. Standard openable double glazed thermal windows, with two 1/8" lights separated by a 1/4" to 3/8" air space and good weather seals typically have a rating of 28-29 STC. These windows are clearly acceptable, and give a little extra protection from intermittent outdoor noise incidents.

2. EXTERIOR DOORS. Outside doors must meet an STC rating of 21. Solid wood doors or paneled doors (1 3/4") with good weather seals provide at 23-25 dB of noise reduction, and would be acceptable.

3. VENTILATION. Mitigation of outside traffic noise is based upon windows that can be closed in order to provide the required noise protection. All units must have a heating/ventilation system that provides a habitable interior environment with the windows closed, regardless of outside temperature.

The location and noise levels produced by the ventilation units must not themselves cause a noise problem for *any* of the *other* residential units associated with the project.

4. 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 walls and 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

CC: Mr. Thomas Thatcher, Thatcher and Thompson Architects, Santa Cruz

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REFERENCES

1. Santa Cruz County General Plan, May 1994.

2. Project traffic analysis and CalTrans data, Keith Higgins Associates, Gilroy, June 2, 1999.

3. Atherton Place Project drawing set, Thacher & Thompson Architects, Santa Cruz, April 1999.

4. *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).

Environmental Noise Measurement and Analysis Procedure

1. **Select monitoring** sites as representative of **worst-case** sensitive receptor areas, topography, noise sources, and noise transmission characteristics.
2. **Make** field noise **measurements** of individual sources and long-term statistical variation on the project **site and,** if appropriate, on access routes **to** *the* **project, 20-30 minutes m** each **location.**

   Equipment:

   Noise Distriiution **Analyzer,** Metrosonics Model db-601

   Precision Integrating **Sound** Level Meter, Rion Model NL-11

   Sound Level Calibrator, Bruel and **Kjaer** Model **4230**
3. Record peak noise levels for individual sources and incidents, and the statistical descriptors **of** interest, such as L_{50}, L_{10}, and L_{eq}, and L_1.
4. **Based upon** field **measurements** and transportation noise modeling, determine source/distance **relationships** on the project site.
5. **Compute L_{dn} values from** field measurements and **traffic noise** model **based** on traffic volume **variation** throughout the **day.** without **specific** hourly **traffic count data,** use standard ***commute-*** based volumes as follows:

Period	Hours	Hrly Vol (% ADT)
A. 7 a.m. — 9 a.m.	2	7.5
B. 9 a.m. — 4 p.m.	7	5.6
C. 4 p.m. — 7 p.m. (no peak)	2	7.0
D. 7 p.m. — 10 p.m.	3	4.0
E. 10 p.m. — Midnight	2	2.5
F. Midnight — 7 a.m.	7	0.7
G. Peak Hour	1	10. 0

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Environmental Noise Concepts and Definitions

Sound is *the* rapid fluctuation of air pressure higher and lower than normal atmospheric pressure. The term noise is often used to mean unwanted or undesirable sound, but *this* a very subjective matter depending upon the individual; the terms noise and sound are often considered interchangeable m normal usage. The frequency of the sound, or pitch if it has a dominant pure tone, is the number of fluctuations of air pressure each second. If the sound frequency is within a *range* of roughly 50 to 15,000 cycles per second *(Hertz),* it is audible to persons with normal hearing. Another characteristic of sound is its loudness, usually measured and reported m decibels (dB), a shorthand logarithmic unit that avoids having to deal m the very large numbers describing the range of sound levels m its basic *engineering* units. In decibel units, 120 dB (which would be experienced when standing close to a large jet plane on takeoff) is not 6 times as loud as an extremely quiet background of 20 dB, but rather a hundred thousand times as loud. Examples of common noise sources and their sound levels *are* found on Page A 5.

The basic issues m dealing with the community and environmental noise are its effects and the way it is *perceived* by most persons (see the Effects section, Page A3). Therefore, the noise must be measured or modeled, and then compared to guidelines, regulations, and known effects. For these purposes the decibel is used with "A-weighting", meaning that the lower and higher frequencies *are* de-emphasized to match the sensitivity of human hearing, as opposed to the artificially "flat" frequency response. Unless otherwise stated, all references to decibels relative to human effects and community impacts *are* m "A-weighted" decibels, or dBA, m the usual abbreviated form. These decibel values are then referred to as noise levels, or sound levels. The equipment used to measure *noise* levels is called a sound level meter.

In spite of the tendency to describe environmental noise levels with single-number descriptors for simplicity, the most characteristic feature of noise that people experience in *their* communities is its extreme variability. *So* to better understand what a given noise environment is really like, more than one descriptor is *generally* used to describe its variability. For example, the average *noise* level may be accompanied by the maximum or highest noise level, and also the minimum noise level *occurring* during a particular *time* period. For example, in some cases it would be more important to know *that* the minimum *noise* level is 45 dBA and the maximum noise level is 90 dBA, than that the average noise level is 55 dBA.

There are literally dozens of different types of noise environment descriptors, each developed to give information on the effect of a specific type of noise under certain conditions—such as for aircraft noise, for speech intelligibility, or for hearing impairment. In recent years governmental agencies have been standardizing on the use of Ln, Leq, or Ldn. Ln, where n is a number in percent, refers to the noise level exceeded n percent of the time. For example, traffic noise may be generated along a freeway such that at a distance of 100 feet fiom the roadway the noise level is 70 dB or higher *ten* percent of the time. Fence its L10 noise level is reported as 70 dBA. The L50, or median noise level, is also often used as a noise descriptor. The Leq also often is used, smce it reflects *the* single noise level that has the *same* energy as the varying noise environment, and reflects more accurately the *impact* of peak *noise* incidents. Ldn is a 24-hour Leq computation with a 10-dB "penalty" during *the* 10 p.m. to 7 am time period, when a quieter environment is expected. In other words, a location with a 55 dBA daytime Leq would have a 55 dBA Ldn if the noise level dropped to 45 dl3 during the night time hours. The State of California

uses the CNEL, which is nearly the same as Ldn. The equipment for measuring statistical noise descriptors is called a Noise Distriiution Analyzer.

The "ambient" noise level refers to the combination of all sources of noise at a given location. The "background" noise is similar, and refers to the combination of distant sources that determines the minimum sound levels in any location. The L90 or L99 statistical descriptors often are used as a measure of the background noise level.

To more readily understand and compare differences in noise levels fiom one location to another, equal noise contours are often developed for a given site. Most often L10 or Ldn noise contours are used, joining locations on a site that have the same noise level, m 5 or 10 dB increments. Noise contour maps are similar to plotting equal elevations on a topographic *contour map*.

Several concepts are particularly important in discussing what to do about unwanted noise — mitigation, reduction and attenuation; the terms have the same *meaning* in general usage: to lower noise levels in a receptor area. Reflection is one common *noise* reduction method, which diverts sound *energy* from a location of high impact to an area of less *impact*, such as when using a noise barrier. Noise absorption is a mechanism by which some materials, such as foliage outdoors or fiberglass batts used as insulation, absorb sound *energy* and thus reduce its *impact*.

Mathematical noise models are often used in projecting *noise* levels that cannot be directly measured, such as in the *case* of future traffic or airport conditions. Noise models use previously measured and analyzed relationships between noise source characteristics and physical and geometric conditions to compute noise levels with relatively good accuracy. A number of models for projecting aircraft noise, roadway traffic noise and railroad noise have been developed and are m widespread use.

The Effects of Noise on People

Noise is a part of our modern society—noise from motorized laborsaving devices, transportation sources, and recreation devices. The use or conversion of energy for any purpose is seldom accomplished silently. Humans typically have a capacity to tolerate or ignore! a certain amount of noise in the environment. But adverse effects are present m many exposures to noise, and *dangers* to health other than outright hearing impairment also are recognized.

The problem of controlling noise is difficult because it affects each individual differently. People do not hear sounds similarly, hence they do not react to sound m the *same* way. First of all, each person's reaction to noise depends upon the characteristics of the noise itself:

- loudness
- frequency
- duration
- time of occurrence
- unfamiliarity or uniqueness

But the effect of a *noise* on people also depends upon the situation:

- background or ambient noise level

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- individual sensitivity to noise intrusion
- activity or preoccupation of listener
- perceived need or justification for noise

The factors that determines how much a person is disturbed by a noise include physiological effects, psychological/emotional effects, and activity interference.

To better understand the use of the decibel as a measure of relative loudness, a list of common noise sources and their approximate sound levels are given on Page A 5.

Physiological Noise Effects

At relatively high noise levels above 80 dBA, the delicate internal ear mechanism can be altered to cause Temporary Threshold Shift (TTS), resulting in partial deafness for a period of a few minutes to a few weeks, depending upon the noise level and the exposure duration. If these excessive levels over 80 dBA are continued over long periods of time (for example, eight hours a day for several years), or very high levels (over 100 dB) are experienced for shorter periods, Permanent Threshold Shift (PTS) may occur. PTS is an irreversible loss in normal hearing capacity.

Fortunately, few exposures to levels causing hearing damage occur m the typical *community* noise environment. However, some problems can be experienced by those attending or participating m regular musical and recreational events with high noise environments, or by those engaged m occupations involving high workplace noise levels, regulated by State and Federal Occupational Safety and Health codes. The potential for other less damaging, but nonetheless *disturbing,* noise effects exists throughout our normal daily schedules--at home, school, shopping center, park, or highway. These noise impacts can cause subtle physical, mental and emotional stresses of varying degrees of seriousness.

`ctivity Interference

Noise can disrupt human activities such as sleep, conversation, or *stereo* and TV enjoyment. Studies have shown that noise not only can prevent sleep because of its intensity or characteristics, but also can seriously disturb the quality of sleep without waking the sleeper. Conditions such as these, community noise causing bedroom noise levels between 35 and 50 dBA, are encountered to some extent in many urbanized areas, particularly near high volume traffic or airport areas. At interior *noise* levels over 55 dBA, all types of normal *speaking* and listening activities are disrupted. Speech intelligibility drops sharply, music listening and TV watching become strained, and aural communications must be carried out at much higher volumes to be successful. Obviously, shouting to be heard and understood is both undesirable and unpleasant for all concerned.

Psychological and Emotional Impacts

Less welldocumented and understood, but probably more widely experienced, are those *impact* of noise that cause such subtle effects as distraction, annoyance, startle, privacy interruption, stress and tension. These effects as a class can, if continued, cause very serious emotional and psychological anxieties and disturbances. Often the increased irritability and tenseness are not directly attributed to the noise environment, as the listener may not be consciously aware of the noise intrusion. Our human

ability to "tolerate" and "adapt to" disturbing noise levels thus *can* adversely affect our subconscious body processes. Protection *against* the intrusion of disturbing noise is particularly important to mental and emotional health in an active and complex urban community.

Typical Noise Levels

Noise Sources	Continuous Noise Level (dBA)	Human Response or Impact
Jet aircraft takeoff (50')	130	
Auto horn (3')	120	Deafening
Rock music in a night club	110	
	105	Single-event possible permanent hearing damage
Motorcycle accelerating, no muffler (25')	100	
	95	Temporary hearing loss
Motorcycle accelerating, stock muffler (25')	90	
Food blender (3') Power lawn mower (20')	80	Very disturbing to most activities
Steady urban traffic (25')	70	
Normal conversation (3')	60	Communications difficult
Daytime street, no nearby traffic	50	
	45	Sleep disturbance
Quiet office	40	
Inside quiet home. Soft whisper (10')	30	Very quiet
Movie or recording studio	20	Seldom-experienced ambient
	10	Barely audible to good hearing
Threshold of hearing	0	

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Environmental Consulting Services 20430 Town Center Lane Cupertino CA 95014
Phone: (408) 257-1045 FAX: 408 257 7235

October 11,1999

Mr. Richard Beale
Richard Beale Land Use Planning Inc
100 Doyle Street – Suite E
Santa Cruz, CA 95062

Re: Noise Environment in Riparian Areas – Existing and Construction,
Atherton Place Residential Development, Santa Cruz County

Dear Richard,

In response to your request for more information about the noise environment in the existing riparian areas near the project site, and the potential noise levels produced by construction activity, I have discussed those two noise subjects in the following sections.

Ambient Noise Environment in Riparian Areas

The best estimates of the existing ambient noise levels are the measurements taken for the project noise report on June 9, 1999. Field noise measurements were made to represent the planned residential properties that would have the highest traffic noise exposure, which in general would be planned units closest to Soquel Drive in the north section of the site and the units closest to US Route 1 at the south end of the site, as presented in Exhibit 1.

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 typical daily traffic distributions, with standard weighted penalties for the nighttime hours.

EXHIBIT 1- EXISTING NOISE LEVELS (dBA)

Atherton Place Project – Senta Cruz County

Location	L_{90}	L_{50}	L_{eq}	L_1	L_{dn}
1. Property #17 overlooking Soquel Drive	60	62	64	66	65
2. Property #53 closest to US Route 1	52	62	65	71	65

To estimate noise levels in the nearby creekside habitat based on the measurements we can use the following basic relationships:

- Locations the same distance from the traffic as the measurement location and having a similar "view" of the traffic (similar obstructions in the line of sight to the traffic) will have about the same noise levels.

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APPLICATION 98-0148

- Locations at the same elevation will have noise levels 5 to 10 dB less for each doubling of distance from the traffic, with a similar traffic view.
- Locations lower in elevation than the measurement location will have lower noise levels by 5 to 8 dB for each 10-foot lower elevation.

From these basic relationships a rough set of noise contours has been estimated for the creek habit areas near the Atherton Place project, and they accompany this memo. The noise contours are very rough due to the significant effect of terrain on the noise levels, both in elevation and obstruction aspects. An extensive set of noise measurements would be required to obtain a good set of noise contours. In any case, the riparian habitat in the middle of the project is fairly well protected fiom direct trafic noise and has Ldn noise levels generally in the 40-50 dBA range.

Construction Noise Levels in the Riparian Areas

The noise levels generated at any location depend upon the noise source and the distance to the receptor, assuming the path is unobstructed. The construction equipment to be used in this project would be used, for example, to smooth and level the site, dig foundations, cut lumber, haul dirt and other materials, and mix and pour concrete. Exhibit 2 below shows representative noise levels for some types of construction,

EXHIBIT 2 - CONSTRUCTION EQUIPMENT NOISE LEVELS - 50 ft. [3]

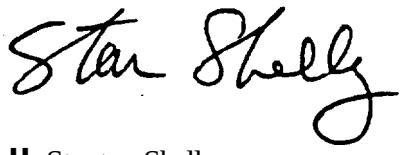
Equipment	Noise Level
Front Loader	75-80
Backhoe	75-85
Bulldozers, tractors	75-85
Truck	75-85
Concrete mixer	75-85
Concrete pump	75-80
Crane	75-85
Generators	75-80
Compressors	75-80
Saws	75-85
Pneumatic tools	80-85

If several pieces of equipment are running at the same time and in relatively the same location a combined noise level 3 to 5 dB higher than the loudest equipment would result. As distance fiom the equipment doubles, the noise level drops by approximately 6 dB. And conversely, as distance is halved, the noise level increases by approximately 6 dB.

Environmental Review Inital Study
ATTACHMENT 7
APPLICATION 98-0148
Cupertino

If I may be **of** further assistance on this project, please **do** not hesitate to contact **me.**

Respectfully submitted,



H. Stanton Shelly
Acoustical Consultant
Board Certified Member (1982),
Institute **of** Noise Control Engineering

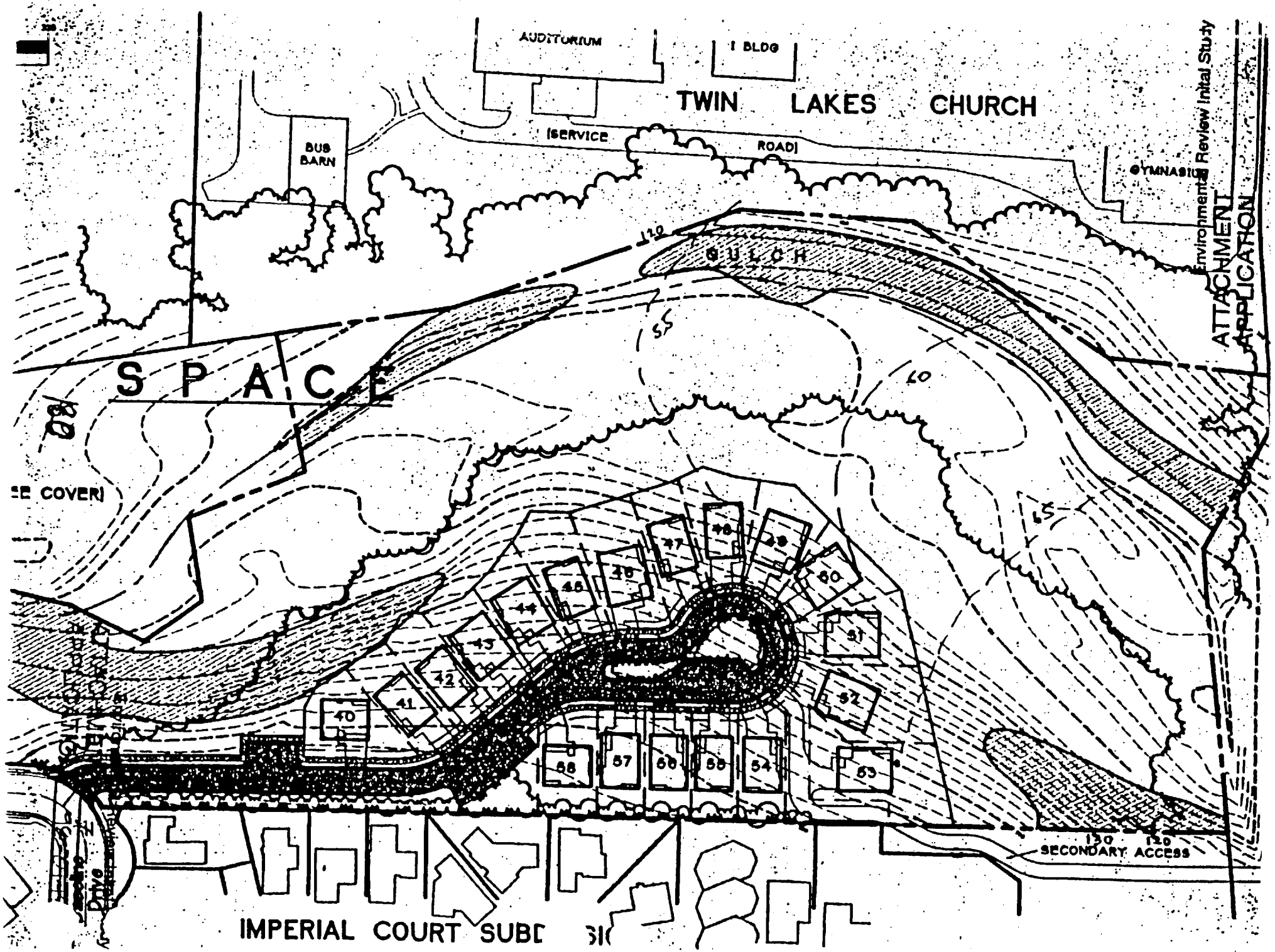
Encl.: Project Map with noise level annotations

REFERENCES

1. Atherton Place Project drawings #2, 3 and **8,** Typical ***Street*** Sections and Tentative Map, Ifland Engineers, Inc, Santa Cruz, June **2** ***1999.***

2. ***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).**

3. "**Noise from** Construction Equipment and Operations, Building Equipment, and **Home** Appliances", **U.S.** Environmental Protection Agency, **Office of** Noise Abatement and Control, **Washington, D.C.,** December 1 **97**1.


AUDITORIUM
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Environmental Review Initial Study
APPLICATION
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Environmental Review Inital Study
ATTACHMENT I
APPLICATION 98-0149

Biotic Resources Group
Biotic Assessments • Resource Management • Permitting

June 4, 1998

Mr. Rich Beale
Richard Beale Land Use Planning, Inc.
100 Doyle Street, Suite E
Santa Cruz, CA 95018

RE: Biotic Review of Twin Lakes Church Property, Santa Cruz County, CA

Dear Mr. Beale,

The Biotic Resources Group has conducted an assessment of the Twin Lakes property off Soquel Drive in the Aptos region of Santa Cruz County. The assessment was conducted to ascertain the presence of sensitive botanical resources within an area proposed for single family residential development. The results of the review are described below

Assessment Methodology

A site visit to the subject property was conducted on May 21, 1998. The property was viewed by traversing the grassland portion of the property. The purpose of the site review was to ascertain the potential presence of sensitive botanical resources, including rare, threatened or endangered plant species. Sensitive botanical resources which were searched for include: native grassland, coast live oak woodland, riparian woodland and potential wetlands. Rare, threatened, endangered or locally unique plant species searched for include: San Francisco popcorn flower (*Plagiobothrys diffusus)*, Santa Cruz tarplant (*Holocarpha macradenia)*, Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri)*, Santa Cruz clover (*Trifolium buckwestiorum)*, and robust spineflower (*Chorizanthe robusta)*

Assessment Results

The property is located between Soquel Drive and Cabrillo College Drive just north of Highway 1. Porter Gulch, and its accompanying riparian corridor, form the eastern border of the site. A dirt path traverses through the grassland portion of the site. The topography and proposed land uses (59 single family residences) were obtained from the Preliminary Map, Kaufman and Broad by Ifland Engineers, dated 8/15/94

The vegetation on the property is dominated by riparian woodland, eucalyptus groves, and grassland. The riparian corridor is comprised of a dense thicket of willow (*Salix* sp.), and scattered occurrences of black cottonwood (*Populus trichocarpha)* and coast live oak (*Quercus agrifolia)*. Eucalyptus trees are also present on the site, intermixing with the riparian corridor. A

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seasonal wetland area occurs at the southern portion of the gulch upstream of Cabrillo College Drive. This area is dominated by wetland plant species, including sedge (*Cyperus* sp.) and rush (*Juncus* sp.). A patch of dense sedge (*Carex densa)* was also observed along the outer edge of the riparian corridor, suggesting wetland site conditions. According to the proposed plan for the site (8/14/94 Preliminary Map), these wetland areas would be preserved within the 50' riparian corridor setback area.

The grassland community inhabits the western portion of the property, abutting the riparian woodland and eucalyptus groves. The grassland community is generally dominated by non-native annual grasses. Typical non-native species include wild oat (*Avena fatua)*, annual ryegrass (*Lolium perenne)*, rattlesnake grass (*Briza minor)*, ripgut brome (*Bromus diandrus)*, common plantain (*Plantago lanceolata)*, Italian thistle (*Carduus pycnocephalus)*, wild radish (*Raphanus sativus)*, yellow clover (*Trifolium dubium)*, storksbill (*Erodium* sp.) and dandelion (*Taraxacum officinale)*. Native herbaceous species were present, including California poppy (*Eschscholzia californica)* and Lindley's annual lupine (*Lupinus bicolor)*.

Rare, Endangered or Threatened Plant Species. The parcel was not observed to support special status plant species, based on the May1998 field visit Due to the current prevalence of annual, non-native grasses, the likelihood for special status species to occur on the site is considered low. A previous review of the property wherein surveys were conducted in 1995 and 1997 yielded similar conclusions (Zander Associates, April 17, 1998)

Intended Use of this Report

The findings presented in this assessment are intended for the sole use of Richard Beale Land Use Planning, Inc. and his client(s) in evaluating potential land uses for the subject parcel. The findings presented by the Biotic Resources Group in this report are for information purposes only; they are not intended to represent the interpretation of any State, Federal or County laws or ordinances pertaining to permitting actions within sensitive habitat or endangered species. The interpretation of such laws and/or ordinances is the responsibility of the applicable governing body

Thank you for the opportunity to assist you in your project planning. Please give me a call if you have any questions on this report.

Sincerely,

Kathleen Lyons
Principal/Plant Ecologist

Environmental Review Inital Study
ATTACHMENT 8
APPLICATION 98-0148
6/4/98

Biotic Resources Group
Biotic Assessments • Resource Management • Permitting

Atherton Place Development Project
Santa Cruz County, California

Biological Assessment

Prepared for

Mr. David Bowers
First Federal Development, LLC
2980 Stevens Creek Boulevard
San Jose, CA 95128

Prepared by

Biotic Resources Group
Attn: Kathleen Lyons, Principal/Plant Ecologist

With

Dana Bland & Associates
Attn: Dana Bland, Wildlife Biologist

June 7, 1999

Post Office Box 14 ◆ Santa Cruz, California 95063 ◆ (831) 476-4803 ◆ Fax (831) 4764038

INTRODUCTION

The proposed Athaton Place Development Project property is located in the Aptos area of Santa Cruz County. The site is located north of Highway 1 and south of Soquel Drive (Figure 1). The property encompasses approximately 17.8 acres; 8.6 acres are proposed for residential development and the remaining 9.2 acres are proposed to be designated as open space

The Biotic Resources Group, with the assistance of Dana Bland & Associates conducted an assessment of the biotic resources on the Athenon Place property in spring/summer 1998 and spring 1999. The focus of the assessment was to identify sensitive biological resources within the proposed development areas (i.e., building sites) as depicted on the Tentative Minor Land Division Map (Ifland Engineers, dated 6/99) and present the findings in this biotic report. Kathleen Lyons (plant ecologist) and Dana Bland (wildlife biologist) conducted a reconnaissance-level assessment of the biotic resources of the project area The results of focused wildlife surveys are presented in Appendix A.

Specific tasks conducted for this study include:

- Characterize the major plant communities within the project area;
- Identify sensitive biotic resources, including plant and wildlife species of concern and native trees, within the project area, and
- Evaluate the potential effects of the proposed residential development on sensitive biotic resources and recommend measures to avoid or reduce such impacts to a level of less-than-significant

Intended Use of this Report

The findings presented in this botanical repon are intended for the sole use of First Federal Development, LLC, its representatives and the County of Santa Cruz in evaluating the proposed development for the subject parcel. The findings presented by the Biotic Resources Group in this report are for information purposes only; they are not intended to represent the interpretation of any State, Federal or County laws or ordinances pertaining to permitting actions within sensitive habitat or endangered species. The interpretation of such laws and/or ordinances is the responsibility of the applicable governing body.

Environmental Review Inital Study
ATTACHMENT 9
APPLICATION 99-0149

METHODOLOGY

The biotic resources of the Atherton Place property were assessed through reconnaissance level field observations during spring and fall 1998 and spring 1999. The major plant communities on the site, based on the classification system developed in Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), were identified during the field reconnaissance visits and mapped onto the project base maps. A site reconnaissance survey to document the habitat types for wildlife was conducted on March 4, 1999. The entire site was walked, binoculars were used to aid in wildlife identification, and all species observed were recorded in a field notebook.

To assess the potential Occurrence of special status biotic resources, two electronic databases were accessed to determine recorded occurrences of sensitive plant communities and sensitive species. information was obtained fiom the California Native Plant Society's *(CNPS)* inventory (Skinner and Pavlik 1999) and California Department of Fish & Game's (CDFG) RareFind 2 database (CDFG 1999) for the region. Additionally, focused species surveys were conducted on the site. In May 1999, a California red-legged frog survey was conducted. The results of these surveys are summarized in this report and detailed in Appendix A.

This assessment report summarizes the findings of the reconnaissance-level biotic assessment and focused wildlife and plant surveys. The potential impacts of the proposed residential development on sensitive biotic resources are discussed below. Measures to reduce significant impacts to a level of insignificance are recommended, as applicable.

EXISTING BIOTIC RESOURCES

Grassland and riparian woodland dominate the project site. Coyote brush scrub, coast live oak woodland and groves of eucalyptus and pine are also present in the northern portion of the site. Porter Gulch a perennial drainage, traverses the eastern portion of the parcel and supports a dense band of riparian woodland vegetation. An in-channel pond ("Sesnon Pond") occurs in the northern pomon of the site (Figure 2a). Porter Gulch enters an underground culvert at Cabrillo College Drive and travels under Highway 1 towards New Brighton State Beach The distribution of plant communities on the project site is depicted in Figures 2a and 2b.

Grassland

The central portion of the property is grassland The grassland is periodically mowed, as evidenced by field observations in spring and fall 1998 and 1999. The dominant plant species are non-native species. such as wild oat *(Avena fatua)*, soft chess *(Bromus hordaeceus)* and Italian ryegrass *(Lolium multiflorum)*. Associated species include wild radish *(Raphanus sativa)*, ripgut brome *(Bromus diandrus)*, rattlesnake grass *(Briza minor)*, dandelion *(Taraxacum officinale)*, redstem filaree *(Erodium cicutarium)* and California poppy *(Eschscholtzia californica)*. Scattered throughout the grassland are young shrubs of coyote brush *(Baccharis pilularis)* and spreading rush *(Juncus patens)*. Other plant species observed within the grassland include milk thistle *(Silybum marianum)*, dock *(Rumex acetosella)*, bur clover *(Medicago polymorpha)*, English plantain *(Plantago lanceolata)*,

scarlet pimpernel (*Anagallis arvensis*), shamrock clover (*Trifolium dubium*), catchfly (*Silene gallica*) and rattail fescue (*Vulpia myuros*).

Grasslands provide an important foraging resource for a wide variety of wildlife species. The grasses and forbs produce an abundance of seeds and attract numerous insects, providing food for granivorous and insectivorous wildlife. Sparrows, rabbits and rodents are commonly found in this habitat Consequently, grasslands are valuable foraging sites for raptors such as hawks and owls, and other predators including coyote, fox, skunk and snakes. Aerial foraging species that occur over grasslands include bats and swallows. Wildlife species observed in the grassland during the reconnaissance survey included American crow (*Corvus brachyrhynchos*), American goldfinch (*Carduelistristis*), European starling (*Sturnus vulgaris*), and mounds of Botta's pocket gopher (*Thomomys bonae*). Other common wildlife species that utilize grassland habitat on the central California coast include western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophismelanoleucus*), house finch (*Carpodacus mexicanus*), western meadowlark (*Sturnella neglecra*), cliff swallow (*Hirundo pyrrhonota*), red-tailed hawk (*Buteojamaicensis*), and California ground squirrel (*Spermophilus beecheyi*).

Native Grass Stands

Four stands of native grasses were observed on the property, as depicted on Figure 2. The location of these stands is depicted on Figure 2b. They are distinguished by the species and density of the native grasses, as listed below:

- Stand 1: Comprised of purple needlegrass (*Nassella pulchra*), 50-60% cover;
- Stand 2: Comprised of purple needlegrass; 10-20% cover;
- Stand 3: Comprised of wild rye (*Elymus glaucus*); 60% cover
- Stand 4: Comprised of California oatgrass (*Danthonia californica*); 60% cover.

These four stands of native grasses were the only areas of native grasses observed on the parcel during the 1998 and 1999 field surveys.

Coyote Brush Scrub

A dense thicket of coyote brush scrub occurs in the northern portion of the property (Figure 2a). Coyote brush is the dominant shrub, however, Himalaya berry (Rubus *procerus*), canary grass (*Phalaris* sp.), pampas grass (*Cortederia jubata*) and remnant fruit trees are also present. An old barn also occurs in this area. Another patch of coyote brush occurs in the southern portion of the parcel, as depicted on Figure 2b.

The scrub enhances the value of the adjacent grassland areas for some types of wildlife by providing temporary cover during movements, nesting habitat for some buds, and perch sites for hunting. Wildlife observed in the coyote bush scrub during the reconnaissance site visit included California towhee (*Pipilo crissalis*) and northern mockingbird (*Mimus polyglottos*). Other common wildlife species expected to utilize the scrub habitat include western fence lizard (*Sceloporus occidentalis*), white-crowned sparrow (*Zonotrichia leucophrys*), brush rabbit (*Sylvilagus bachmani*), and coyote (*Canis latrans*). Special status wildlife species that may nest in the scrub habitat include loggerhead shrike (*Lanius ludovicianus*).

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Willow Riparian Woodland

The project site supports dense riparian woodland along the Porter Gulch drainage. The drainage supports a dense growth of arroyo willow (*Salix lasiolepis*). The drainage also includes scattered black cottonwoods (*Populus balsamifera* ssp. *trichocarpa*) and red alder (*Alnus rubra*) (Figures 2a and 2b). Associated species include California blackberry and rushes (*Juncus sp.*).

The riparian habitat is one of the highest value habitats for wildlife species diversity and abundance in California. Factors that contribute to the high wildlife value include the presence of surface water, the variety of niches provided by the high structural complexity of the habitat, and the abundance of plant growth. Riparian habitat along the project site may be used by a diversity of wildlife species for food, water, escape cover, nesting, migration and dispersal corridors, and thermal cover. The value of riparian areas to wildlife is underscored by the limited amount of remaining habitat which has not been disturbed or substantially altered by flood control projects, agriculture, and urbanization.

Wildlife observed during the reconnaissance survey included Anna's hummingbird (*Calypte a m)* , ruby-crowned kinglet (*Regulus calendula),* and chestnut-backed chickadee (*Parus rufescens*). Other common wildlife species that are expected to inhabit the riparian habitat include Pacific treefrog, bullfrog (*Rana catesbeiana*), western aquatic garter snake, Wilson's warbler (*Wilsonia pusilla),* Bewick's wren (*Thryomanes bewickii*), several swallows, raccoon, opossum, and California myotis (*Myotis californicus*).

Special status wildlife species that may inhabit the riparian area along the project site include California red-legged frog (*Rana aurora draytonii*), yellow warbler (*Dendroica petechia brewsteri*), yellow-breasted chat (*Icteria virens*), pallid bat (*Antrozous pallidus pacificus*), and San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*). Numerous neotropical migrant birds (protected under the Migratory Bird Act) also may use this riparian habitat during spring and fall migrations.

Seasonal Wetlands

The southern most portion of the project site, as well as the around the perimeter of the Sesnon Pond, are dominated by vegetation typical of seasonally wet areas. The wetland vegetation includes umbrella sedge (*Cyperus eragrostis)*, rush (*Juncus* sp.), pennyroyal (*Mentha pulegium)*, Santa Barbara sedge *(Carex barbarae)* and curly dock *(Rumex crispus)*.

The seasonal wetlands on the project site provide foraging and breeding *areas,* and seasonal water source, for some wildlife species. Common wildlife species that utilize seasonal wetland habitat on the central California coast include Pacific tree frog *(Hyla regilla)*, western toad (*Bufo boreas*), western aquatic garter snake (*Thamnophis couchii*), mallard *(Anas platyrhynchos)*, cliff swallow. raccoon *(Procyon lotor*), Virginia opossum *(Didelphis virginiana*), and several species of bats. Special status wildlife species that may utilize this seasonal wetland include California red-legged frog *(Rana aurora draytonii*).

The Sesnon Pond provides an important foraging and breeding area for a variety of wildlife species. The presence of a dense cover of overhanging willows around three sides of the pond wetland increases the wildlife value by providing cover, breeding sites and a food base for a diversified aquatic invertebrate fauna, which form a link in many food webs. Common wildlife

species that are expected to utilize the Sesnon Pond are the same as listed above for the seasonal wetlands. Special status wildlife species that may inhabit this pond also includes the California red-legged frog.

Coast Live Oak Woodland

The northern portion of the site supports a band of coast live oak woodland along the edge of the grassland Trees of coast live *oak* (Quercus agrifolia) with an understory of California blackberry (Rubus minus), coyote brush, and French broom *(Genista* monspessulanus) dominate the woodland. There are Monterey pine (*Pinus radiata)* trees scattered amid the oak woodland and intermixing with the adjacent eucalyptus/pine groves.

The wildlife value of *oak* woodland varies with the degree of canopy cover and the density and diversity of understory plants. Acorns from oaks provide an important food resources for many wildlife species, and natural cavities in the oaks provide nesting opportunities for some birds and mammals. Snags are an important component of *oak* woodlands to some wildlife such as woodpeckers, which excavate nests in snags and holes for storing acorns. Downed decaying logs and limbs add *to* the structural complexity of the habitat, and are important cover, nesting, roosting, and foraging substrate for species such as newts which are attracted to the moist microclimate and invertebrate food supply. The denser *oak* woodlands also provide escape cover during the day for species such as deer.

Wildlife observed during the reconnaissance survey included scrub jay (*Aphelocoma coerulescens*) and Stella's jay (*Cyanocitta stelleri*). Other common wildlife species expected to occur in *oak* woodlands on the property include California slender salamander (*Batrachoseps attenuatus*), western fence lizard California quail *(Callipepla californica*), red-tailed hawk, several species of bats, western gray squirrel (*Sciurus griseus*), and deer *(Odocoileus hemionus).* Special status wildlife species that may inhabit the *oak* woodland include San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*).

Eucalyptus and Pine Groves

The central portion of the project site supports a dense grove of eucalyptus (*Eucalyptus globulus).* The grove also includes Monterey pine, and in some areas, intermixes with the adjacent coast live *oak* woodland and willow riparian woodland. The understory includes non-native shrubs of cotoneaster (*Cotoneaster* sp.), young eucalyptus trees, young pines, young oaks, pampas grass (*Cortaderia jubata)* and French broom.

Eucalyptus is not native to California, and docs not support a very diverse wildlife assemblage. The Eucalyptus grove on the property provide potential roosting and nesting habitat for raptors such as red-tailed hawk, red-shouldered hawk (*Buteo lineatus*), and great horned owl *(Bubo virginianus).* A pair of red-shouldered hawks was observed in a Eucalyptus tree perching and feeding on a prey item, but no nest was observed during the reconnaissance survey. Other common species that utilize Eucalyptus groves include alligator lizard *(Gemhonorus multicarinatus),* Anna's hummingbird (*Calypte anna*) and western gray squirrel. Eucalyptus trees are locally important as they provide potential wintering habitat for monarch butterflies (*Danaus plexippus).*

Environmental Review lnital Study

ATTACHMENT 9
APPLICATION 98-0123

SENSITIVE BIOTIC RESOURCES

Sensitive Habitats

Sensitive habitats are defined by local, State, or Federal agencies as those habitats that support special status species, provide important habitat values for wildlife, represent areas of unusual or regionally restricted habitat types, and/or provide high biological diversity. The only habitats meeting these criteria in the Athmon Place project ana are the willow riparian woodland, coast live oak woodland, seasonal wetlands and the native grass stands.

Special Status Plant Species

Plant species of concern include those listed by either the Federal or State resource agencies as well as those identified as rare by CNPS (Skinner and Pavlik *1999).* The search of the *CNPS* and CNDDB inventories for the area resulted in eight special status plant species of concern with potential to occur in grasslands or wetlands in the project area (Table 1). Of the eight special status plant species believed to have the potential to occur in the vicinity of the Athmon Place project area, none have been recorded as pa CNDDB records, nor were any observed during focused surveys conducted in 1998 and *1999.*

Special Status Wildlife Species

Special status wildlife species include those listed by either the Federal or State resource agencies as well as those identified as Federal and/or State species of special concern. In addition, all raptor nests are protected by Fish and Game Code, and all migratory birds are protected by the Federal Migratory Bird Act Special status wildlife species were evaluated for their potential presence in the project area, and those expected to inhabit the project site are listed in Table 2.

Focused surveys for California red-legged frogs were conducted in May *1999,* but no red-legged fiog were observed on the property (see attached report in Appendix A).

Environmental Review Initial Study
ATTACHMENT 9
APPLICATION 98-0148

Table 1. List Of Special Status Plant Species with Potential to Occur In The Vicinity Of the Atherton Place Project *Area*, Santa Cruz Coanty, California

Species	CNPS	State Status	Federal Status	Known Occurrence on Site
Blasdale's Bentgrass (*Agrostis blasdalei)*	List 1B	None	None	No
Robust spineflower (*Chorizanthe robusta var. robusta)*	List 1B	None	Endangered	No
San Franciscowallflower (*Erysimumfranciscanum)*	List4	None	Species of Special Concern	No
(*Plagiobothrys diffusus)* San Francisco popcorn flower	List 1B	Endangered	Special Concern of	No
Santa Cruz Clover (*Trifolium buckwestiorum)*	List 1B	None	None	No
Santa Cruz tarplant (*Holocarpha macradenia)*	List 1B	Endangered	Proposed for Threatened Status	No
Kellogg's horkelia (*Horkelia cuneata ssp. sericea)*	List 1B	None	Species of Special Concern	No
Small-leaved lomatium (*Lomatium parviflorum)*	List 4	None	None	No
Santa Cruz microseris (*Microseris decipiens)*	List 4	None	Species of Special Concern	No
Gairdner's yampah (*Perideridia gairdneri ssp. gairdneri)*	List 4	None	Species of Special Concern	No
Michael's piperia (*Piperia michaelii)*	List 1B	None	Species of Special Concern	No
Maple-leaved checkerbloom (*Sidalcea malachroides)*	List 1B	None	None	No
San Francisco campion (*Silene verecunda ssp. verecunda)*	List 1B	None	Species of Special Concern	No

CNPS Status:

List IB: These plants (predominately endemic) are rare through their range and *arc* currently vulnerable *or* have a high potential for vulnerability due to limited or threatened habitat few individuals per population. or a limited number of populations. List 1B plants meet the definitions of Section 1901, Chapter 10 of the CDF&G *Code.*

List 3: This is a review list of plants that lack sufficient data to assign them to another list.

List 4: List 4 is a watch list of plants with limited distribution in the state that have low vulnerability and threat at this time. These plants are uncommon, often significant locally, and should be monitored.

Environmental Review Inital Study
ATTACHMENT 9
APPLICATION 96-0169

Table 2. Special status wildlife species and their predicted occurrence on the Atherton Place Development site, Aptos, CA.

SPECIES	STATUS[1]	HABITAT	OCCURRENCE ON SITE	IMPACTS?
Monarch butterfly (*Danaus plexippus*) (wintering sites)	County	Dense stands of Eucalyptus, pine and acacia protected from wind	Possible in the Eucalyptus/pine grove	No removal of potential roost trees proposed.
California red-legged frog *Rana aurora draytonii*	FT, CSC	Riparian, marshes, estuaries and ponds.	Possible breeding habitat in Sesnon Pond; foraging and dispersal habitat along Tannery Gulch and seasonal wetlands	No; presence/absence surveys determined that this frog was not present on the site.
Southwestern pond turtle *Clemmys marmorata pallida*	FSC, CSC	Creeks and ponds.	Unlikely; water only present in creek and ponds seasonally.	No; not expected to occur on site.
White-tailed kite (*Elanus leucurus*)	CSC	Oak woodland, riparian woodland	Not likely; woodlands on site are only small fragments surrounded by urban development	No; not expected to occur on site.
Cooper's hawk (*Accipiter cooperii*)	CSC	Oak woodland, riparian	Not likely; woodlands on site are only small fragments surrounded by urban development	No; not expected to occur on site.
Loggerhead shrike *Lanius ludovicianus*	FSC, CSC	Open habitats with scattered shrubs, tree, lookout posts	Possible; suitable foraging habitat on site, suitable nesting in coyote bush scrub.	Potential impacts to nesting shrikes, if they are present, during removal of coyote bush.
Yellow warbler *Dendroica petechia brewsteri*	CSC	Riparian habitats.	Possible along willow riparian areas.	No; proposal does not include any removal of riparian habitat.
Yellow-breasted chat *Icteria virens*	CSC	Riparian habitats.	Possible along willow riparian areas.	No; proposal does not include any removal of riparian habitat.

Table 2. Special Status Wildlife Species on Atherton Place project site (continued).

Pallid bat *Antrozous pallidus pacificus*	CSC	Wide variety of habitats; roosts in caves, crevices, mines, hollow trees, buildings.	Possible in oak habitat.	No; proposal does not include any removal of woodland habitat.
Townsend's western big-eared bat *Corynorhinus townsendii townsendii*	FSC, CSC	Wide variety of habitats; roosts in caves, tunnels, mines, and buildings.	Possible in oak habitat.	No; proposal does not include any removal of woodland habitat.
Long-eared myotis *Myotis evotis*	FSC	Brush, woodland and forests; roosts in buildings, crevices, under bark, and in snags.	Possible in oak habitat.	No; proposal does not include any removal of woodland habitat.
Long-legged myotis *Myotis volans*	FSC	Woodland and forests, scrub and shrub; roosts in buildings, crevices, under bark, in snags, mines, and caves.	Possible in oak habitat.	No; proposal does not include any removal of woodland habitat.
Yuma myotis *Myotis yumanensis*	FSC, CSC	Open forests and woodlands with water nearby; roosts in buildings, caves, crevices	Possible in oak habitat.	No; proposal does not include any removal of woodland habitat.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	FSC, CSC	Riparian and oak woodlands	Possible in oak and Eucalyptus habitats.	No; proposal does not include any removal of woodland habitat.

[1] Key to status:

FC = Federal candidate for listing as endangered
FE = Federally listed as endangered species
FT = Federally listed as threatened species
FSC = Federal species of special concern
CSC = California species of special concern
County = Listed as a sensitive species by the County of Santa Cruz General Plan

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ATTACHMENT 9
APPLICATION 99-0148

IMPACTS AND MITIGATION DISCUSSION

IMPACT CRITERIA

The thresholds of significance presented in *Appendix* VI of the Guide to the California Environmental Quality Act (CEQA) were used to evaluate project impacts and to determine if the proposed development of the project poses significant impacts to biological resources. For this analysis, significant impacts are those that substantially affect either:

- A species (or its habitat) listed or proposed for listing by State or Federal governments as rare or endangered (i.e., none identified to utilize the project);
- Breeding/nesting habitat for a State species of special concern (i.e., loggerhead shrike);
- A plant considered rare (i.e., List 1B) by *CNPS* (none identified to utilize the project area);
- A habitat regulated by State or Federal law (i.e., riparian habitat, seasonal wetlands), or
- A habitat or resource recognized as sensitive by CDFG and/or the County of Santa Cruz (i.e., riparian habitat, seasonal wetlands, coast live oak woodland, native grassland).

POTENTIAL IMPACTS AND MITIGATION MEASURES

Impacts were not considered significant to vegetation communities or habitats that are not protected, are generally common, and do not support special *status* species. Within the Athaton Place project area, removal of non-native grassland and coyote brush scrub are not considered significant impacts to botanical resources.

The only potential impact to wildlife of the proposed Twin Lakes development is the possible destruction of loggerhead shrike nests if they are present in the coyote brush scrub habitat at the time of grading. Measures to avoid impacts to nesting loggerhead shrike are recommended below.

Because the proposed development will not remove any trees in the Eucalyptus/pine grove, *oak* woodland or willow riparian, no direct impacts to birds that may be nesting there or woodrat nests are expected to occur. Noise fiom construction equipment *can* disrupt nesting by birds if it occurs at a critical time during the nesting (e.g., before eggs have hatched and parents are actively feeding the young chicks) or if it significantly exceeds the ambient noise in the vicinity of the nest. Noise from construction is not expected to cause disruption *to* birds nesting in the adjacent areas because the ambient noise at this site is very high from traffic on Soquel Drive and Highway 1. The loss of the grasslands for wildlife foraging habitat *is* not expected to be significant in a regional context

Impact **1. Potential destruction of loggerhead shrike nests in the coyote brush scrub habitat.** Grading and removal of the coyote brush scrub habitat on the project *site* has the potential to destroy loggerhead shrike nests if they are present at the time of construction.

> **Mitigation Measure 1: If** construction is scheduled to occur during the nesting season of the loggerhead shrike (April to late July), pre-construction *surveys* should be conducted within *30* days prior to beginning of construction to determine if loggerhead shrike are

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nesting on the **project** site. If active nests are **found,** construction should be **delayed** until **all** young have fledged.

Impact2 Indirect **Impacts to Wetland and** Riparian Resources. Construction activities on the property and grading for some residential **lots** may result in indirect impact to adjacent **riparian** woodland and **seasonal** wetlands. **This** may occur if construction operations unintentionally **enter** the **riparian** area **or** the perennial drainage. Due to the importance of these habitats for wildlife, **impacts** to these habitats are considered significant impacts.

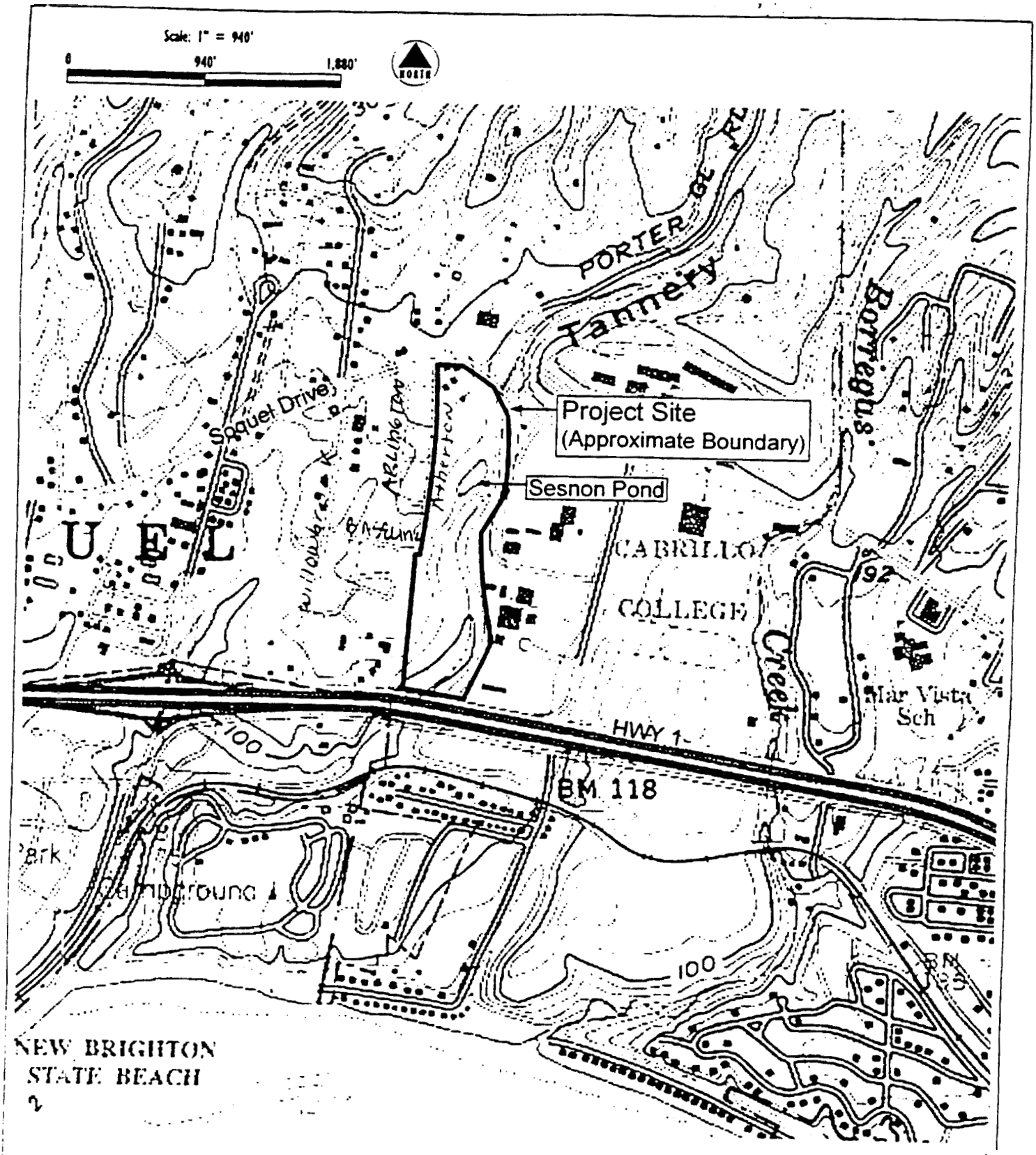
Mitigation2-1. The existing **riparian** woodland and **seasonal** wetlands **shall** be protected **fiom** construction disturbance. Four-foot tall plastic mesh fencing **shall** be temporarily **placed** at the outside edge of the riparian woodland and a minimum of **20** feet outward **fiom** the edge of the southernmost **seasonal** wetland. **This** fencing **shall** remain in-place until construction is complete. Construction equipment and debris **shall** not enter these ***areas.***

Impact 3. Indirect **Impacts to Native** Grass **Stands** Construction activities on the property and grading for some residential lots may result in indirect impact to adjacent native **grass stands. This may occur** if construction operations unintentionally enter these grassland areas. Due to the importance of **thii** botanical resource, impacts to such **areas are** considered significant

Mitigation 3-1. The existing native **grass stands shall be** protected **from** construction **disturbance.** Four-foot tall plastic mesh fencing **shall** be temporarily placed **a** minimum of **20** feet outward **fiom** the edge of the native grass **stands. This** fencing **shall** remain in-place until construction within is complete. Construction equipment and debris **shall** not enter these areas.

Mitigation *3-2* The *open* space grassland *areas* should **continue** to **be mowed** and **managed, as** a means to preserve the existing native grassland plant **species.** Seasonal mowing of the **grasses** is recommended **Mowing** should be timed to discourage the spread of non-native grasses and encourage the growth of native ***grasses*** and forbs (i.e., non-grass plant species).

Environmental Review Inital Study
ATTACHMENT 9
APPLICATION 49-0146



Biotic Resources Group
Parr Office Box 14 • Santa Cruz, California 95063
(831) 476-4803 • Fax (831) 476-8038

Atherton Place Development
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figure 1
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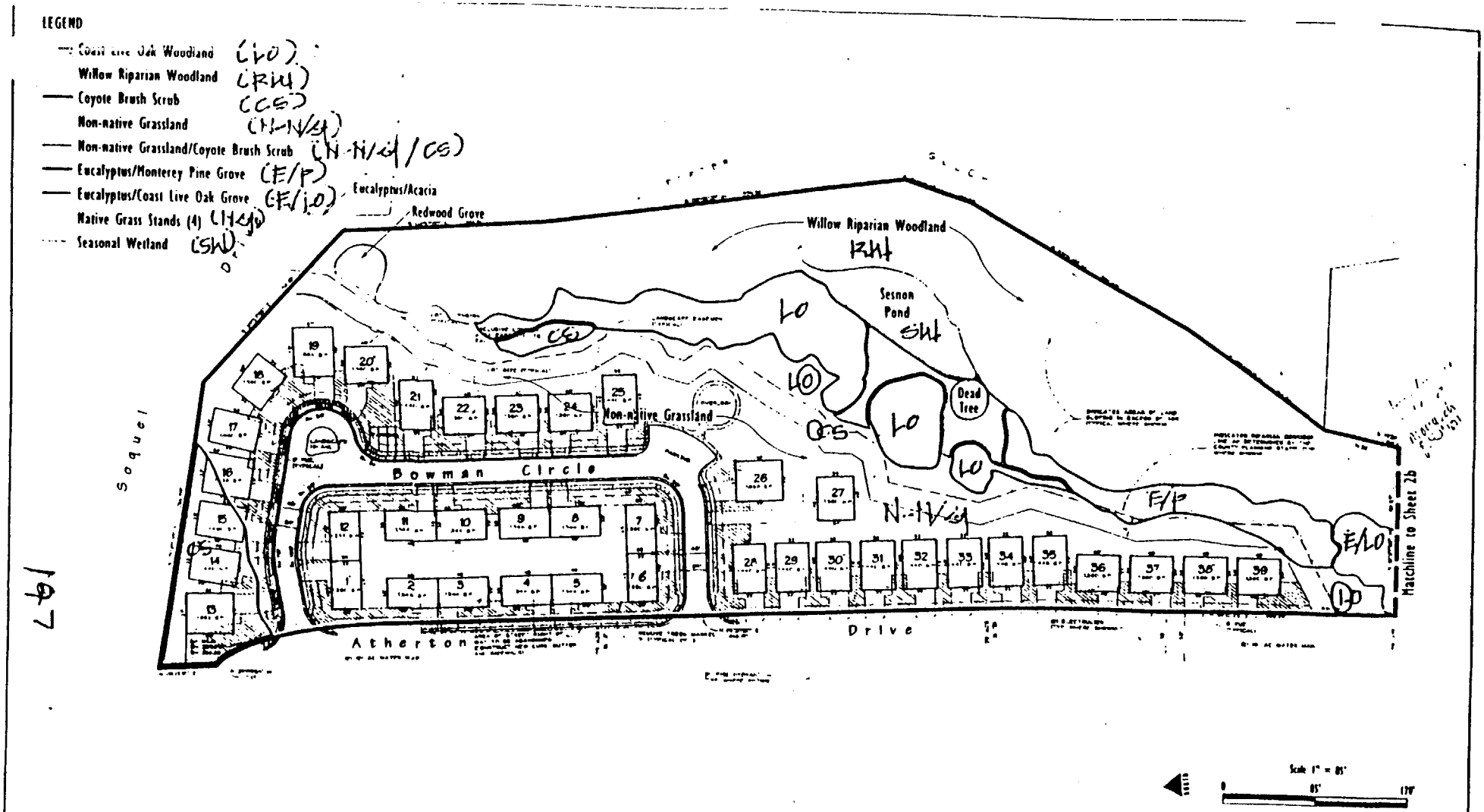

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Atherton Place Development
Plant Community Map

Figure 2a
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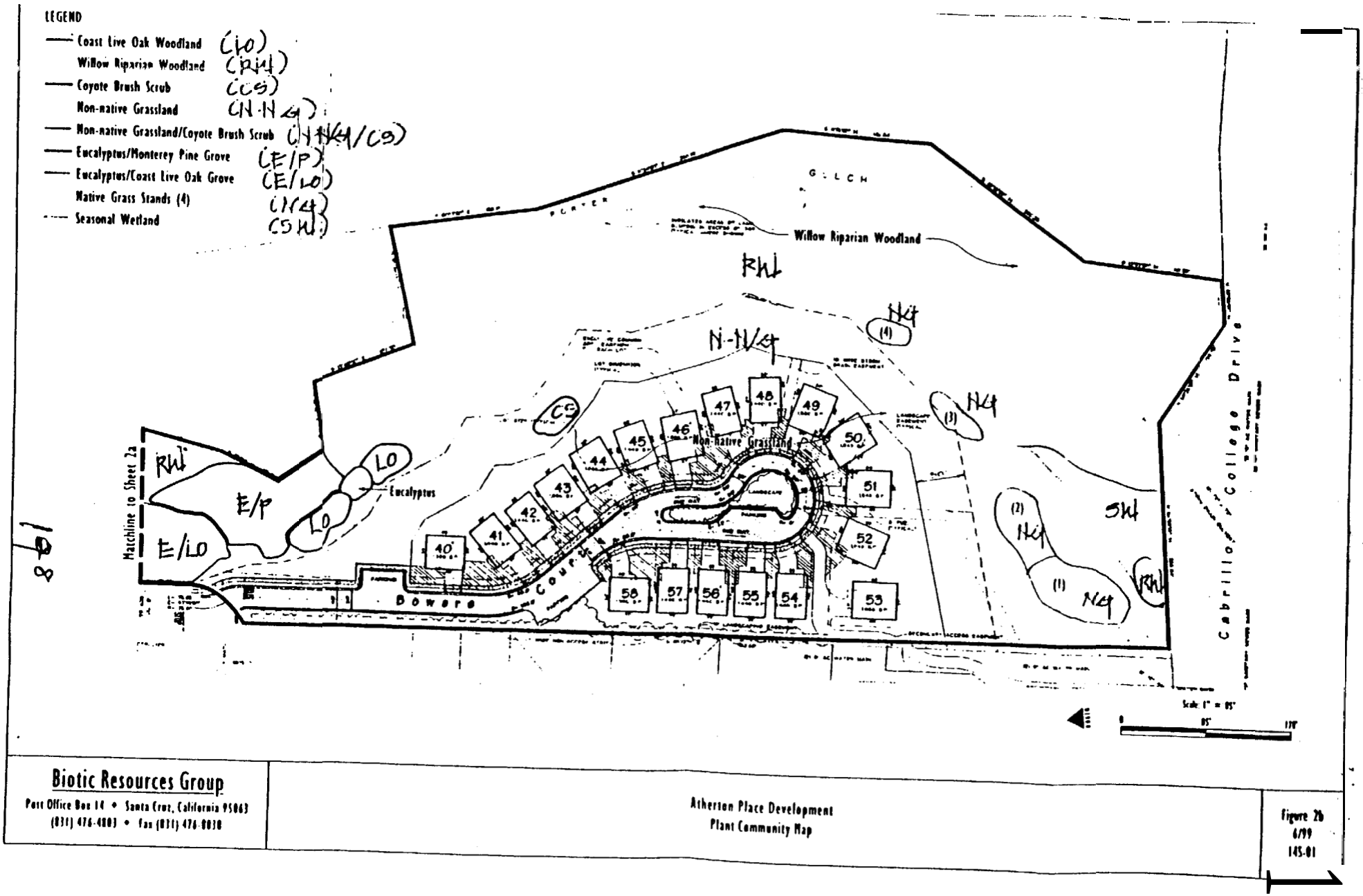
APPLICATION 98-0148

*COLORED MAP AVAILABLE



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Atherton Place Development
Plant Community Map

Figure 2b
6/99
145-01

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APPLICATION 98-0148

* COLORED MAP AVAILABLE

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ATTACHMENT 9
APPLICATION 98-048

APPENDIX A

RESULTS OF FOCUSED WILDLIFE *SURVEYS*

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ATTACHMENT 9
APPLICATION 98-0145

SURVEYS FOR

CALIFORNIA RED-LEGGED FROG

AT TWIN LAKES RESIDENTIAL DEVELOPMENT SITE

SANTA CRUZ COUNTY

Prepared For:

Kathleen Lyons
Biotic Resources Group
P.O. **Box 14**
Santa Cruz, CA 95063

Prepared By:

Dana Bland, Wildlife Biologist
Dana **Bland & Associates**
P.O. **Box** *636*
Aptos, CA 95001

May **28, 1999**

JB 1

BACKGROUND

The project site is located on the north side of Highway 1 in Soquel, Santa Cruz County, California, U.S.G.S. 7.5' Soquel quadrangle (see Figure 1). The site is bordered by Soquel Drive on the north, Tannery Gulch on the east, Cabrillo College Drive on the south, and Atherton Drive on the west. The entire site is 17.8 acres.

The proposed Twin Lakes project is to build single family residences on approximately 8.6 acres along the western side of the property (9.2 acres to be designated as open space). The site was evaluated in March 1999 for wildlife resources. Three areas on the property were identified as potential habitat for the California red-legged frog: Sesnon Pond (see Photos 1 and 2), the seasonal wetland at the south end of the property (see Photo 3), and portions of Tannery Gulch creek (see Photo 4). The project developers requested that a focused species survey for California red-legged frog be conducted This report documents the results of *those* surveys.

.METHODS

As per the U. S. Fish and Wildlife Service recommended protocol (USFWS 1997), four surveys to detect the presence or absence of California red-legged frogs were conducted at the project site along Tannery Gulch. One daytime survey was performed by Dana Bland and Walter Heady on May 4,1999. The second daytime survey was performed by Walter Heady on May 14,1999. Walter Heady was accompanied by a field assistant during the *two* nighttime surveys for safety considerations, and these nighttime surveys were performed on May 6 and May 12,1999. Binoculars were used to aid in identification of wildlife, and flashlights were utilized at night.

The survey area included, intermittent Tannery Gulch creek, the seasonal wetland with standing water at the south end of the property adjacent to Cabrillo College Drive, and the Sesnon pond.

RESULTS

The date, time, weather conditions and survey results are summarized below in Table 1. No California red-legged frogs were observed during the four surveys. A list of other wildlife observed during the four surveys is shown in Table 2.

The water in Sesnon Pond was greater than 4 feet deep; the water in the seasonal wetland was approximately 1 foot deep on May 4 and by May 14 one portion had dried up and the other was 4 inches deep. Most of Tannery Gulch Creek was approximately 6 inches deep on May 4, with some pools or scoured areas over 2 feet deep. Tannery Gulch Creek flows fiom the project sites under Highway 1, and through New Brighton State Park on the south side of Highway 1 to the Pacific Ocean, approximately 0.5-0.75 mile fiom the project site.

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Table 1. **Results of** the **four** surveys **for** California red-legged frogs *at* **Twin Lakes** Residential Development site along **Tannery** Gulch, Soquel, California, **May, 1999.**

Date	Time (hours)	Weather Conditions	Amphibians Observed
May 4, 1999	1450-1735	Clear skies, wind 0-5 mph 65°F (begin), 70°F (end)	No *CRLF* observed, Hyla tadpoles and eggs observed in Sesnon pond; Hyla tadpoles and metamorph observed in seasonal wetland
May 6, 1999	2030-2145	Clear slues, wind 0-5 mph 62°F (begin), 57°F (end)	No CRLF observed ; approximately 5 adult Hyla calling from and Hyla tadpoles observed in Sesnon pond
May 12, 1999	2110-2220	Clear skies, wind 0-1 mph 59°F (begin), 55°F (end)	No CRLF observed ; approximately 5 adult Hyla calling from and Hyla tadpoles observed in Sesnon pond
May 14, 1999	1114-1220	Clear skies, wind 0-6 mph 72°F *(begin),* 78°F (end)	No CRLF observed; Hyla tadpoles observed in Sesnon pond; Hyla tadpoles observed in seasonal wetland

Table 2. Wildlife species observed at Twin Lakes Development site along **Tannery** Gulch during the **four** May **1999** surveys.

AMPHIBIANS
Pacific **treefrog** *(Hyla regilla)*

REPTILES
Southern alligator lizard (*Gerrhonotus multicarinatus*)

BIRDS
Sharp-shinned hawk (*Accipter striatus*)
Mourning dove *(Zenaida macroura*)
Anna's hummingbird (*Calypte anna*)
Acorn woodpecker (*Melanerpes formicivorus*)
Pacific-slope flycatcher (*Empidonax difficilis)*
Violet-green swallow (*Tachycineta thalassina*)
Scrubjay (*Aphelocoma coerulescens*)
Steller's jay *(Cyanocitta stelleri*)
Common raven (*Corvus corax*)
Wrentit (*Chamaea fasciata*)
Bewick's wren (*Thryomanes bewickii)*

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Winter wren (*Troglodytestroglodytes*)
Swainson's thrush (*Caatharus ustulatus*)
American robin (*Turdus migratorius*)
European starling (*Sturnus vulgaris*)
Rufous-sided towhee (*Pipilo erythrophthalmus*)
Song sparrow (*Melospiza melodia*)
Wilson's warbler (*Wilsonia pusilla*)
Common yellowthroat (*Geothlypis trichas*)
Brewer's blackbird (*Euphagus cyanocephallus*)

MAMMALS
Gray fox (*Urocyon cineroargenteus*) (mother and two cubs)
Raccoon (*Procyonlotor*) (tracks)
Black-tailed deer (*Odocoileus hemionus*)

The portion of Tannery Gulch creek between Soquel Drive and Highway 1 is generally a narrow channel with steep banks. No off-channel ponds or ponded areas with slow moving or still water were observed along this portion of the creek. The lower half of the creek supports a lush willow riparian habitat along the west bank with a dense understory of poison oak and blackberry. The upper half of the creek traverses some oak woodland and some Eucalyptus/pine forest and non-native plants such as bamboo, periwinkle, pampas grass, and french broom were abundant

Sesnon Pond is located just west of Tannery Gulch creek. Dense willows overhang the pond on three sides; the west side is an open embankment of grasses and weeds. The seasonal wetland at the southern end of the property consists of two ponded areas surrounded by dense patches of *Juncus*.

The California Natural Diversity Data Base (CDFG 1998) does not list any occurrences of California red-legged fiogs for the Soquel quadrangle. There may be red-legged fiogs in the old sag ponds in the Soquel Demonstration Forest in the upper Soquel Creek watershed, approximately 5-7 miles north of this project site (Cathy McCalvin, USFWS, pers. comm.). There are no other known records of this frog within 5 miles of the project site.

DISCUSSION

Although Sesnon Pond appears to be ideal habitat for California red-legged frogs, none were observed during the May 1999 surveys. Tannery Gulch Creek is an intermittent stream, and does not contain suitable breeding habitat for this frog due to the steep banks with no emergent vegetation and lack of still or slow moving ponded areas. The dense willow riparian habitat along the lower half of the creek appear to provide suitable seasonal habitat for the red-legged frog for summer foraging or seasonal dispersal, but no frogs were observed along the creek. The seasonal wetlands at the southern end of the property were relatively shallow (6 inches or less by mid-May 1999), and probably do

not pond water long enough during typical rainfall years to provide suitable breeding habitat for red-legged frogs; however, the moist conditions and marshy vegetation appear to provide suitable temporary habitat for frogs during dispersal. No red-legged frogs were observed at the seasonal wetlands during the May 1999 surveys.

Although some of the conditions on the Twin Lakes property seem to be ideal for California red-legged frogs, the site is surrounded by urban and suburban development. Immediately to the west is a residential and retail development; to the north is residential. development; to the cast is Cabrillo College; and to the south is Highway 1 and New Brighton State Beach campground.

CONCLUSIONS

Because no California red-legged frog were observed during the standard protocol surveys conducted during ideal weather conditions and within the season suitable for detecting this species, this species is not considered to inhabit the Twin Lakes Residential Development site and no further measures for avoidance of this frog are recommended.

LITERATURE CITED

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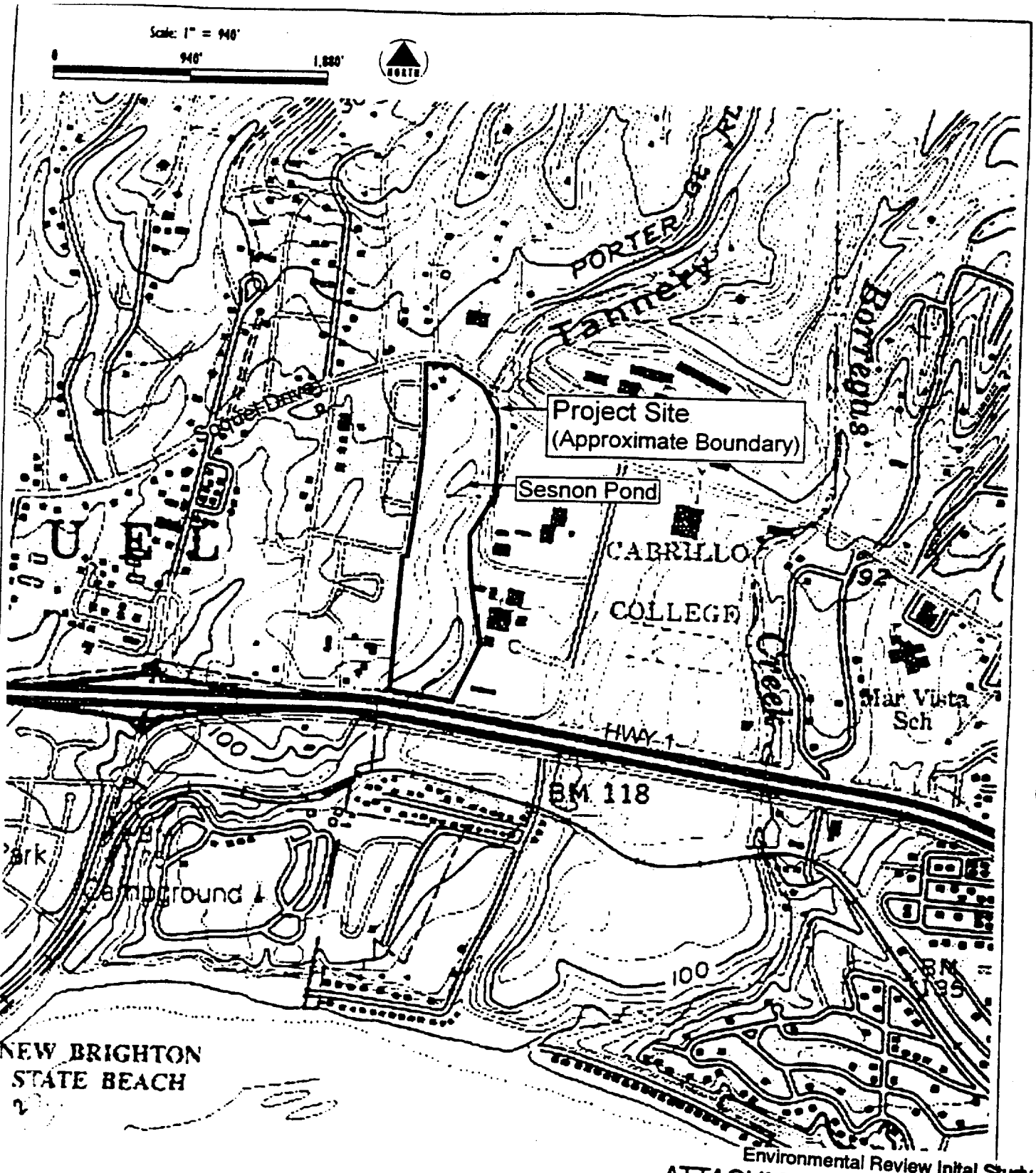
ATTACHMENT 9
APPLICATION 98-0140



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APPLICATION 98-0148

	Atherton Place Development Location Map	Figure 1 6/99 145-01

Photo 1. Sesnon Pond on proposed Twin Lakes Residential Development, Soquel, CA, May **4,** 1999. **Looking** north.

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Photo 2. Sesnon Pond on **proposed** Twin Lakes Residential Development, **Soquel,** CA, May **4,** 1999. Looking south.

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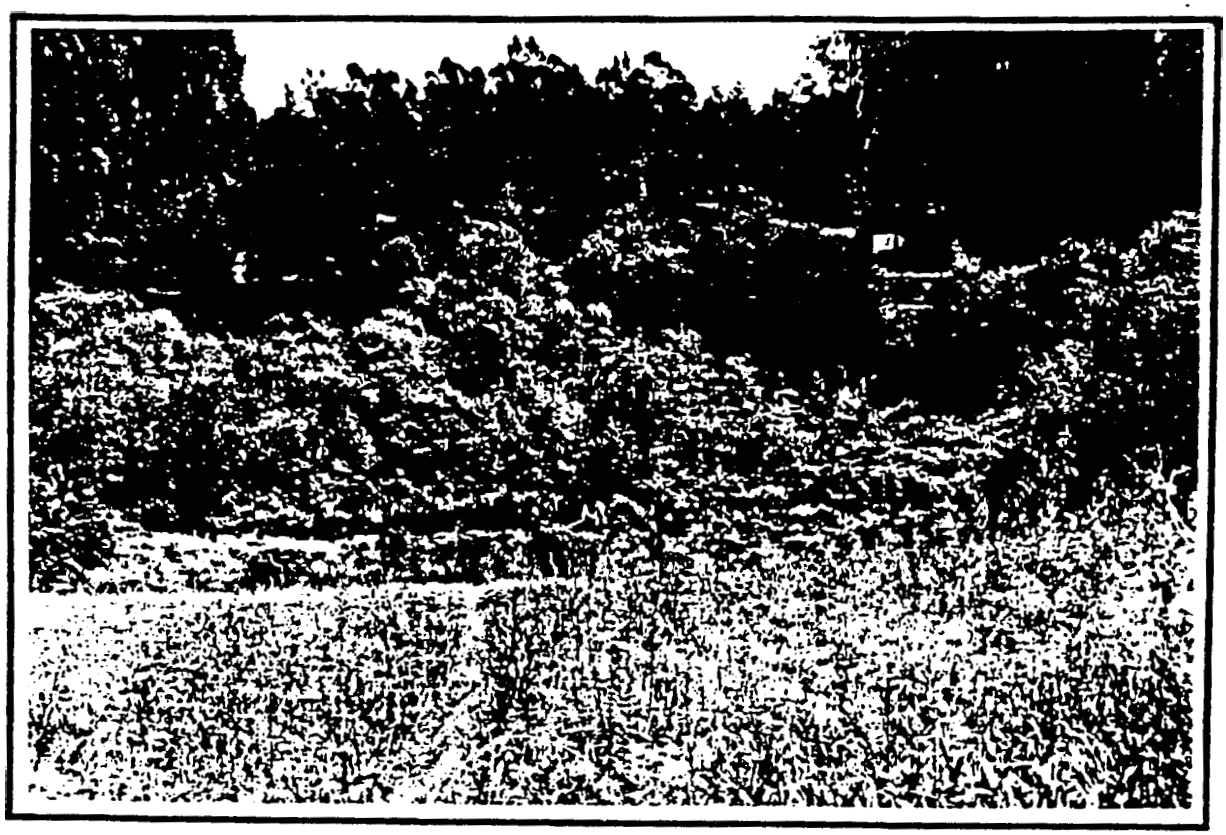

Photo 3. Seasonal **wetlands on** proposed Twin **Lakes Residential Development, Soquel, CA, May 4, 1999. Looking east.**

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APPLICATION 99-0140

Photo 4. Willow riparian habitat **along Tannery Gulch Creek on proposed** Twin **Lakes Residential Development, Soquel, CA, May 4, *1999.* Looking northeast.**

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Biotic Resources Group

Biotic Assessments • Resource Management • Permitting

October 21, 1999

Mr. Richard Beale
Richard Beale Land Use Planning, Inc.
100 Doyle Street, Suite E
Santa Cruz, CA 95062

Subject: Response to Comments on Biological Assessment, Atherton Place

Dear Rich,

This letter is to respond to comments regarding the biological resources described in the Biological Assessment for Atherton Place Development Project dated June 7, 1999. Comment letters were received fiom Ecosystems West and from Norman Gross, M.D. The responses also address verbal comments from Paia Levine, Environmental Coordinator, County of Santa Cruz Planning Department.

Pond Turtles. Ecosystems West identifies the Sesnon Pond on the project site as possible habitat for southwestern pond turtle. This species was considered in the Biological Assessment (see Table 2 regarding special status wildlife species); however, the pond turtle is not considered likely to inhabit this site because Sesnon Pond is only a seasonal pond and dries up in mid-summer and the adjacent Tannery Gulch is an intermittent creek and also dries up by mid to late summer. Page 2, paragraph 4 of tbe Biotic Assessment (Biotic Resources Group, June 7,1999) should be revised to state that the drainage is intermittent. The only perennial creeks in the area are Soquel Creek to the northwest and Aptos Creek to the south. The project site is separated from both these creeks by several miles of dense residential and retail development, making it unlikely that pond turtles would utilize the seasonal Sesnon Pond and then move to other perennial creeks when the pond dries up. In addition, the Sesnon Pond was surveyed four times in May 1999 for California red-legged fiogs. The month of May is also the time of year when pond turtles are active and detectable, but none were observed during our surveys.

Monarch Butterflies: The following mitigation measures should be added to the Biological Assessment:

- Although butterflies were not observed roosting in the Eucalyptus/pine groves in 1998 and there are no recorded use of the grove as a roost site, a survey should be conducted by a qualified biologist during the appropriate winter season to determine if Monarch butterflies are currently roosting there. If this area is determined to be occupied by Monarch butterflies as a winter roost site, then the project applicant should implement measures to avoid/minimize *impacts* to the species. A suitable

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measure is to install gas fireplaces in units 36-39 instead of wood burning fireplaces. The use of gas fireplaces would avoid smoke emissions from the prevailing northwest winds from impacting Monarchs.

Breeding Birds: The following mitigation measures should be added to the Biological Assessment:

- Wing activities adjacent to the riparian woodland, oak woodland and eucalyptus/pine groves should be scheduled to occur outside the nesting season for protected bird species. If this is not practicable, then a qualified biologist should perform surveys to determine if protected species (e.g., raptors or yellow warblers) are nesting adjacent to grading areas. If any protected bird species are found nesting, construction should be schedule to commence after August 1 for areas 200 fcet of the nest site(s). This distance is based on the noise analysis, wherein a distance of approximately 200 feet from grading operations, coupled with a drop in 10' elevation, would not result in a significant change in the existing ambient noise levels (approximately 54 dB) (Environmental Consulting Services, October 11, 1999).

Grassland Management: The grasslands to be retained should be mowed to control the spread of annual grasses and preserve/encourage the growth of perennial native grasses. The mowing program would also be compatible with fire management control. Mowing should be conducted in spring and fall, mowing the grass to 4".

Drainage Plans: A biologist will review the drainage plans and provide written documentation to the County that, with specified measures, impacts to riparian and wetland resources are avoided/minimized during placement of the drainage features.

Please give me a call if you have any questions on these responses.

Sincerely,

Kathleen Lyons
Principal/Plant Ecologist

And

Dana Bland
Wildlife Biologist

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ATTACHMENT 10
APPLICATION 98-0148

Biotic Resources Group

Biotic Assessments • Resource Management • Permitting

November 17,1999

Mr. Richard Beale
Richard Beale Land Use Planning, Inc
100 Doyle Street, Suite E
Santa Cruz, CA 95062

Subject: Athaton Place: Breeding Birds and Riparian Issues

Dear Rich,

This letter is to respond *to* a request on breeding birds and riparian revegetation for the Atherton Place Development Project.

Breeding Birds and Construction Schedule.

In earlier correspondence we have recommended that grading activities adjacent to the riparian woodland, oak woodland and eucalyptus/pine groves should be scheduled to occur outside the nesting season for protected bird species (i.e., commence construction after August 1).

The following species, and their typical breeding season, considered applicable to the Atherton Place project, includes:

- Raptors — typically breeding extends between February and July
- Loggerhead shrike — typically breeding extends between March and August
- Yellow Warbler — typically breeding extends between March and August

If scheduling construction outside the breeding season is not deemed practicable, then a qualified biologist should perform surveys to determine if these species are nesting adjacent to *grading* areas. If the above named species are found nesting, construction should be scheduled tc *commence* after *August* 1 for areas 200 feet of the nest site(s).

If the above named species are not found nesting, construction *can occur* at any time.

Riparian Revegetation at Drainage Outlets: Each drainage *outlet* will consist of an underground pipe and an energy dissipater. Placement of the pipe will require trenching within the riparian corridor and trimming of vegetation (area approximately 10 feet wide) (Ifland Engineers, *1999).* The location of the drainage pipe will be selected *to* avoid the removal of mature trees. The placement of the pipe within the willow-dominated riparian

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ATTACHMENT 10a
APPLICATION 98-0148

area is expected to be a temporary impact as the willows are expected to readily re-sprout. A biologist will monitor the vegetation removal; if the area has not naturally re-established within one year of the trenching work, the area will be revegetated with willow pole cuttings. With successful implementation of this measure, impacts to riparian and wetland resources will be avoided/minimized during placement of the drainage features.

Please give me a call if you have any questions on these issues.

Sincerely,

Kathleen Lyons
Principal/Plant Ecologist

And

Dana Bland
Wildlife Biologist

Central Fire Protection District

Fire Prevention Division
2425 Porter Street, Suite **14**
Soquel, CA **95073**
(408) 479-6843

MINOR LAND DEVELOPMENT
Date: March **24,1998**
To: TWIN LAKES BAPTIST CHURCH
Applicant: Richard Beale
From: Eric Sitzenstatter
Subject: **98-0148**
Address: Mullti-Situs on Atherton, Aptos
APN: **037-251-21**
OCC: **3725121**
FD Permit: **980100**

We have reviewed plans for the above subject project, THE FOLLOWING ARE DISTRICT REQUIREMENTS:

THE FIRE HYDRANTLOCATED **ON** ROAD "A" SHOULD BE CLOSER TO THE CORNER **OF ROAD"B"**

THE FIRE LINE FOR LOT **1** SHOULD BE **4' C900** PVC **WITH A FIRE** DEPARTMENT WHARF **HYDRANT AT** THE BUILDING **SITE.**

FIRE FLOW requirements for the subject properties are **1000** gallons.

The buildings shall be protected by an approved automatic sprinkler system complying with the LATEST edition of NFPA 13D currently adopted in Chapter **35 of** the California Building Code.

Please have the DESIGNER add appropriate NOTES and **DETAILS** showing the following information **on** the **Plans** that are to be submitted **for** Building Permits:

EACH LOT SHALL HAVE A SEPARATE **BUILDING** PERMIT APPLICATION AND PLANS SUBMITTED FOR REVEW.

NOTE on the plans that these plans are in compliance with California Building and **Fire Codes (1995) and District** Amendment.

NOTE **on** the plans the OCCUPANCY CLASSIFICATION, BUILDING CONSTRUCTION TYPE/FIRE RATING AND SPRINKLEREDMON-SPRINKLEREDas determined by the BUILDING OFFICIAL and outlined in Part IV **of** the California Building Code.

e.g.
- R-3, Type **V-N,** Sprinklered
- **R-3** - Single Family Dwelling
- Type V-N - **Wood** Frame - Non-rated Construction
  Sprinklered - equipped with an automatic fire sprinkler system.

Environmental Review Inital Study
ATTACHMENT 11
APPLICATION 98-0148

FIRE FLOW requirements **for** the subject property are **1000** gallons. NOTE on the plans **the** REQUIRED and

AVAILABLE FIRE Flow, The AVAILABLE FIRE FLOW information can be obtained **from *the*** water **company.**

SHOW on the plans **a** public *fire* hydrant within **250** feet of any portion ***of*** the building meeting the minimum required fire flow for the building.

SHOW on the plans DETAILS of compliance with the District Access Requirements outlined on the enclosed handout.

NOTE on the plans that all buildings shall be protected by an approved automatic sprinkler system complying with the LATEST edition **of NFPA** 130 currently adopted in Chapter **35 of** the California Building Code.

NOTE that the designer/installer shall submit three (3) sets of plans and calculations for the underground and overhead Residential Automatic Sprinkler System to this agency for approval. Installation shall follow **our** guide sheet.

Show on the plans where smoke detectors are *to* **be** installed according to the following locations and approved **by** this agency **as** a minimum requirement.

- One detector adjacent to each sleeping area (hall, foyer, balcony, or etc).
- One detector in each sleeping room.
- One at the top of each stairway of **24" rise** or greater and in an accessible location by a ladder.
- There must be at least one smoke detector on each floor level regardless **of** area usage.
- There **must** be a minimum of one smoke detector in every basement area.

NOTE on the plans where address numbers will be posted and maintained. Numbers shall **be** a minimum **of** 3-1/2 inches in height and of a color contrasting to their background.

NCTE on the plans the installation **of** an approved spark arrestor on the top **of** the chimney. **Wire** mesh not **to** exceed **X** inch.

NOTE on the plans that the roof coverings to be no less than class "C" rated **roof.**

NOTE on the plans that a 30 foot clearance will be maintained with non-combustible vegetation around all structures.

NO–E on the plans that requirements of the enclosed Single Family Dwelling Guide are met.

The job copies ***of*** the building and fire systems plans and permits must be on-site during inspections.

Submit a check in the amount **of** $50.00 for this particular plan check (other fees may **be** incurred, please contact the Fire Prevention Secretary for total fees due for your project.)

Environmental Review Initial *Study*

cc: Owner
file

ATTACHMENT 11
APPLICATION 98-0148

Note ***As*** a condition of submittal of these plans, the submitter, designer and installer **certify** that these plans and details comply with applicable Specifications, Standards, **Codes** and Ordinances, **agree** that they **are** solely

3725121 112 **03/24/1998**

responsible for compliance with applicable Specifications, Standards, Codes and Ordinances, and further agree to correct any deficiencies noted by this review, subsequent review, inspection or other source, and, to hold harmless and without prejudice, the reviewer and reviewing agency.

Any order of the Fire Chief shall be appealable to the Fire Code Board of Appeals as established by any party beneficially interested, except for order affecting acts or conditions which, in the opinion of the Fire Chief, pose Immediate threat to life, property, or the environment as a result of panic, fire, explosion or release.

Any beneficially interested party has the right to appeal the order served by the Fire Chief by filing a written 'NOTICE OF APPEAL" with the office of the Fire Chief within ten days after service of such written order. The notice shall state the order appealed from, the identity and mailing address of the appellant, and the specific grounds upon which the appeal is taken.

3725121–40

SANTA CRUZ COUNTY PLANNING DEPARTMENT

MEMO

DATE: **4-29-98**

TO: Jackie Young

FROM: Cherry McCormick, HOUSING COORDINATOR

SUBJECT: **HOUSING COMMENTS ON** 98-0148: Twin Lakes Baptist Church

---

This proposed development of ***58*** new residential single family detached units creates an inclusionary housing requirement for 9 affordable units. This obligation may **be** satisfied **by** one of the following options available **to** the developer under the current provisions of Chapter 17.10**:**

1. Restrict 9 on-site units for purchase to moderate income households or rental to lower income households
2. Construct 10 affordable units off-site within the same planning area for sale to moderate income households or rental to lower income households
3. ~~Purchase 9 affordable housing credit transfers (A limited number of credits are currently available from the Redevelopment Agency)~~

Chapter 17.10 requires that the project proposal must specify **in** the application **how** the affordable housing requirement will **be** satisfied, including the location, size, construction scheduling and number of bedrooms **of** the dwelling units intended to **be** designated for affordable housing, and whether they will **be** rented or **sold.** Please note that the average number of bedrooms in **the** affordable units must be at least as large **as** the average number of bedrooms in the market **rate** units.

The proposed revisions to Chapter 17.10 will **also** require that the conditions **of** approval of the project identify specific residential units in the project adequate **to** satisfy the project's affordable housing requirements.

An affordable housing Certification and Participation Agreement will need to **be** signed and recorded for the project prior to issuance **of** Building Permits.

Please refer to Chapter 17.10 for additional detailed requirements on procedures and unit/lot design and development to satisfy the affordable housing component for **this** project.

Environmental Review Inital Study
ATTACHMENT 12
APPLICATION 98-0148

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PROJREV2.MEM

1. Restrict 9 on-site units for purchase by moderate income households or rental to lower income households
2. Construct 10 affordable units off-site with the approval of the Board of Supervisors for sale to moderate income households or rental to lower income

COUNTY OF SANTA CRUZ
INTER-OFFICE CORRESPONDENCE

DATE: April 10, 1998

TO: Jackie Young, Planning Department

FROM: Glenn Goepfert, Department of Public Works

SUBJECT: APPLICATION 98-0148, TRACT 1409, CABRILLO GARDENS
APN: 37-251-21, ATHERTON DRIVE

After review of the preliminary plans for the subject subdivision we offer the following comments.

1. This project will be required to perform a drainage study of the Porter Gulch/Tannery Gulch drainage basin down to its outfall at New Brighton Beach. Based on the design storm called for by the County Design Criteria for the size of the tributary basin, the study shall identify inadequacies existing in the system. Recommendations for upgrade of the system shall be made by the drainage study, and the project may be required to undertake work of improvements to correct inadequacies found in the system. The drainage study, its review by Public Works, and the determination of required work shall be completed prior to tentative map approval.

2. Since the project will affect the state park, state approval of the plan will be required. Any requirements the state has may have to be incorporated into the improvement plans and/or any drainage duty. Any other agencies whose jurisdictions and/or facilities are affected must give appropriate approvals.

3. A Zone 5 drainage fee (currently $0.60 per square foot) will be assessed on the net increase in impervious area.

4. A full set of improvement plans and a subdivision map shall be submitted to Public Works for review and approval. A subdivision agreement and construction securities will be required.

GG: rw

Copy to: Don Hill, Drainage
CGRR

Environmental Review Inital Study
ATTACHMENT 13
APPLICATION 98-0148

ifland ENGINEERS, INC.

Civil Engineering ■
Structural Design ■
Land Surveying ■
Development Planning ■

September 24, 1999

#97278

COPY

Paia Levine
Santa Cruz County Planning Department
701 Ocean Street
Santa Cruz, CA 95060

RE: Tract No. 1409
Atherton Place

Dear Paia:

It is our understanding from Richard Beale, Project Land Planner, that you needed from us certain information before the project could complete the Environmental Review process. Hopefully the following information will meet your concerns:

7. ***Storm drainage calculations for pipes into the northerly section pond and into the gulch on the southerly section:***

Northerly Section
2.00 acres of the developed land collects into the catchbasins in Bowman Circle. The calculated runoff for a 25 year storm is:

Q_{25} = (0.50)(2.64)(2.00) = 2.64 c.f.s.

This amount of flow can be handled by an 8 inch HDPE pipe sloping at 4.0%. However, the velocity at the outfall of the pipe would be 7.56 f.p.s. (See attachments) By using an 18 inch pipe as proposed, (minimum allowed by Public Works), the same volume of 2.64 c.f.s. would discharge at a velocity of 1.49 f.p.s. Therefore, only one pipe of a diameter larger than necessary allows for reduced velocity. Also, we are calling for an energy dissipator at the end of the pipe.

Southerly Section
This section has about 1.8 acres of developed land collecting into the catchbasin in Bowers Court The calculations runoff for a 25 year storm is:

Q_{25} = (0.50(2.64)(1.80) = 2.37 c.f.s.

This is similar as the northerly section with the same conclusion.

2. ***Methods used to ensure clean water going into the pond and gulch:***

We proposed to install in each of the *two* storm drains a 'Stormceptor.' Enclosed are nine pages of technical information and a sketch of this device. These would be installed just behind the sidewalks in the storm drain easement to provide for easy access for monitoring and servicing.

Environmental Review Initial study
ATTACHMENT 1
APPLICATION

00 Wafer Street ■ Santa Cruz, CA 95062 ■ Tel (831)426-5313 ■ Fax (831)426-1763

3. *Drainage off the lots that slope to the gulch not intercepted by the storm gutters.*

The entire site (18 acres) drains off into the natural channel by sheet flow. Upon development, the area is reduced to 14 acres of which 10.50 acres remain 'as is,' with no increase or change in drainage volume or drainage pattern. The remaining 3.5 acres are the lots which draw off to the rear. These lots are proposed to sheet flow into the riparian corridor setback area. These lots are setback from 100 to 200 feet from the drainage channel. This provides significant amount of land that is covered with native grasses and natural ground cover to allow for sheet flow and filter the runoff from these lots.

If you have any questions, or need additional information, please do not hesitate to call.

Sincerely,

IFLAND ENGINEERS, INC.

Glen H. Ifland

GHI/jh

c: Richard Beale
David Bowers

IFLAND ENGINEERS, INC.
Civil and Structural Design
1100 Water Street
Santa Cruz, California 95062
Telephone (408) 426-5313

Calculated Data for Circular Pipe, Flowing FULL:

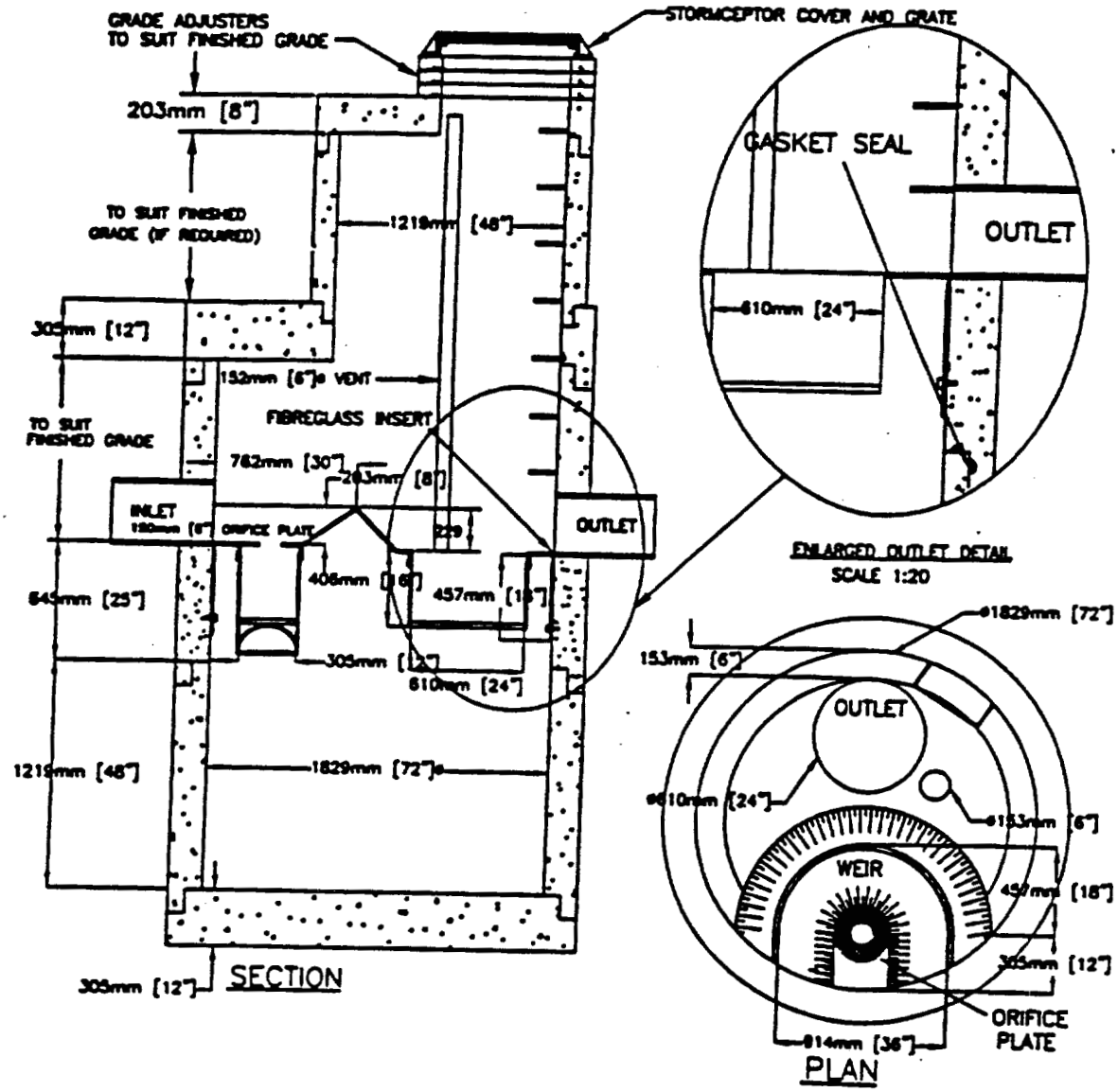
Flowrate	2.640 CFS
Pipe Diameter	8.000 inches
Pipe Cross-section Area..	0.349 SF
Wetted Perimeter.....	2.094 foot
Mannings 'n'	0.0120
Vel. at Min. Fric. Slp. =	7.563 Ft/Sec
Minimum Friction Slope =	4.067 %

Calculated Data for Circular Pipe, Flowing FULL:

Flowrate	2.640 CFS
Pipe Diameter	18.000 inches
Pipe Cross-section Area..	1.767 SF
Wetted Perimetu.....	4.712 feet
Mannings 'n'	0.0120
Vel. at Min. Fric. Slp. =	1.494 Ft/Sec
Minimum Friction Slope =	0.054 %

ENGINEERS, INC.
CIVIL ENGINEERING • LAND SURVEYING • STRUCTURAL DESIGN
TEL (831) 426-5313
FAX (831) 426-1763

SHEET NO. _____ OF _____
CALCULATED BY _____ DATE 7/28/99
SCALE: N.T.S.



Notes :

1. Access way is offset to allow access to the fibreglass bypass slab and to allow inspection and maintenance from the surface.
2. Pipe installation by flexible boots.
3. 610 mm [24"] outlet to be used for [illegible]

STC 1000 PRECAST CONCRETE STORMCEPTOR
FIBREGLASS DISC DESIGN – 1000 IMP. GALLON CAPACITY

Environmental Review Inital Study
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ATTACHMENT 1A
APPLICATION 98-0148

1. *Overview of Stormceptor*

The Stormceptor is a pollution prevention device that efficiently removes oil and sediment from stormwater. The ***Stormcepror*** replaces a conventional **manhole in the** storm sewer system.

The key advantage **of** Stormceptor compared to other **water quality** controls in a storm sewer is the patented by-pass which prevents the resuspension and **scour of** settled material during subsequent storm events. Accordingly, ***Stormcepror*** **will not** release pollutants between servicing, even during infrequent events (i.e. **5** year or **10 year** storm).

Stormceptor follows the philosophy **of** treating pollution at **its** source. Treating pollution at the **source** is **the** preferred methodology **for** water **quality** control since ***the*** dilution **of** pollutants in stormwater becomes problematic in terms **of** effective treatment as the **drainage area** increases. A recent study in Wisconsin (Bannerman et al., 1993) indicated that the application **of** stormwater **quality controls to 14% of the** residential land and 40% **of** the industrial **lands** could reduce **a** region's total contaminant loading by **758,** indicating that cost-effective water quality control **can** be implemented by targeting certain "hot spots". In ***the*** Wisconsin study, streets weft critical in all land uses, and parking lots were critical for industrial **and** commercial land uses.

Stormceptor *Applications*

Stormcepror **is** applicable in a variety **of** development **situations** including:

- stormwater **quality** retrofits **for existing** development
- industrial and commercial parking **lots**
- automobile service **stations**
- **airports**
- **areas** susceptible to spills **(of** materials **lighter** than water) such **as bus** depots, transfer stations, etc.
- new residential developments **(as** part **of** a treatment train)
- redevelopment in the urban core

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Environmental Review Inital Study
ATTACHMENT 14
APPLICATION 96-0140

Existing Development Retrofits

Existing development can comprise up to 80% of a watershed's tributary drainage area (eg. The Don River Watershed, Greater Toronto Area). These areas are often overlooked since the large area of uncontrolled runoff is overwhelming. By targeting 'hot spot' areas however, cost-effective water quality control *can* be implemented for existing developed areas.

Existing developed areas generally provide numerous constraints to the implementation of water quality enhancement. Surrounding properties define the grading of the [illegible] (or else berms and expensive retaining walls are required) and existing sewer inverts and locations define the minor system drainage route. These constraints generally limit the number and type of options available to the stormwater management professional with *respect* to water quality enhancement. In these situations, the ***Stormceptor*** is an attractive solution due to its size, low cost, ease of installation and maintenance, and compatibility with the existing drainage system.

Potential Spill Areas

Gas stations, parking lots, streets, and industrial areas where there is a high volume of traffic and/or transfer of deleterious materials are potential spill areas. Generally, the area of land draining to the storm sewers in these instances is small.

Stormceptor is recommended for these types of land use regardless of whether other water quality control techniques are proposed. The spills protection provided by Stormceptor prevents creeks from damaging spills which have toxic effects on the instream aquatic resources.

Redevelopment

Redevelopment can be classified as new construction on an *existing* developed area. This can be an addition *to* an existing development, or the replacement of the entire development with a similar or new type of land use.'

In *these* situations surface treatment techniques are generally not feasible, meaning that any treatment system must conform *to* the *existing* sewer system. The implementation of large underground systems (such as tanks, underground sand filters, etc.) is also generally problematic due to the proximity of other underground utilities and the configuration of the existing Sewer system.

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APPLICATION 98-0148

Most redevelopment situations are **small** in size. Surface stormwater quality techniques for these **areas** would result in **a loss of** developable **land** which could jeopardize the economic feasibility of **small urban areas.** In these **situations** the ***Stormceptur*** is sometimes the **only** feasible **solution.**

New Residential Subdivisions

The ***Stormceprur*** is not intended to replace natural stormwater management **system** solutions (wet ponds, wetlands) for large residential subdivisions.

Stormcepror *can* be used, however, **as** part of the treatment train approach in these subdivisions. For small subdivisions, in which **ponds or** wetlands are not **feasible (i.e. < 12 ac), and** for subdivisions (< 25 **ac)** that would result in numerous **small** ponds **within a** tributary **area,** the use **of** the ***Stormceptor*** as part of the treatment train approach **(i.e.** in conjunction with **down spouts, grading,** rear yard controls, etc.) is a cost-effective solution which **will** lessen the maintenance burden **of** municipalities **who will** have the ultimate responsibility for stormwater **quality systems.**

The use of ***Stormcepror*** for street drainage helps to mitigate **long** term maintenance costs if catch-basin **sumps are** not implemented. In these situations, maintenance **is** centralized **at** ***Stormcepror*** **locations** reducing **the** time **and** cost of **storm** sewer maintenance.

1.2 *Stormceptor Design and Operation*

The ***Stormceptur*** *can* be divided **into two** components :

- treatment chamber
- by-pass chamber

Stormwater flows into the by-pass chamber **via** the storm sewer pipe. **Low** to **normal** flows **are** diverted into the treatment chamber by a weir and **drop** pipe arrangement **(Figure** 1). The **drop** pipe **is** configured **to** discharge water tangentially **along** the treatment chamber **wall. Water flows through** the treatment **chamber** ***to*** the outlet pipe which is submerged **similar** to the **drop** inlet pipe. Water flows **up through** the outlet pipe based on the head at the inlet weir, **and** is discharged **back** into the by-pass chamber downstream of the weir. The downstream **section** of the by-pass chamber is connected **to** the outlet sewer pipe.

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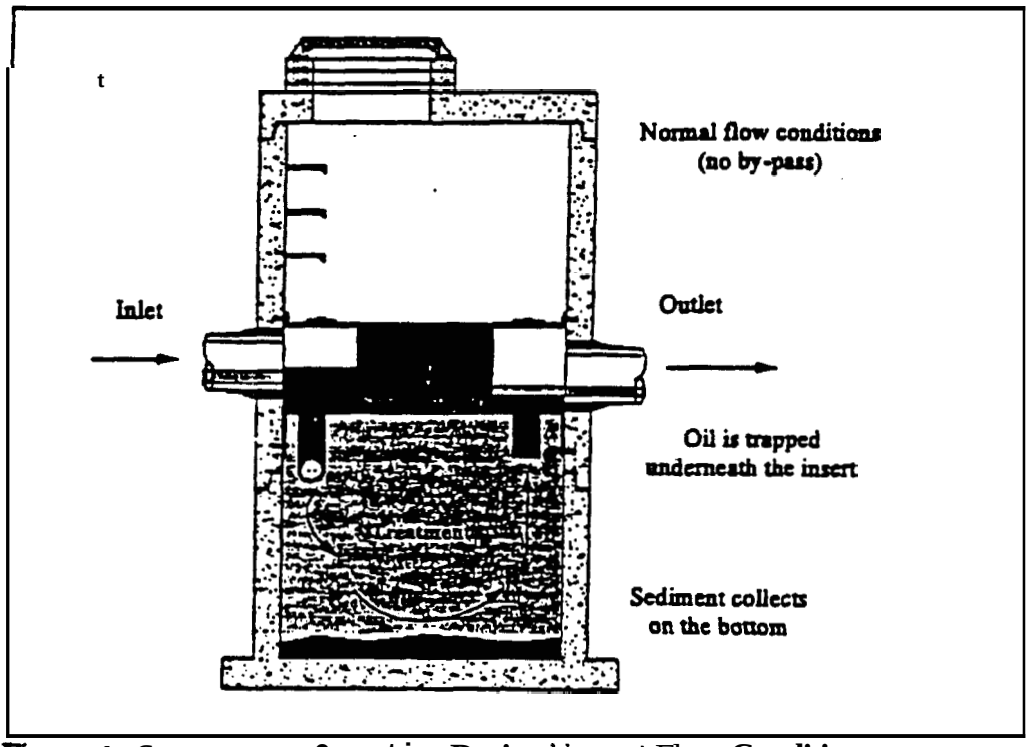

Figure 1. ***Stormceptor*** **Operation During** Normal Flow **Conditions**

Oil and other **liquids** with a specific gravity **less than** water **will** rise in the treatment chamber **and** become **trapped** since the outlet **pipe** is **submerged.** Sediment will settle to **the bottom** of the **chamber by gravity.**

During high flow conditions, stormwater in the **by-pass** chamber will overtop **the** weir **and** be conveyed to the outlet sewer directly (Figure **2).** Water which overflows the weir creates a backwater effect on **the** outlet **pipe (head** stabilization between the **inlet drop** pipe **and** outlet riser pipe) **ensuring** that excessive **flow will** not **be forced** into the treatment chamber which could scour or resuspend **the settled material.** The **by-pass** is **an integral part of the Stormceptor** since other types **of** oil/grit interceptors have been **noted to** scour during **high flow conditions** (Schueler **and** Shepp, 1993).

Environmental Review Inital Study
ATTACHMENT 12
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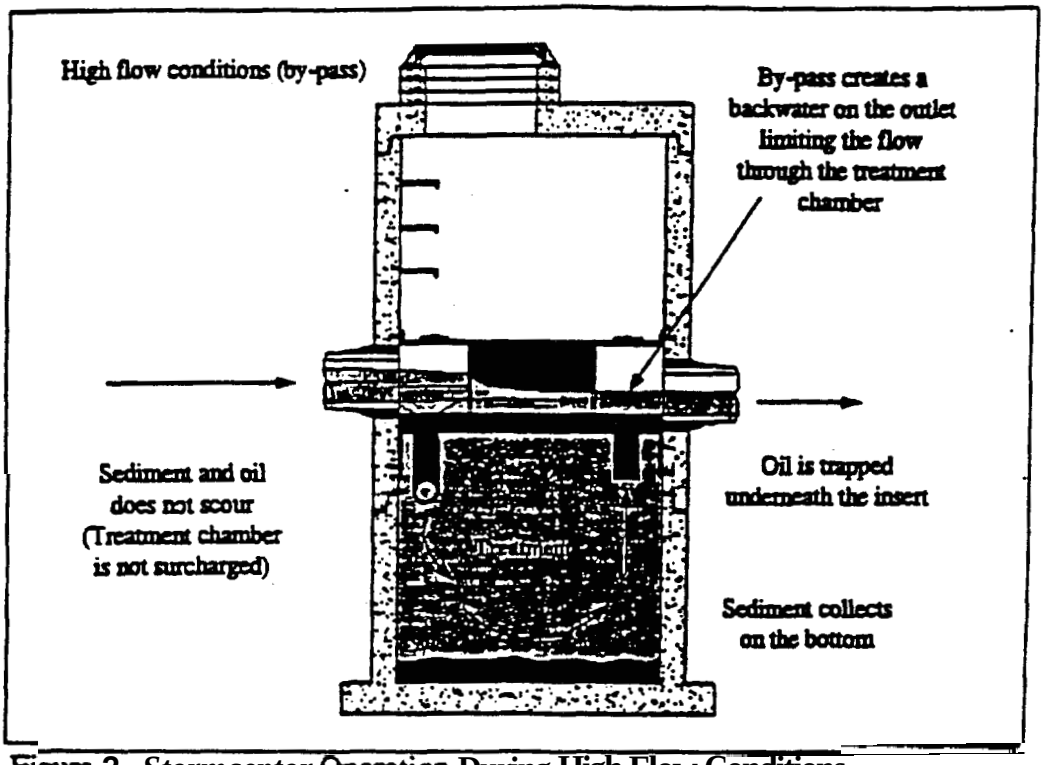

Figure 2. *Stormceptor* Operation During High Flow Conditions

Since the Stormceptor operates on the head differential between the inlet and outlet pipes it cannot be used as an inlet (catch-basin).

The Stormceptor comes complete to the jobsite with its own frame and cover. The cover has the name Stormceptor clearly embossed on it to allow easy identification of the unit in the field for maintenance. There are pick holes in the cover that vent the interceptor, allow removal of the cover, and provide sampling ports for air quality monitoring before the cover is removed.

1.3 Construction Materials

CSR Hydro Conduit manufactures and markets the precast concrete Stormceptor in the U.S. under license to Stormceptor Corporation. Current interceptor sizes being manufactured range from 108 ft.³ to 1000 ft.³ (900 gal. to 7,200 gal. Stormceptor units).

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ATACHMENT 14
APPLICATION 98-0148

1.4 *Stormceptor Testing*

Several studies have been conducted on the ***Stormcepror***. Laboratory testing has been performed by the National Water Research Institute in Canada (1993, 1994) and by the University of Coventry in the United Kingdom (19%). Computer modeling of the ***Stormcepror*** has also been performed by Marshall Macklin Monaghan Limited (1994). Finally, ***Stormceptor*** Canada Inc. undertook sediment monitoring of 21 installed *units* in the Greater Toronto Area (GTA). Detailed reports from these studies are available from ***Stormceptor*** Corporation. The major findings of these studies *can* be summarized as follows:

- Very little scouring of settled materials occurred in the laboratory testing of the ***Stormcepror*** units
- For high inflows, the risk of washing out the treatment chamber is reduced since the flowrate through the unit reduces (up to 20%)
- The headloss through the ***Stormcepror*** unit is approximately 50% higher than a 90% bend (loss coefficient K = *25)*
- The laboratory testing (with synthetic sand) indicated that 90% removal would be achieved *at* a flowrate of ≤ 95 gpm
- Field studies indicated that an annual cleanout would be sufficient based on the estimated annual sediment removal rates
- The site monitoring indicated that ***50%*** of the sediment collected by the ***Stormceptor*** was smaller than 0.0004 inches in *size*
- *The* site monitoring indicated a relationship between upstream drainage area, ***Stormceptor*** storage volume and treatment efficiency
- University of Coventry results indicate 95%+ oil removal, 80% sand and 70% peat removal

2.0 *Design Information*

The design of the ***Stormceptor*** involves reviewing the configuration of the storm sewer system, the location and purpose of other stormwater management controls for the proposed development, and the impervious area of the proposed development.

2.1 *Configuration of the Storm Sewer System*

The configuration of the storm sewer system is important since the ***Stormcepror*** works most efficiently for small drainage areas with one inlet pipe.

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ATTACHMENT 14
APPLICATION 99-0142

Inlet Pipe

Stormceptor Corporation recommends that a one inlet pipe - one outlet pipe arrangement be used in new development applications of the interceptor (Figure 3). This may require junction manholes upstream of the interceptor to provide this arrangement.

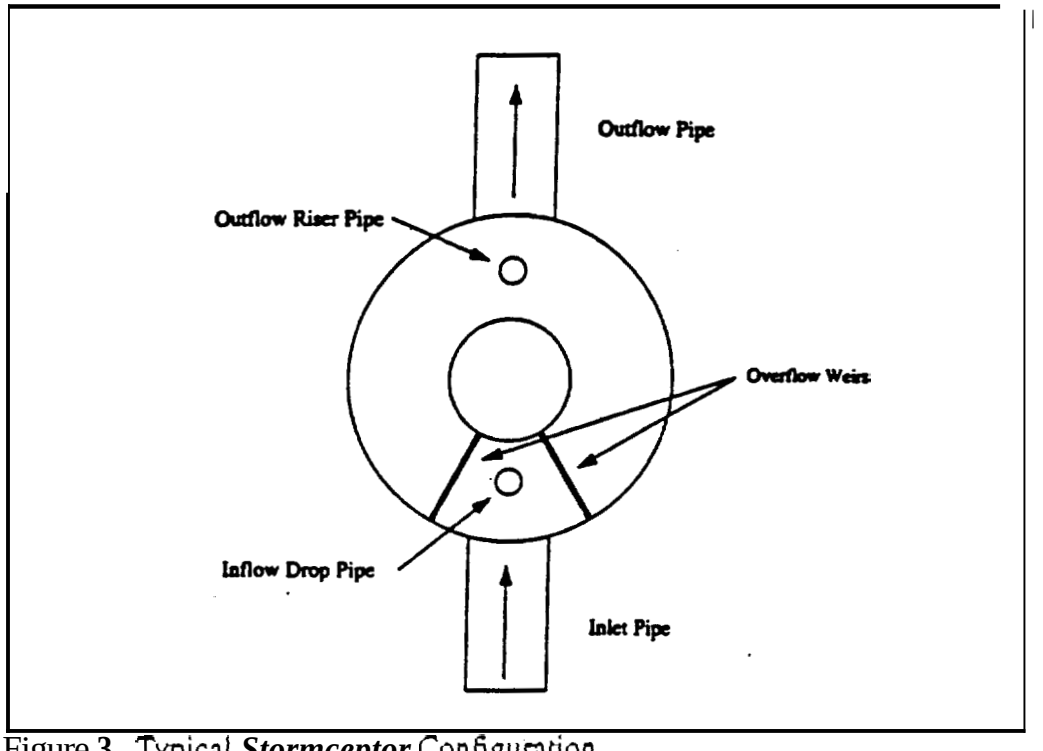

Figure 3. Typical *Stormceptor* Configuration

In situations when it is not feasible to have one inlet pipe to the Stormceptor (i.e. existing sewer pipe applications, location of other infrastructure/utilities, etc.), it is possible to accommodate several inlet pipes depending on the orientation and sizes of the pipes. The weirs must be customized during the manufacturing process to accommodate the various angles of the inlet pipes, so it is important that any custom requirements be explained at the time of ordering or requesting quotes.

It is recommended that a maximum of *two* inlet pipes be implemented into a Stormceptor in a new development application.

It should also be recognized that multiple inlet configurations will result in greater head losses at the inlet to the treatment chamber and potentially decreased performance.

By-Pass Chamber

The by-pass chamber is available in 6 and 8 ft diameter models. Table 1 indicates the maximum pipe diameters that can be implemented with the two by-pass chamber sizes currently being manufactured. The standard *Stormcepror* unit can accommodate up to a 36" pipe diameter. A pipe diameter of up to 60" can be accommodated through customization. These pipes represent what can physically fit into the *Stormcepror* and are considerably larger than the pipe sizes which are recommended by the sizing guidelines (i.e. appropriate for retrofit but not new development).

ifland ENGINEERS, INC.

Civil Engineering ■
Structural Design ■
Land Surveying ■
Development Planning ■

November 17, 1999

#97278

Paia Levine and Jackie Young
Santa Cruz County Planning Department
701 Ocean Street
Santa Cruz, CA 95060

Via Hand Delivery

RE: Tract No. 1400
Atherton Place

Dear Paia and Jackie:

To further clarify some of the storm drainage issues regarding this proposed project, some of which were addressed on our letter of September 24, 1999, we offer the following:

1. As the Tentative Map shows, the lots backing onto the riparian corridor slope away from the adjacent street and to the corridor. Some of these lots, 19 through 24 and 41 through 51, show that a retaining wall would be built to a maximum height of 4 feet at the rear property line. The drainage that would be coming off these lots would be collected into an area drain at the lowest comer of the lot and conveyed to a pipe behind the retaining wall and discharged outside the base of the wall. An energy dissipator would be installed at the end of the pipe to dispense the flow into sheet flow which would continue on across the existing natural slope to the drainage channel.

   If this is not an acceptable method of handling this runoff, then we suggest an alternative whereby an easement is provided along the rear of lots 19 through 24 and 41 through 51 and a pipeline run along these easements, collecting drainage from each area drain and connecting the pipe to the 18" storm drain pipe coming off the street.

2. The two 18" pipes collecting drainage from the streets are to be installed underground. Neither of these pipes would cross over 30% ground slopes. (See 30% slope area on Sheets 3 and 4 of the Tentative Map). The pipe leaving the detention pond, as shown does cross over land that slopes in excess of 30%. We would propose to relocate this pipe such that it can be installed at the southerly end of the pond and be aligned to not cross over any land over 30% slope.

   The area that would be disturbed by installation of these pipelines would be a trench width of 30" and approximately 3 feet deep. The surface would be disturbed to a width of approximately 10 feet to allow for a trencher or backhoe to work. These disturbed areas would be backfilled, restored to natural grade and re-seeded. Upon completion, there would be no evidence that the pipelines were existing except for the energy dissipator at the end of the pipe.

Environmental Review Inital Study
ATACHMENT 14a
APPLICATION 96-0148

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Water Street ■ Santa Cruz, CA 95062 ■ Tel (831)426-5313 ■ Fax (831)426-7763

3. The location of the 'Stormceptors" would be directly behind the sidewalks adjacent **to** the catchbasin in the street. This location is within an easement and is easily accessible for maintenance crews with suction equipped trucks.

4. **All** storm drainage facilities not maintained by County Public **Works** Department crews (County to maintain **all** facilities within public dedicated streets), would be maintained by the **Homeowner's** Association or Maintenance Agreement Association. The Association should have **a** contract **with a** company that would **be** responsible to thoroughly clean the system prior to **October 15** of each **year** and then **be** responsible to check the system during and after each major storm until April **15,** to assure that the system is working properly. **A** written report should **be** sent to the appropriate County agency annually as to what was done during the preceding year.

Maintenance of the storm drainage facilities within the riparian corridor needs no vehicular equipment **so** no disturbance *of* the area **is** anticipated. **If,** however, replacement or repairs were needed, some vegetation would be disturbed,

5. The relocated catchbasin on Atherton Drive is due to reconstruction of the curb and gutter. There **will** be no increase in runoff and no impact on the existing storm drain system on Atherton **Drive.**

6. The existing pond on the north section of the project is proposed to be used for storm drainage detention. The pond is ***5,200*** square feet in area and if the outlet control is set at an elevation of **2** feet above the bottom, the holding capacity would **be 10,400** cubic feet. The County Public **Works** design criteria **calls** for **a** detention volume of **400** cubic feet per acre or **a** total of **7,152** cubic feet for this site. The existing pond **is** more than adequate. (This information has already been shown on Sheet **2** *of* the Tentative Map.)

We trust this additional information is helpful to you in completing your environmental review.

S ncerely,

IFLAND ENGINEERS, INC.

Glen **H.** Ifland

GHI/jh

c: Rich Beale

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Environmental Review Inital *study*
ATTACHMENT 14a
APPLICATION 96-0140

APPL.NO: 98-0148 REVIEW AGENCY: DPW DRIVEWAY/ENCROACHMENT
ENT TO PLNR: 3/27/1998 REVIEWER: RMA
ROUTING NO: 1 VERSION NO: 1

ITS:

COMPLETENESS COMMENT:

comment, project involves a subdivision or MLD.

MISCELLANEOUS COMMENT:

ient.

F7/8=PREV/NXT AGCY 10/11=PAGE COMM THIS RTNG 12/13=OTHER RTNGS-THIS AGCY
PF19-PREVIOUS SCREEN PA2-EXIT

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Environmental Review Initial Study
ATTACHMENT 15
APPLICATION 98-0148

COUNTY OF SANTA CRUZ

INTEROFFICE CORRESPONDENCE

7/22/98
JOHN,
PLEASE
COMMENT.
thx

DATE: **April** 10, **1998**

TO: Jackie Young, Planning Department

FROM: John Presleigh, Department of Public Works JSP

SUBJECT: CABRILLO GARDENS DEVELOPMENT PROJECT, APN **037-251-21** AND **22**, PROJECT NUMBER **98-0148**

The Department of Public **Works** Traffic and Road Planning Section has reviewed the application for the proposed Cabrillo Gardens Development Project and has the foliowing comments:'

1. A traffic study has been recommended **for** the proposed project by this department. The applicant's engineer has contacted **us** and has received approval on the proposed scope **of** work for the traffic study.

2. It is recommended that roadside improvements be constructed along the project's frontage on **Soquel** Drive, Atherton Drive, and within the internal roadways *of* the development project. The roadside improvements must include **a** landscaping strip within the project site and along Atherton Drive where new curb, gutter and sidewalk are proposed. The applicant must also repair any damaged curb, gutter and sidewalk that exists along the project frontage. The roadway widths must be designed to a minimum **36 foot** curb to curb width.

3. The intersection **of** Baseline Drive **and** Atherton Drive must be aligned to create an acceptable "T" intersection. It is likely that one or all legs of this intersection will be controlled by stop signs.

4. The Transit District should be contacted to determine if there are any improvements that may be needed to provide service to the proposed development.

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5. Secondary access must be provided at the end of the proposed extension on Atherton' Drive.

6. The intersection sight distance must be improved on Soquel Drive for vehicles turning right from Atherton Drive to Soquel Drive.

7. Please submit verification for the pavement section as proposed on the plans.

8. Transportation Improvement Area (TIA) fees are required for the project. The current TIA fees for each new residential lot is $2,000 for Roadside Improvement fees and $2,000 for Transportation Improvement fees.

If you have any questions, please contact me at extension 2391.

JJP:rw

CGDR

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From: DPW140 --SCRUZA Date and time 11/05/98 14:04:43
To: PLN940 --SCRUZA

FROM: JACK SOHRIAKOFF
SUBJECT: Cabrillo Gardens, #98-0148

The Transportation Planning and Traffic Section has reviewed the June 12, 1998, traffic study *by* Higgins Associates for the above referenced project proposal.

We are awaiting clarification *of* some issues regarding left turn lane on Cabrillo College Drive at Willowbrook, and signalization of the Soquel Drive/Willowbrook intersection. The traffic study gave contradictory infomation regarding the need for these *two* improvements. The overall levels of service for the study intersections and roadways were all acceptable assuming signalization of the above mentioned intersection. The traffic study indicated that the proposed roadways are adequate to serve the propsed use. This statement, however, does not imply that County design criteria standards are being met. Additional comments will be sent via inter-office mail when we have concluded our evaluation.

E N D O F N O T E

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COUNTY OF SANTA CRUZ

INTER-OFFICE CORRESPONDENCE

DATE: **September 15,** 1999

TO: Jackie Young, Planning Department

FROM: John Presleigh, Department of Public Works

SUBJECT: ATHERTON PLACE, **58** TOWNHOME UNITS, APPLICATION NO. **98-0148**
APN: **037-251-21**

The Transportation and Road Planning Engineering section has reviewed the above project site plan and traffic study and makes the following comnents:

1. The proposed internal roadways do not meet current design criteria standards. The applicant is proposing twenty-four foot access driveways with curb returns onto county roads. It is recomnended that the access roads **be** improved to a fifty-six foot right-of-way with a thirty-six foot paved road and separated sidewalks. If driveways are approved, they must be improved to County design criteria standards, and curb returns are not allowed.

   The traffic study indicates that the internal roads are **36** feet wide and are adequate for serving the project. The traffic study ***is*** not consistent with the project plans and must be revised.

2. The traffic study has indicated that all study intersections and roadway segments' wi11 operate at acceptable levels of service except for the northbound left-turn movement from Wil lowbrook Lane to Soquel Drive. The overall intersection level **of** service **is** acceptable. It is expected, however, that a future traffic signal will be required under cumulative conditions. The department is recomnending that a fair share portion of the TIA fees be set aside for the future traffic signal.

3. The traffic study has indicated **some** mitigation measures are necessary for existing, existing plus project, and cumulative traffic scenarios. The intersection of Cabri1lo College Drive at W1lowbrook Lane currently requires sight distance improvements due to shrubs, etc. This issue is being addressed separately **by** the Department of Public Works.

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Project traffic mitigations include Transportation Improvement Area (TIA) fees and a fair-share cost of constructing a left-turn lane on Cabrillo College Drive at Willowbrook Road for cumulative conditions. Cumulative traffic conditions will require a separate northbound right turn lane on Willowbrook Lane at Soquel Drive, construction of the left turn lane on Cabrillo College Drive at Willowbrook Lane, and monitoring of Soquel Drive at Willowbrook Lane for a possible traffic signal.

4. TIA fees are required for all new lots created. The current Aptos TIA fee is $4,000 per new lot. The estimated Aptos TIA fee is $232,000 to be split evenly between Transportation Improvement fees and Roadside Improvement fees.

5. It is recomnended that the project construct standard roadside improvements along the project frontages of Atherton Drive and Soquel Drive. It is also recommended that standard four-foot separated sidewalk with four-foot landscaping strip be constructed on both sides for all new streets and on Atherton Drive. A six-foot separated sidewalk and four-foot landscaping strip is recommended to be constructed along the Soquel Drive frontage. See attached design criteria standards Figure ST-la. Additional preliminary plans must be submitted in order to determine if any exceptions are warranted for these frontage improvements. It is recommended that the applicant work with the County and Cabrillo College in designing the future improvements on Soquel Drive.

6. The traffic study assumed an all-way stop intersection at Atherton Drive and Baseline Drive. It is recommended that the intersection be evaluated as part of the traffic study for a multi-way stop sign warrants analysis if the new access (Bowers Court) is a standard local street. If the access is to become a driveway, then it is recommended that the existing intersection operating conditions remain and no additional control is warranted.

Please contact me or Jack Sohriakoff at extension 2160 if you have any questions.

JRS:mg
Attachment

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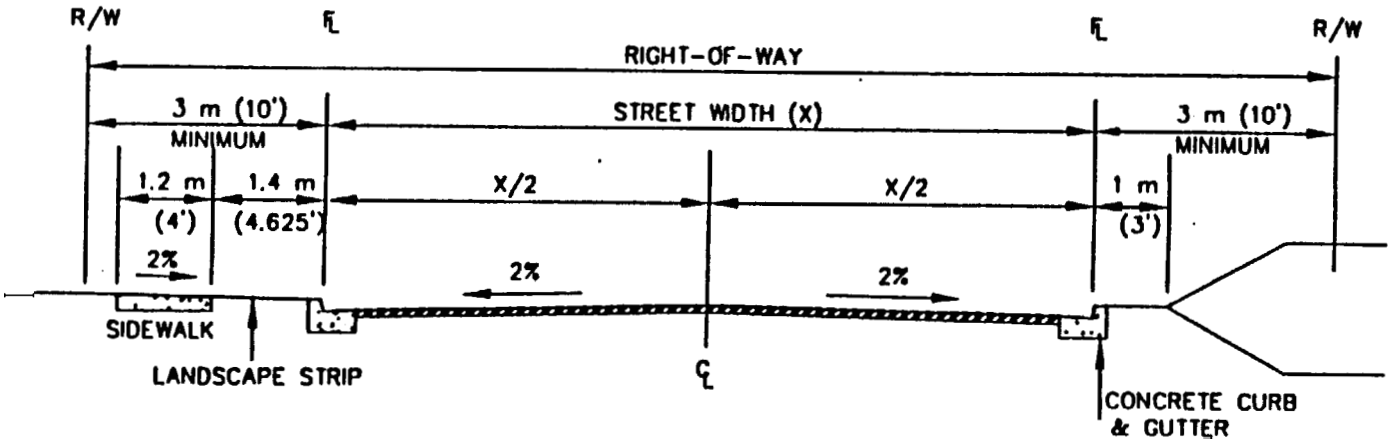
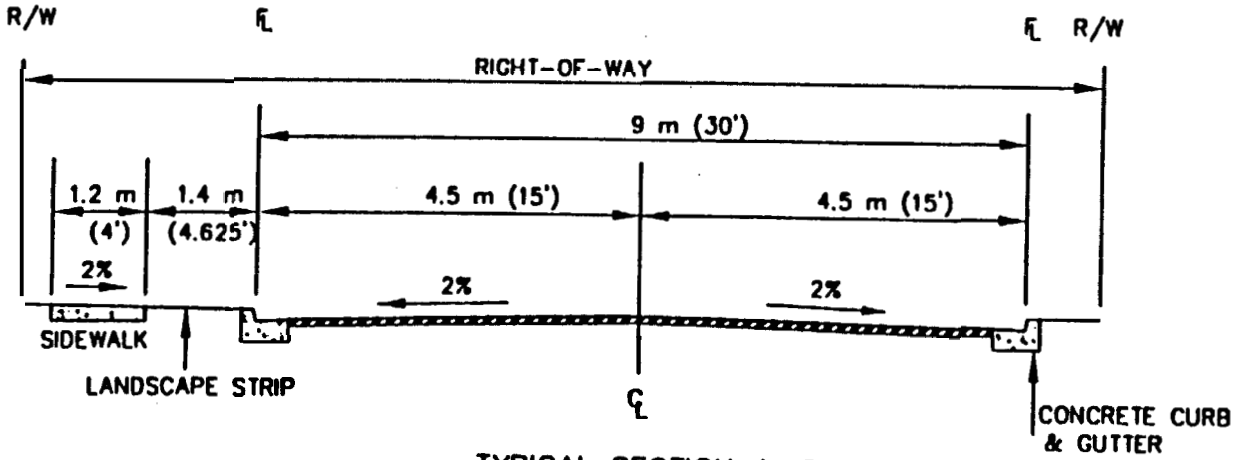


TYPICAL SECTION A-1



TYPICAL SECTION A-2

MINIMUM URBAN LOCAL STREET

GEOMETRIC CROSS SECTIONS

REV. 4/99

FIG. ST-1a

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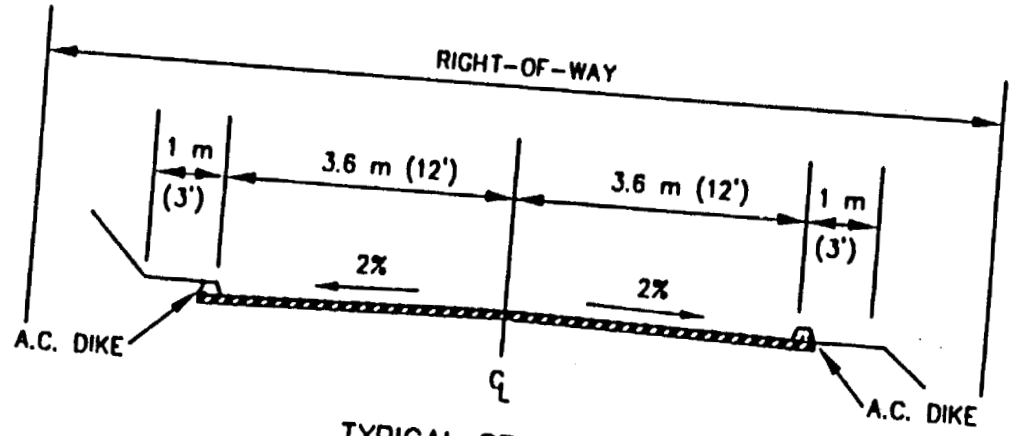
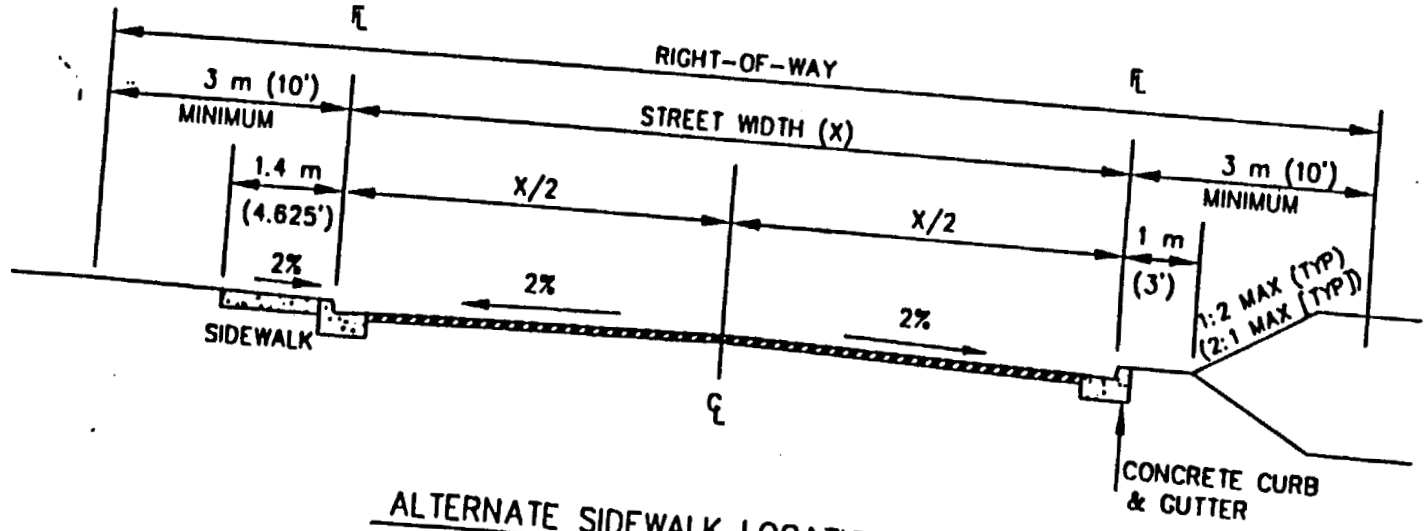
REV. 4/99



TYPICAL SECTION A-3

MINIMUM RURAL LOCAL STREET



ALTERNATE SIDEWALK LOCATION

NOTE: ALTERNATE SIDEWALK LOCATION ADJACENT TO CURB MUST BE APPROVED BY THE PUBLIC WORKS DIRECTOR.

GEOMETRIC CROSS SECTIONS

FIG. ST-
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#1 2/2

APPL.NO: 98-0148 REVIEW AGENCY: DPW ROAD ENGINEERING
SENT TO PLNR: 11/10/99 REVIEWER: JRS
ROUTING NO: 1 VERSION NO: 1

COMMENTS:

COMPLETENESS COMMENT:

NO COMMENT

MISCELLANEOUS COMMENT:

These comments are to clarify previous comments. 1) Transportation Improvement Area (TIA) fees will be required for the project based upon 58 dwelling units at a rate of 64000 per unit to be split evenly between the transportation improvement fee and the roadside improvement fee. The estimated TIA fee is 6232,000 (58 units x $4000 per unit= 6232.000). A portion of the TIA fee is to be set aside for a future signal at Soquel Drive/Willowbrook. The amount of this portion is estimated at 15% of a new traffic signal (approx. $150,000), or 622.500. In addition, a portion of the TIA fee is to be set aside for a future left turn lane on Cabrillo College Drive at Willowbrook. The portion is estimated at 15% of the project (approx. 6200,000), or 630,000. 2) The applicant will be required to improve the sight distance at the intersection of Cabrillo College Drive at Willowbrook per the traffic study recommendations. The cost of this improvement will be borne by the applicant. 3) The Department of Public Works will monitor the need for a separate right-turn lane on northbound Willowbrook at Soquel Drive and will initiate the striping with County forces. 4) The applicant is required to improve the sight distance at the intersection of Atherton at Soquel Dr

Vehicles exiting Atherton must turn right onto Soquel Drive due to a raised median in Soquel Drive. Soquel Drive curves slightly south when looking west from Atherton. In addition, Atherton was constructed through a cut embankment which restricts sight distance to the west. An appropriate improvement must be constructed at this location in order to insure proper sight distance is maintained. This may require the removal of brush, or perhaps a retaining wall. 5) The access roads are recommended to meet County design criteria standards. If an exception is granted to build the roads as proposed. the County policy is to require a driveway approach to a County maintained roadway. The proposed roads will not be County maintained, and will not have curb

returns. 6) The intersection of Atherton and Baseline do not currently have multi-way stops. The proposed access road at this intersection does not meet County design criteria standards, and must be designed as a driveway approach which will not require a multi-way stop at this location. If the roadway is to be built as a street with curb returns, the intersection needs to be analyzed to verify if multi-way stops are warranted. Please contact me if you have any additional questions or comments regarding the above issues.

HIGGINS ASSOCIATES
CIVIL & TRAFFIC ENGINEERS

1315 First Street, Suite A, Gilroy, CA 95020 • 408 848-3122 • fax 408 848-2202 • e-mail info@kbhiggins.com

ATHERTON PLACE SUBDIVISION
TRAFFIC *STUDY*
SANTA CRUZ COUNTY, CALIFORNIA

Prepared For:
First Federal Development
San Jose, California

Prepared By:
Keith Higgins, CE, TE

Revised
June 17,1999

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LIST OF APPENDICES

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I. INTRODUCTION

A. Project Description

The proposed project includes the development of 58 single-family dwelling units and is "Atherton Place". A report for the project was previously submitted to the County Santa Cruz for a development entitled "Cabrillo Gardens," which also included 58 units. This report incorporates several minor revisions to the "Cabrillo Gardens Subdivision Traffic Analysis Report," Higgins Associates, June 12,1998. The changes include the latest project site plan dated June 3, 1999 as Exhibit 2. Signal warrants are also clarified for the Soquel Drive/Willowbrook h e intersection and channelization warrants are clarified fur the Carbillo College Drive/Willowbrook Lane intersection. These are provided m response to verbal comments on the previous report fiom the Santa Cruz County Public Works Department The project will be located on a vacant site approximately 17.8 acres m size. The project site is located along the east side of Atherton Drive m Santa Cruz County, California The project is expected to be built and occupied by 2001. A project location map is attached as Exhibit 1. A project site plan is attached as Exhibit 2.

B. Scope of Work

The scope of work focuses on identifying the potential traffic impacts attributed to the proposed project. The three scenarios analyzed in this study include existing, existing plus project, and cumulative conditions. A total of three roadway segments and eight intersections were analyzed. This includes three future intersections on Atherton Drive. These study intersections and roadway segments were analyzed for weekday AM and PM peak hours. Project access and internal circulation were also evaluated. Where deficiencies were identified, mitigation measures were developed. The study roadway segments and intersections are listed below.

Roadway segments:

1. Soquel Drive, west of Cabrillo College Drive
2. Soquel Drive, east of Park Avenue
3. Park Avmue, south of Soquel Drive

Study Intersections:

1. Soquel Drive/Park Avenue
2. Soquel Drive/Willowbrook Lane
3. Soquel Drive/Cabrillo College Drive
4. Soquel Drive/Atherton Drive
5. Cabrillo College Drive/Willowbrook Lane
6. Atherton Drive/Baseline Drive
7. Atherton Drive/Driveway # 1
8. Atherton Drive/Driveway # 2

II. EXISTING CONDITIONS

A. Street Network

Roadways serving the study area includes Park Avenue, Soquel Drive, Cabrillo College Drive, Willowbrook Lane, and Atherton Drive.

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Soquel Drive is a four-he arterial extending between the *City* of Santa Cruz and the Aptos area. East of Park Avenue, Soquel Drive has a posted *speed* limit of 35 miles per hour (mph). A bike lane is provided on both sides of Soqwl Drive. East of Atherton Drive, wide shoulders am provided on both sides of Soquel Drive *to* accommodate on-street parking. Left turn channelization is provided *at* all major intersections. The Soquel Drive/Cabrillo College Drive intersection is controlled by a fully actuated traffic signal.

Park Avenue is a two-he arterial providing north-south circulation through the *City* of Capitola and Aptos *area*. South of Soquel Drive, a bike lane is provided *on* both sides of the road. On-*street* parking is unrestricted on the west side of Park Avenue. The Park Avenue/Soquel Drive intersection is controlled by a fully actuated traffic signal.

Cabrillo College Drive is a two-he collector street which primarily serves the residential neighborhood and Cabrillo College. The posted speed limit *on* Cabrillo College Drive varies from 20 to 40 mph. No shoulder marking is provided *on* Cabrillo College Drive. Cabrillo College Drive provides access to a Cabrillo College parking lot.

Willowbrook Lane is a two-lane local *street* which serves the residential neighborhood On-street parking is allowed on both sides of Willowbrook Lane. The Willowbrook Lane approaches *to* Soquel Drive and Cabrillo College Drive are controlled by a STOP *sign*

Atherton Drive is a local *street* which serves the residential neighborhood. Parking is allowed on both sides of Atherton Drive. A sidewalk is provided on the *east* side of Atherton Drive. The Atherton Drive approach to Soquel Drive is restricted to right *turns* m and out

Baseline Drive is a local *street* which serves the residential neighborhood Parkmg is allowed on both sides of Baseline Drive. The eastern terminus of Baseline Drive is connected with the southern terminus of Atherton Drive..

B. Data Collection

Peak period turning movement counts at the *study* intersections were performed on Wednesday, *May 6* and Thursday, May 7,1998. Traffic counts were then compiled to establish peak hour volumes on roadways and intersections.

C. Level of Service Methodology and County Standards

Roadway and intersection are evaluated *using* Levels of Service (LOS). LOS are rated from LOS A to F, with LOS A representing free-flow conditions and LOS F representing forced flow conditions. Level of service threshold volumes for various roadway types are attached as ***Appendix A***.

For signalized intersections, average vehicle stop delay is used *to* establish LOS rating. Delay is a function of *many* factors, including the cycle length, roadway capacity, traffic volumes, and arrival pattern. Descriptions of LOS is provided as ***Appendix B***. The Traffix software program was utilized *to* calculate intersection LOS using the Operations Method described m the 1994 Highway Capacity Manual.

At stop sign controlled intersections, vehicle delays are determined for vehicles on all approaches. The weighted average vehicle delay is used to establish the overall LOS for an intersection. The relationship between vehicle delays and LOS for two-way stop sign controlled intersections are attached as *Appendix C*.

The County threshold for acceptable level of service is LOS D. *Any* roadway or intersection which currently operates at LOS E or F is considered deficient. In addition, any roadway or intersection which is *caused* to deteriorate to LOS E or F under project conditions will require mitigation to improve to acceptable level of service.

D. Existing Roadway Operating Conditions

To establish roadway levels of service based on daily traffic volumes, it was assumed that peak hour volume represent 10% of the average daily traffic volume (ADT). All *study* roadways currently operate within acceptable levels of service of LOS D or better. Roadway segment LOS are summarized on *Table 1*.

Tabk 1
Existing Roadway LOS Summary

Roadway Segment	No. of Lanes	Capacity (veh)	Volume (veh)	V/C -LOS
Soquel Dr., west of Cabrillo College Dr.	4	27,000	14,580	0.54-A
Soquel Dr., east of Park Avenue	4	36,000	18,000	0.50-A
Park Avenue, south of Soquel Drive	2	18,000	12,100	0.67-B

E. Existing Intersection Operating Conditions

All *study* intersections currently operate within acceptable overall level of service D or better. Intersection LOS are *summarized on Table 2*. Existing traffic volumes are illustrated on *Exhibit 3*. LOS calculation worksheets are attached as *Appendices D to H*.

Soquel Drive/Willowbrook Lane

The Willowbrook Lane northbound approach to Soquel Drive *currently* operates at LOS E in the AM peak hour and LOS F in the PM peak hour. A traffic signal is not warranted at the Soquel Drive/Willowbrook Lane intersection A signal warrant worksheet is attached in *Appendix E*.

Cabrillo College Drive/Willowbrook Lane

The Willowbrook Lane southbound approach to Cabdlo College Drive has restricted sight distance due to local topography, a retaining structure, dirt, and shrubs. Cabrillo College Drive has a vertical curve alignment and a *crest at* Willowbrook Lane. A retaining wall *structure* is located on the northwest corner of this intersection Dirt and shrubs are located *along* the north side of Cabrillo College Drive. The *existing* stopping sight distance on Cabrillo College Drive is about 300 feet, or 130 feet less than the required 430 feet for an observed vehicle speed of *50* mph per Caltrans Highway Design Manual. *(On* Cabrillo College Drive, the posted *speed* limit is 40 mph near Willowbrook Lane.) Hence, the existing stopping sight distance is deficient on Cabrillo

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College Drive at the Willowbrook Lane intersection. To improve stopping sight distance, it is recommended that the existing slope on the north side of Cabrillo College Drive be regraded and shrubs be removed

Left turn channelization is not warranted on Cabrillo College Drive. The left turn Lane warrant worksheet is attached in *Appendix G.*

Table 2
Existing Intersection LOS *Summary*

Study Intersection	Traffic Control Device	AM Peak Hr Delay-LOS	PM Peak Hour Delay-LOS
Park Ave./Soquel Dr.	Signal	10 sec - B	10 sec - B
Soquel Dr./Atherton Dr.	2-way stop	0 sec - A	0 sec - A
Soquel Dr./Cabrillo College Dr.	Signal	7 sec - B	7 sec - B
Willowbrook Ln./Cabrillo College Dr.	2-way Stop	1 sec - A	1sec - A
Willowbrook Ln./Soquel Dr.	2-way stop		
	overall	2 sec - A	4 sec - A
	Northbound	40 sec - E	77 sec - F

III. EXISTING PLUS PROJECT CONDITIONS

. AProject Trip Generation

The proposed project includes the development of 58 single family homes. Trip generation rates were obtained from *Trip Generation*, ITE. 6th Edition The project will generate a total of 555 daily trips with 44 trips (11 in, 33 out) in the AM peak hour and 59 trips (38 in, 21 out) in the PM peak hour. Project trip generation is summarized on ***Exhibits 4A and 4B.***

B. Project Trip Distribution and Assignment

Trip distribution defines the origins and destinations of all trips *to* and from a project *site.* Trip assignment defines the actual travel paths that motorists would choose between the project *site,* and their origins or destinations. Project distribution was established based on *existing* circulation patterns. Project trips were distributed onto the *street* network as follows: 40% on Park Avenue (south), 30% on Soquel Drive (west), and 30% on Soquel Drive *(cast).* Project trip distribution and assignment are illustrated on ***Exhibit*** 5.

Traffix software was used to assign project trips by using zones and *gates.* For a worst case analysis, three zones were *created to* assign project trips to the three future intersections *on* Atherton Drive. The number of dwelling units m *each* zone differ based on the access conditions on Atherton Drive. In some cases, the inbound and outbound travel paths differ because of the access turning restrictions at the Soquel Drive/Cabrillo College Drive intersection.

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C. Existing Plus Project Roadway Operating Conditions

Project trips were added to the existing volumes to establish existing plus project volumes. All roadway segments will continue to operate within overall acceptable level of service D or better. Hence, the project has a less-than-significant impact on the roadway segments. Roadway segment LOS are summarized in *Table* 3.

Table 3
Existing Plus Project Roadway LOS Summary

Roadway Segment	No. of Lanes	Capacity (veh)	Volume (veh)	V/C -LOS
Soquel Dr., west of Cabrillo College Dr..	4	27,000	14,660	0.54-A
Soquel Dr., east of Park Avenue	4	36,000	18,190	0.51-A
Park Avenue, south of Soquel Drive	2	18,000	12,130	0.67-B

D. Existing Plus Project Intersection Operating Conditions

All intersections will continue to operate within overall acceptable level of service D or better. Therefore, the project has a less-than-significant impact at the study intersections. Intersection LOS are summarized in *Table 4.* Existing plus project volumes are illustrated on *Exhibit 6.*

Soquel Drive/Willowbrook Lane
The Willowbrook Lane northbound approach will operate at LOS F in both peak hours. The level of service calculation is conservative in that it does not give credit for gaps in Soquel Drive traffic created primarily by the traffic signal immediately to the west at Park Avenue. Gaps are also created to some extent by the existing signal at the Soquel Drive/Cabrillo College Drive intersection. A traffic signal will not be warranted based on the signal warrant worksheet in *Appendix H.*

Cabrillo College Drive/Willowbrook Lane
The stopping sight distance on Cabrillo College Drive will continue to be deficient as under existing conditions. Left turn channelization will not be warranted on Cabrillo College Drive. A left turn lane warrant worksheet is attached in *Appendix G.*

Table 4
Existing Plus Project Intersection LOS Summary

Study Intersection	Traffic Control Device	AM Peak Hour Delay LOS	PM Peak Hour Delay LOS
Park Avenue/Soquel Drive	Signalized	10 sec - B	10 sec - B
Soquel Drive/Atherton Dr.	2-way Stop	0 sec - A	0 sec - A
Soquel Drive/Cabrillo College Dr.	Signalized	7 sec - B	7 sec - B
Willowbrook Ln./Cabrillo College Dr.	2-way Stop	1 sec - A	1 sec - A
Willowbrook Ln./Soquel Drive	2-way Stop		
	Overall	3 sec - A	5 sec - B
	Northbound	54 sec - F	112 sec - F
Atherton Drive/Sesnon Circle (north)	2-way Stop	1 sec - A	0 sec - A
Atherton Drive/Sesnon Circle (south)	2-way Stop	1 sec - A	0 sec - A
Atherton Drive/Baseline Drive	2-way Stop	2 sec - A	2 sec - A

E. Project Access and Internal Circulation

The project site is located on the east side of Atherton Drive. Vehicle access to the site will be provided by a 36-foot wide (curb-to-curb) internal loop street named Sesnon Circle and an extension of Atherton Drive south of its existing southern terminus. As depicted on the site plan, Sesnon Circle (north) and Sesnon Circle (south) intersect with Atherton Drive to form two "T" intersections. It is assumed that the two Sesnon Circle approaches to Atherton Drive are controlled by a stop sign. It is also assumed that the Atherton Drive Extension approach to Atherton Drive-Baseline Drive is controlled by a stop sign. Atherton Drive and Sesnon Circle provide access for 37 homes. This already includes those homes which access directly on Atherton Drive. The Atherton Drive Extension provides access for the remaining 21 homes. The proposed internal streets are adequate in providing access and internal circulation for all 58 homes.

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IV. CUMULATIVE CONDITIONS

A. Cumulative Traffic Demand

Traffic demand on the study road network is expected to increase over time as new developments occur in Santa Cruz County and its adjoining areas. Similarly, traffic demand will also increase with growth in student enrollment at Cabrillo College. Based on consultation with County Public Works staff, traffic growth is estimated to be 3% per year. Based on information provided by Ms. Gloria Garing, Director of Admissions and Records at Cabrillo College, student enrollment at the college will increase from 11,980 students in Spring 1998 to 14,644 students in Fall 2005. This represents an increase in enrollment of 22.2% in seven years, or 3.2% per year.

The cumulative year is 2005, or a seven-year horizon from 1998. To determine cumulative traffic growth, a growth factor of 21% (3% for seven years) was applied to the existing through traffic on Soquel Drive. In addition, a growth factor of 7% (1% for seven years) was applied to the existing turning volumes south of the Soquel Drive corridor to account for parking activities and cut-through traffic related to the Cabrillo College. The existing plus project volumes were then added to the cumulative traffic growth to establish the cumulative volumes. Cumulative volumes are illustrated on *Exhibit 7*.

B. Cumulative Roadway Segment Operating Conditions

All roadway segments will continue to operate within acceptable level of service of LOS D or better. Cumulative roadway segment LOS are summarized in *Table 5*.

Table 5
Cumulative Roadway Segment LOS Summary

Roadway Segment	No. of Lanes	Capacity (veh)	Volume (veh)	V/C -LOS
Soquel Dr, west of Cabrillo College Dr	4	27,000	17,500	0.65-B
Soquel Dr, east of Park Avenue	4	36,000	22,000	0.61-B
Park Avenue, south of Soquel Drive	2	18,000	14,560	0.81-D

C. Cumulative Intersection Operating Conditions

Analysis results indicate that seven out of eight intersections will continue to operate within overall acceptable level of service D or better. Intersection LOS are summarized in *Table 6*. Existing plus project volumes are illustrated on *Exhibit 7*.

Soquel Drive/Willowbrook Lane

The Willowbrook Lane northbound approach to Soquel Drive will continue to operate at LOS F. As discussed under existing plus project conditions, a traffic signal will not be warranted. A signal warrant worksheet is attached in *Appendix H*. Operations can be improved by striping a separate right turn lane on the northbound approach. This will require the elimination of two parkmg spaces on the east side of the south leg of Willowbrook Lane.

If traffic volumes continue to increase, *especially on* Willowbrook Lane, a traffic signal may be warranted at this intersection. The County of Santa Cruz should monitor this location in the future, especially with respect to side street delay to determine if signals are appropriate. Based on historic growth trends, this will be beyond the next 10 years.

Cabrillo College Drive/Willowbrook Lane

This intersection will continue to operate at LOS A. However, an eastbound left turn will be warranted on Cabrillo College Drive. It is recommended that the left turn lane provide a minimum of 50 feet of storage plus 90 feet of bay taper. If feasible, the storage lane should preferably be as close to 150 feet as possible. This improvement will require the widening and realignment of Cabrillo College Drive near Willowbrook Lane, and the removal of some of the *dirt* and shrubs on the north side of Cabrillo College Drive. A left turn lane warrant worksheet is attached in *Appendix G.*

Table 6
Cumulative Intersection LOS Analysis

Intersection	Traffic Control Device	AM Peak Hour Delay LOS	PM Peak Hour Delay LOS
Park Avenue/Soquel Drive	Signal	11 sec - B	11 sec - B
Soquel Drive/Atherton Dr.	2-way Stop	0 sec - A	0 sec - A
Soquel Drive/Cabrillo College Dr.	Signal	7 sec - B	8 sec - B
Willowbrook Ln./Cabrillo College Dr.	2-way Stop	1 sec - A	1 sec - A
Willowbrook Ln./Soquel Drive	2-way Stop		
	Overall	12 sec - B	25 sec - D
	Northbound	>120 sec - F	>120 sec - F
Atherton Drive/Sesnon Circle (north)	2-way Stop	1 sec - A	0 sec - A
Atherton Drive/Sesnon Circle (south)	2-way Stop	1 sec - A	0 sec - A
Atherton Drive/Baseline Drive	2-way Stop	2 sec - A	2 sec - A

V. RECOMMENDATIONS

A. Improvements Warranted for Existing Conditions

1. Regrade the existing slope and remove shrubs on the north side of Cabrillo College Drive at Willowbrook Lane to improve existing stopping sight distance to 430 feet for a design speed of 50 mph.

B. Project Mitigation

1. The project will be responsible for paying a Transportation Improvement Area (TIA) Fee of $232,000 based on $4,000 per single family dwelling unit. The TIA Fee will be used to fund the signal improvement described under cumulative mitigation item #1. The TIF fee will also be used to assist in the funding of the improvements described in Appendix L. These locations will be indirectly and incrementally impacted by the project. Therefore, the project will not be required to contribute to the cost of signal improvements at Soquel Drive/ Willowbrook Lane (cumulative mitigation item #1) in addition to the required TIA Fee.

2. The project will be required to pay a prorata share of the cost described under cumulative mitigation item #2.

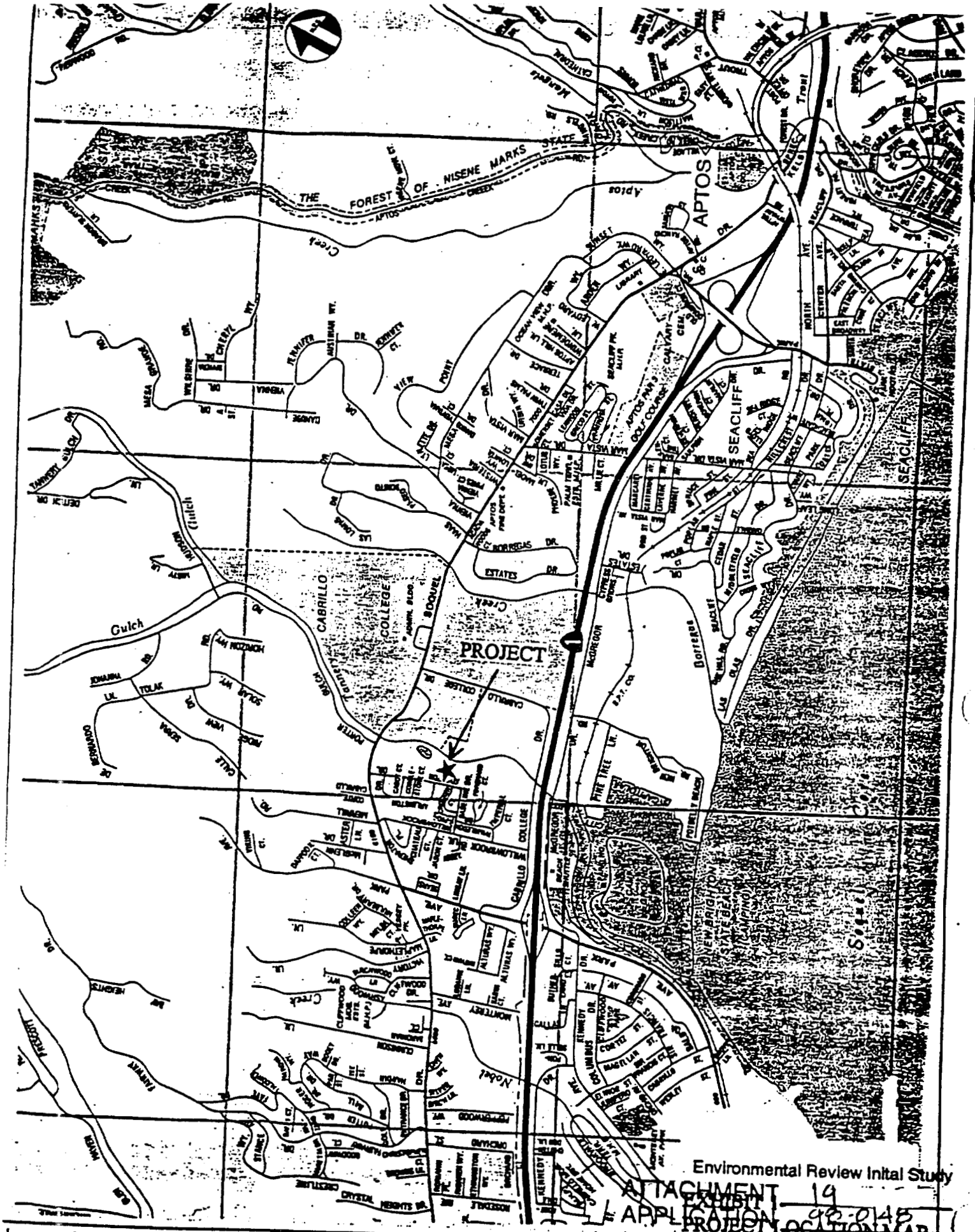
C. Cumulative Mitigation

1. Install a separate northbound Willowbrook Lane right turn lane at Soquel Drive.

2. At the Cabrillo College Drive/Willowbrook Lane intersection install an eastbound left turn lane to provide 50 feet of storage plus 90 feet of bay taper. If feasible, this storage lane should preferably be as close to 150 feet as possible. Funding for this improvement is the responsibility of all cumulative developments including traffic growth resulting fiom future growth in student enrollment at the Cabrillo College.

3. Monitor for possible signalization of the Soquel Drive/Willowbrook Lane intersection. A signal *may* be warranted beyond the year 2010.

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 98-0148



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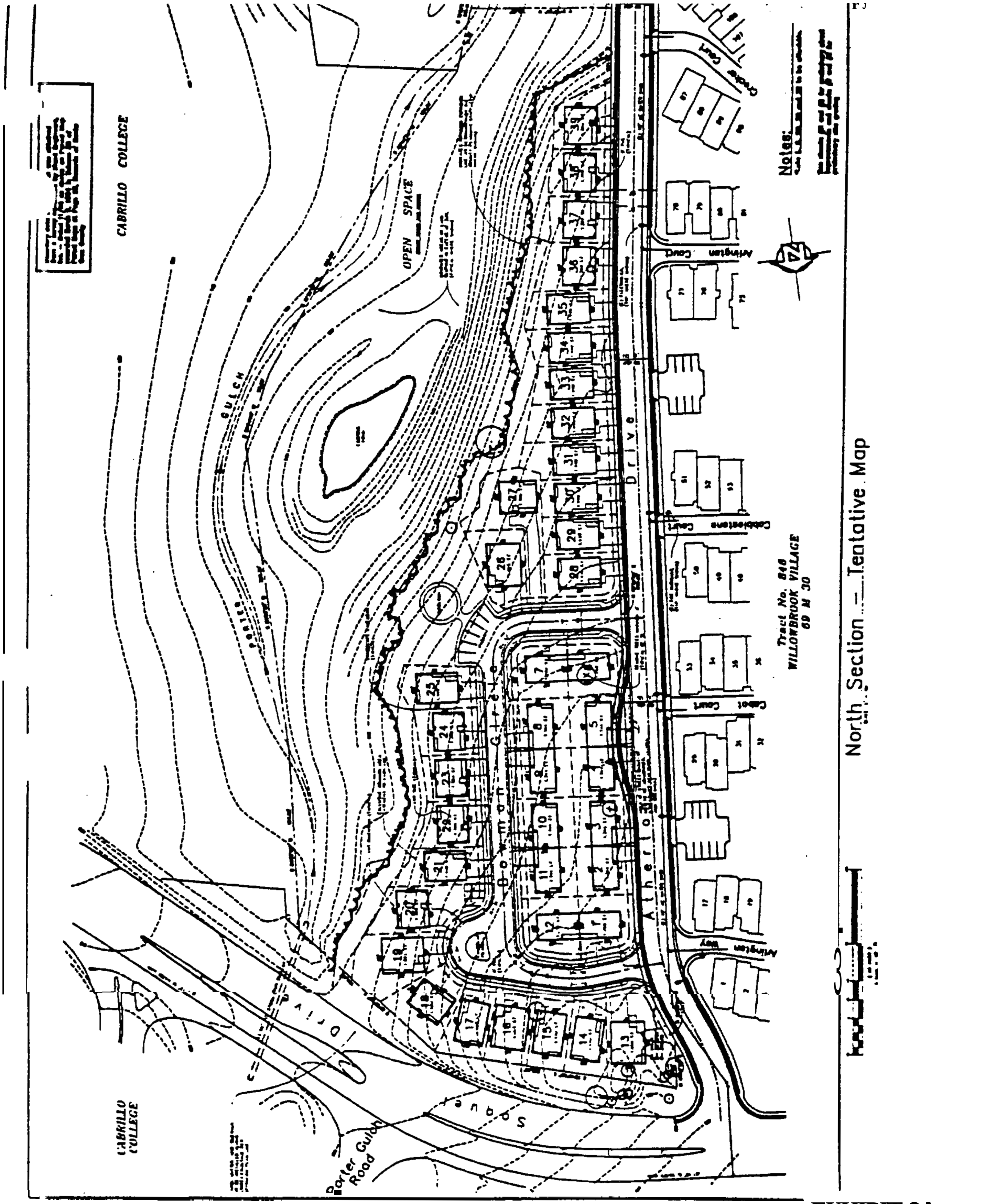

EXHIBIT 2A

NORTH SECTION SITE PLAN

Environmental Review lnital Stud

ATTACHMENT 19

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EXHIBIT 2B
SOUTH SECTION
SITE PLAN

Environmental Review Inital Stud

ATTACHMENT 19
APPLICATION 90-0148

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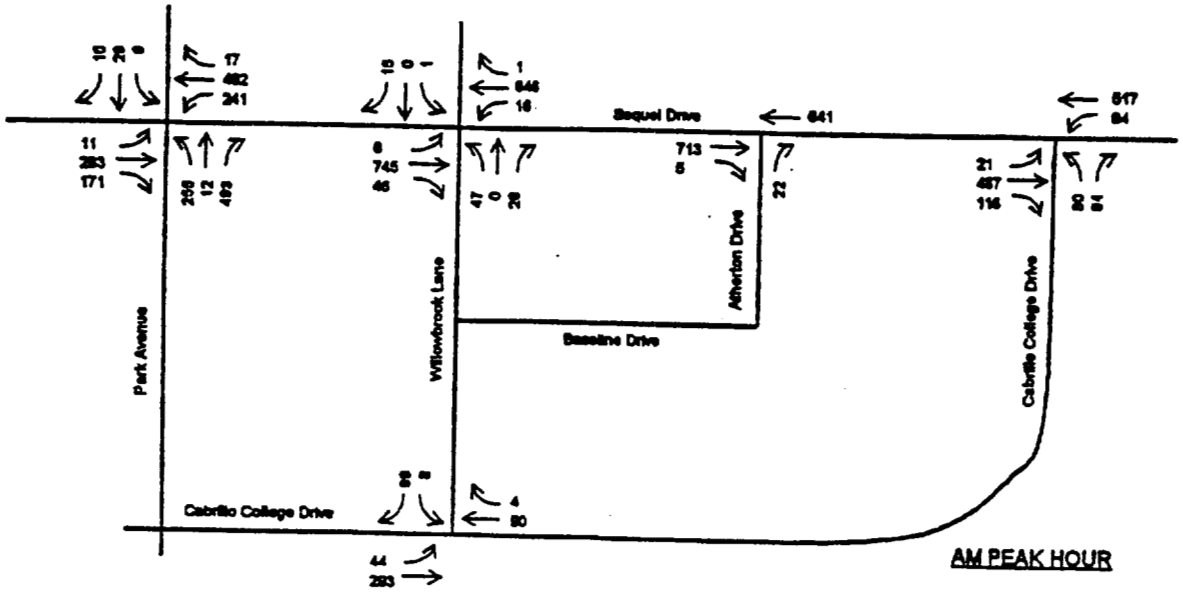

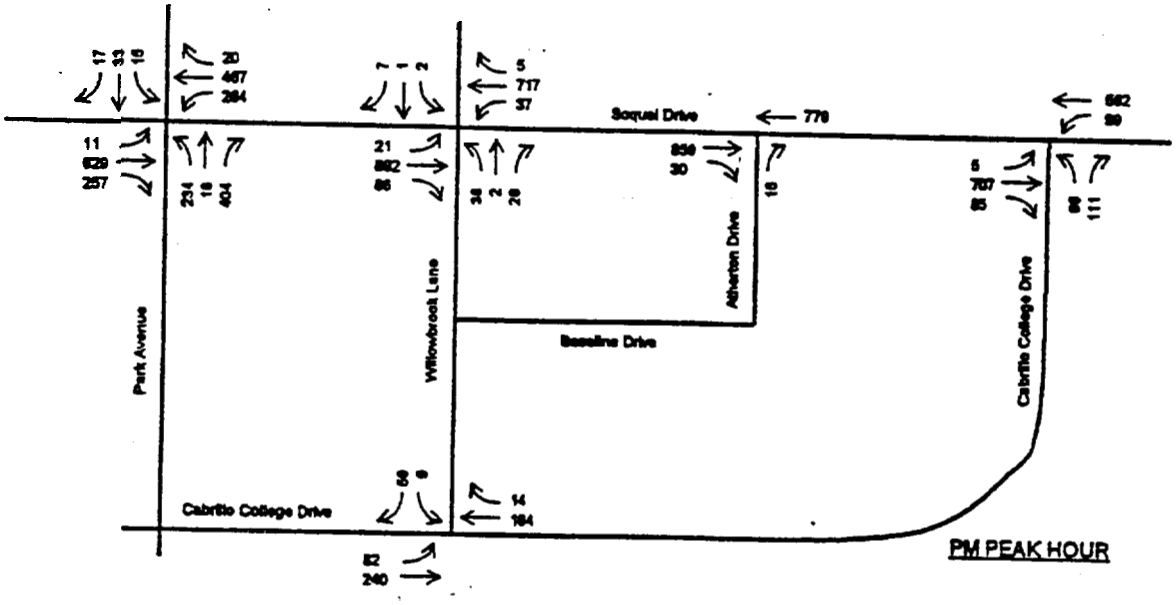

Note: Based on traffic counts performed on May 6 and 7, 1998.

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AITACHMENT 19

APPLICATION 98-0148

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EXHIBIT 3-
EXISTING PEAK
HOUR VOLUMES

IGGI . ASSOCIATES

EXHIBIT 4A
PROJECT TRIP GENERATION RATES

Land Use	Unit	Daily Total Trips/Unit	AM Peak Hour Trips				PM Peak Hour Trips			
			Total	% of ADT	In %	Out %	Total	% of ADT	In %	Out %
1. Single family homes	d.u.	9.57	0.75	8%	25	75	1.01	11%	64	36

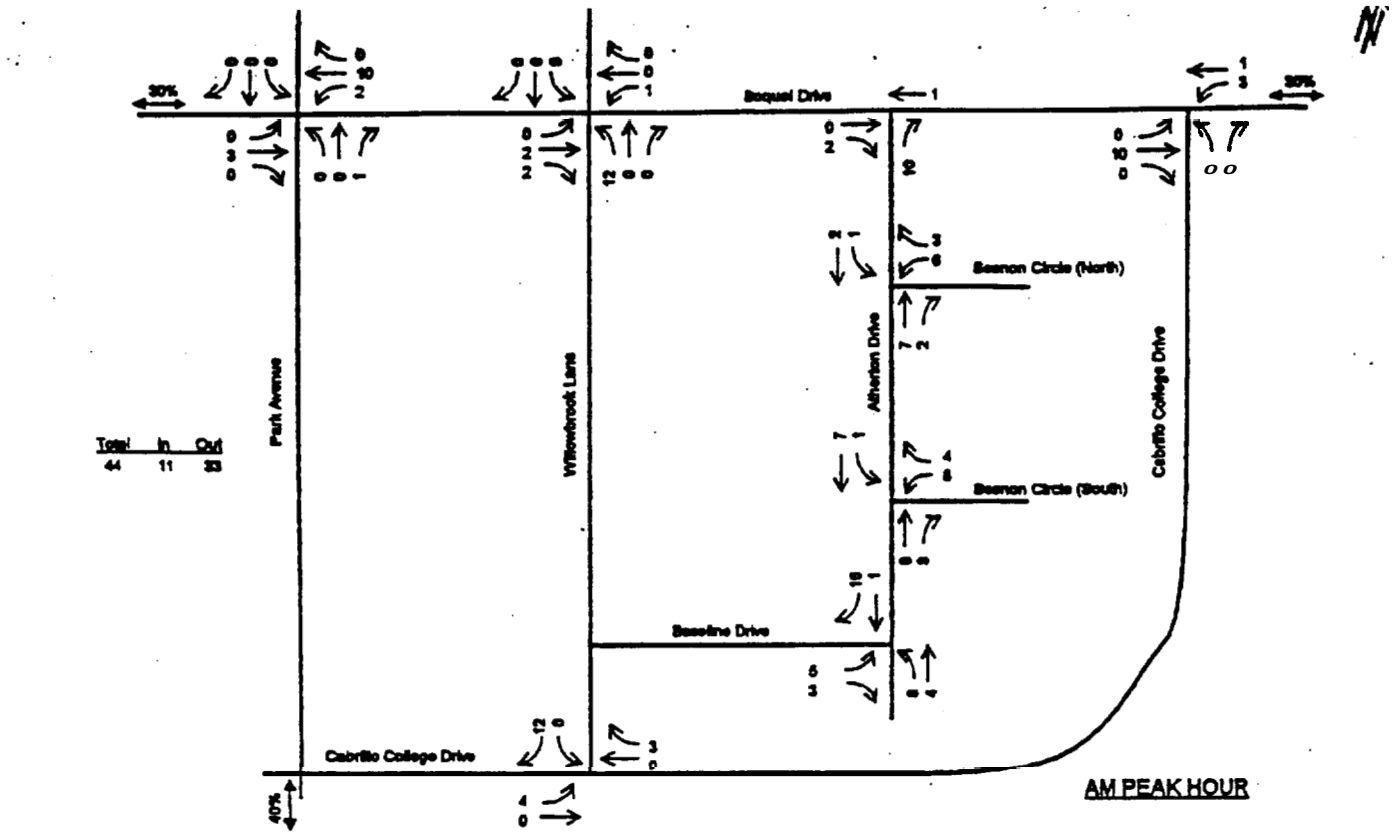
Note

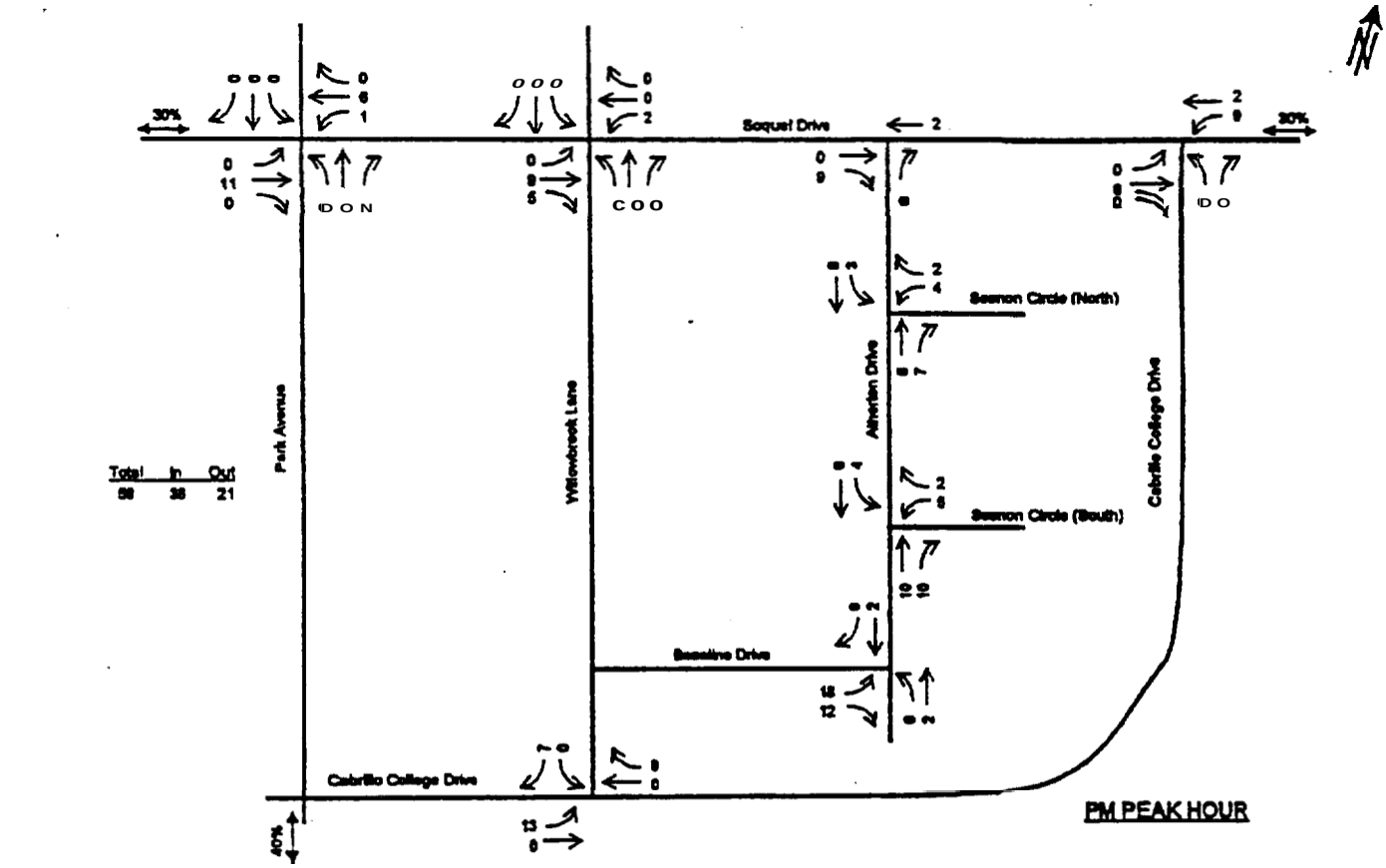
1. Trip generation rates published by ITE, Trip Generation Manual, 6th Edition, 1997, ITE Land Use Code 210.

EXHIBIT 4B
PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity	Daily Total Trips (ADT)	AM Peak Hour Trips				PM Peak Hour Trips			
			Total	% of ADT	In	Out	Total	% of ADT	In	Out
1. Single family homes	58 d. u.	555	44	8%	11	33	59	11%	38	21

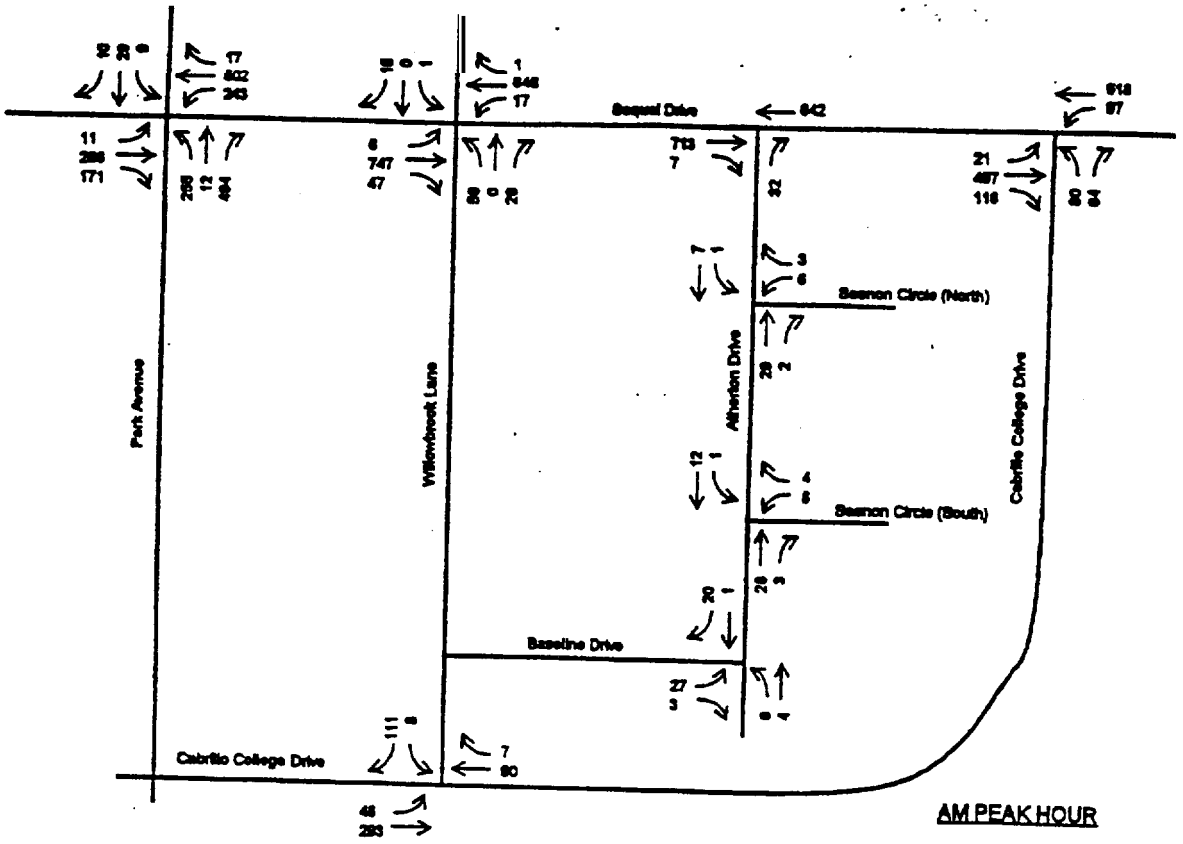
Environmental Review Inital Study
ATACHMENT 19
APPLICATION 98-0148

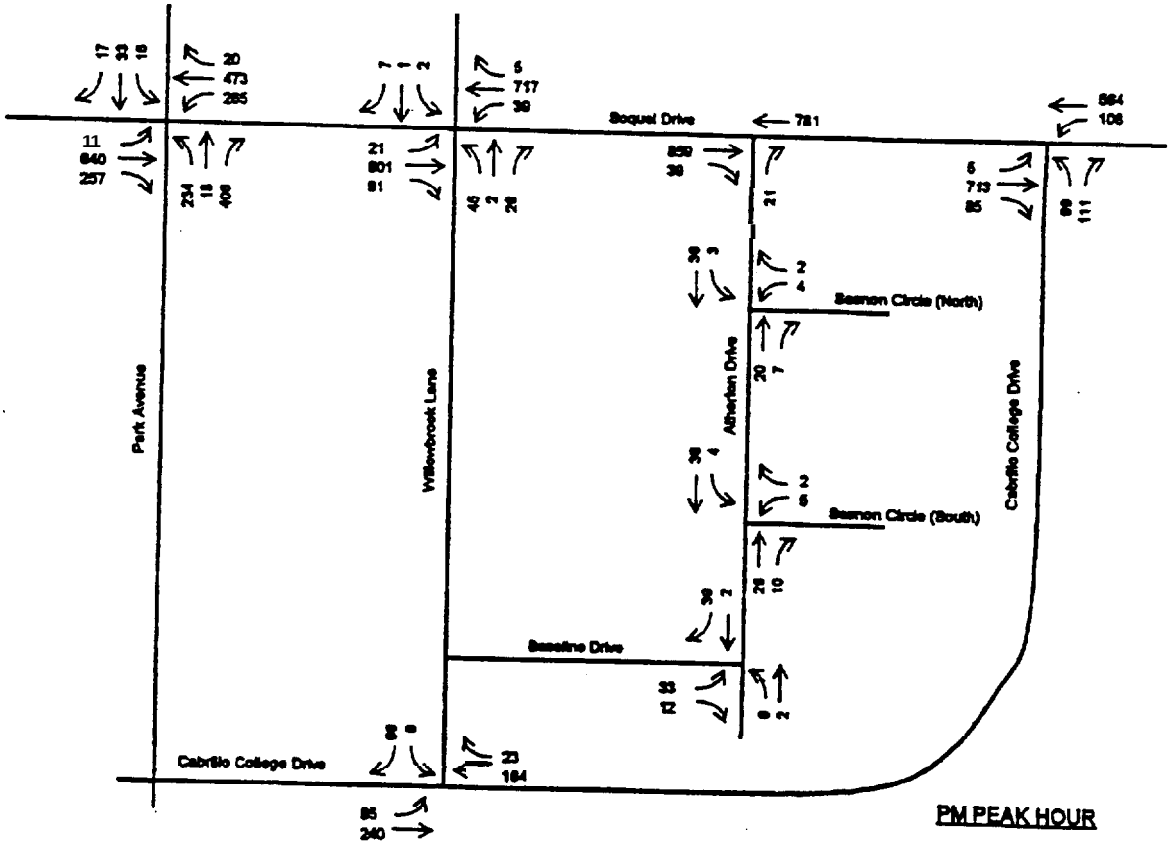




Note: Traffic volumes generated by Traffix Model are rounded to the nearest 1 trip.

EXHIBIT 5-
Environmental Review Inital Study PROJECT TRIP
ATTACHMENT 19 DISTRIBUTION
APPLICATION 99-0140 AND ASSIGNMENT



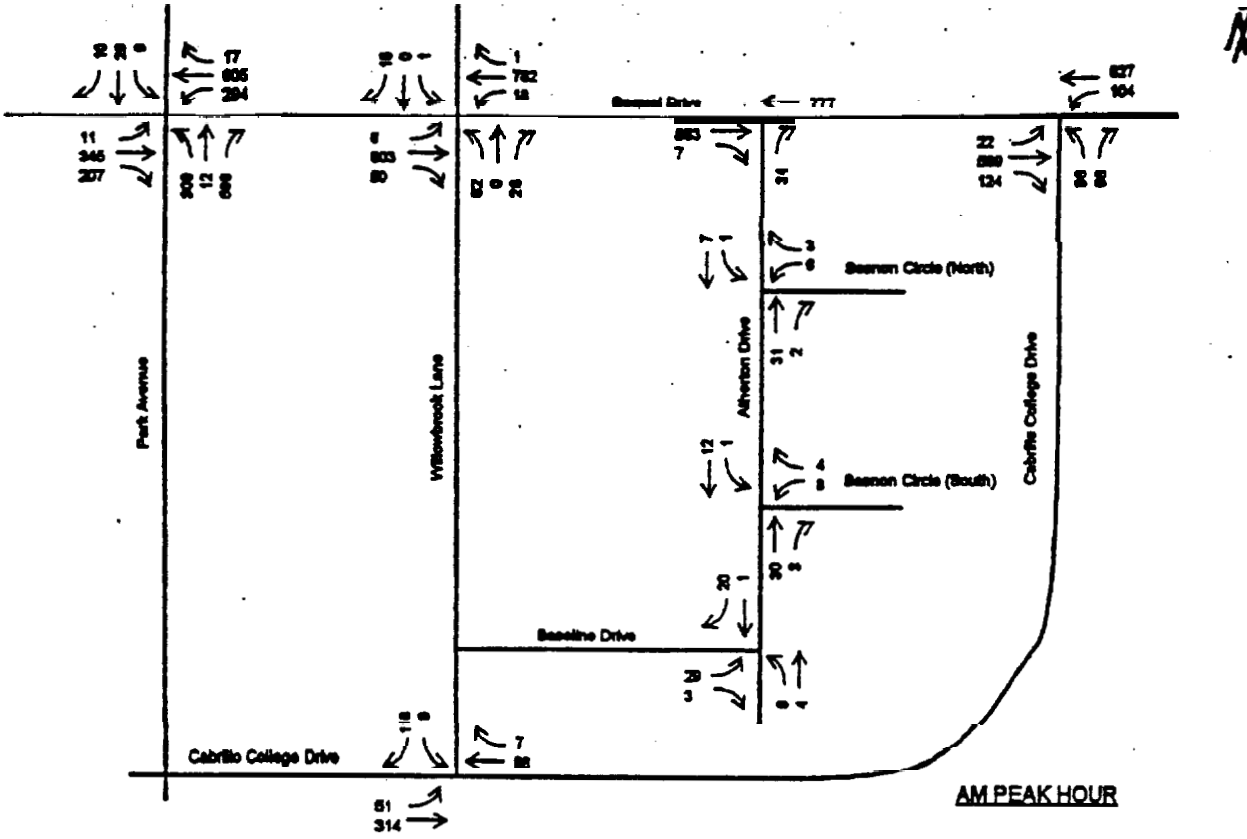


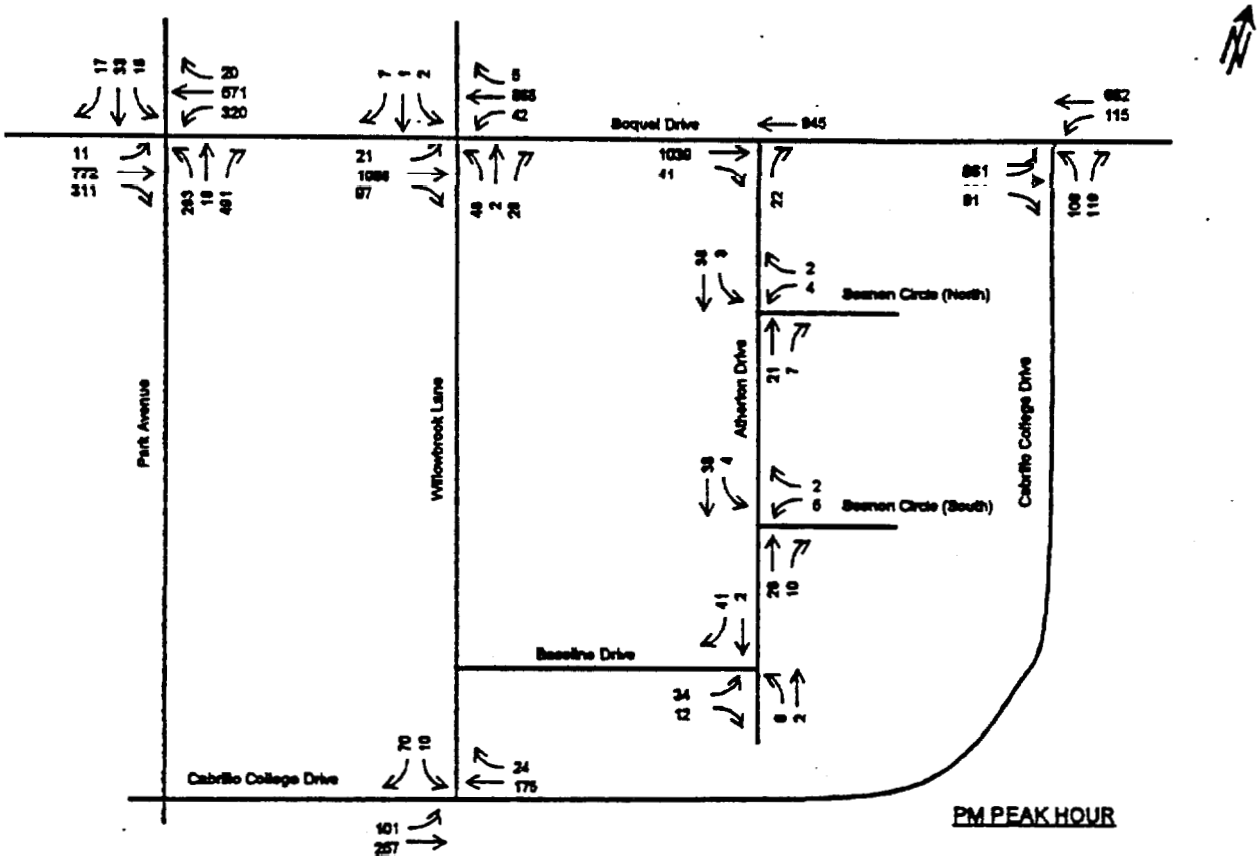
Note: Existing + Project traffic volumes generated by Tralfix Model are rounded to the nearest 1 trip.

EXHIBIT 6-
EXISTING PLUS PROJECT
PEAK HOUR VOLUMES

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 96-0148

HIGGINS ASSOCIATES





Note: Cumulative traffic volumes generated by Traffix Model are rounded to the nearest 1 trip.

EXHIBIT 7-
CUMULATIVE PEAK
HOUR VOLUMES

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ATTACHMENT 19
APPLICATION 09-0120

LEVEL OF SERVICE THRESHOLD VOLUMES FOR VARIOUS ROADWAY TYPES
TOTAL DAILY VOLUMES IN BOTH DIRECTIONS (ADT) /a/

ROADWAY TYPE	CODE	LOS A	LOS B	LOS C	LOS D	LOS E
8-Lane Freeway	8F	51,000	79,000	112,000	136,000	146,000
6-Lane Freeway	6F	39,000	59,000	85,000	102,000	110,000
8-Lane Expressway	8E	35,000	54,000	75,000	90,000	98,000
6-Lane Expressway	6E	28,000	42,000	56,000	67,000	74,000
4-Lane Freeway	4F	26,000	40,000	57,000	69,000	74,000
8-Lane Divided Arterial (w/ left-turn lane)	9	40,000	47,000	54,000	61,000	68,000
6-Lane Divided Arterial (w/ left-turn lane)	7	32000	38,000	43,000	49,000	54,000
4-Lane Expressway	4E	18,000	27,000	36,000	45,000	50,000
4-Lane Divided Arterial (w/ left-turn lane)	5	22,000	25,000	29,000	32,500	36,000
4-Lane Undivided Arterial (no left-turn lane)	4	16,000	19,000	22,000	24,000	27,000
2-Lane Arterial (w/ left-turn lane)	3	11,000	12,500	14,500	16,000	18,000
2-Lane Collector	2	6,000	7,500	9,000	10,500	12,000
2-Lane Local /b/	2L	1,200	1,400	1,600	1,800	2,000
1-Lane Freeway Ramp /c/	1	5,000	7,500	10,500	13,000	15,000
2-Lane Freeway Ramp /c/	1	10,000	15,000	21,000	26,000	28,000

Note: /a/ Non-directional peak hour traffic volume is assumed to be 10 percent of the daily traffic volume. Directional split is assumed to be 60/40.

All volumes are approximate and assume ideal roadway characteristics. Actual threshold volumes for each level of service listed above may vary depending on a number of factors including curvature and grade, intersection or interchange spacing, percentage of trucks and other heavy vehicles, lane widths, signal timing, on-street parking, amount of cross traffic, pedestrians, driveway spacing, etc.

/b/ The capacity limitation is related to neighborhood quality of life rather than physical carrying capacity of the road. This assumes a standard suburban neighborhood, 40 foot roadway width and 25 miles per hour speed limit with normal speed violation rates.

/c/ Capacities given for each service level assume the same level of service for the adjoining merging roadway as well as level of service being determined by volume-to-capacity ratio, not attainable vehicle speed. Level of service will be controlled by freeway level of service if worse than ramp.

Source: Highway Capacity Manual, Special Report 209, Transportation Research Board, 1985.

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Environmental Review I
ATTACHMENT 14
APPLICATION

LEVEL OF SERVICE DESCRIPTION - SIGNALIZED INTERSECTIONS

vel Jf Service	Vehicle Delay (secs	Volume to Capacity Ratio	Description
A	<5.00	*0.00-0.59*	**Free Flow/Insignificant** Delays: No approach is fully utilized by traffic and no vehicle waits longer than one red indication
B	5.1-15.0	*0.60-0.69*	Stable **Operation/Minimal** Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles.
C	15.1-25.0	0.70-0.79	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most *drivers* feel somewhat restricted.
D	25.1-40.0	*0.80-0.89*	**Approaching Unstable/Tolerable Delays**: Drivers may have to wait through more than one red signal indication Queues may develop but dissipate rapidly, without excessive delays.
E	40.1-60.0	*0.90-0.99*	Unstable **Operation/Significant Delays**: Volumes *at* or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
F	≥60.0	N/A	Forced **Flow/Excessive** Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Quam may block upstream intersections.

Source: **Highway Capacity Manual, Transportation Research Board, Special Report No. 209, Washington, D.C., *1985.***

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 90-0148

LEVEL OF SERVICE DESCRIPTION
TWO-WAY STOP CONTROLLED INTERSECTION

The 1994 Highway Capacity Manual (HCM) provides the following description of the methodology for the capacity analysis at Two-Way Stop Controlled (TWSC) intersections.

"Capacity analysis at TWSC intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers or vehicles on the major street. Both gap acceptance and empirical models have been developed as a means to describe this interaction.

Gap acceptance models begin with the recognition that TWSC intersections give no positive indication or control to the driver on the minor street as to when it is safe to leave the stop line and enter the major traffic stream. The driver must determine both when a gap in the major stream is large enough to permit safe entry and when it is his or her turn to do so on the basis of the relative priority of the competing traffic streams. This decision-making process has been formalized into what is known as gap acceptance theory.

Gap acceptance *theory* relies on three basic elements: the size and distribution (availability) of gaps in the major traffic stream, the usefulness of these gaps to the minor stream drivers, and the relative priority of the various traffic streams at the intersection".

Using the above gap acceptance *theory*, the average total delay is estimated for the study intersection. The level of service criteria based on the HCM methodology is tabulated in Table 1. Average total delay is defined as total elapsed time from when a vehicle stops at the end of a queue until the vehicle departs from the stop line.

The level of service criteria is somewhat different for TWSC intersections than the criteria used by the HCM for signalized intersections.' The reason is the exception that a signalized intersection is designed to carry higher volumes. In addition drivers waiting at a signalized intersection may relax during the red interval rather being required *to* remain alert while evaluating the adequacy of gaps in major street traffic flow.

TABLE 1. LEVEL OF SERVICE CRITERIA FOR TWSC INTERSECTIONS

Level of Service	Average Total Delay (Sec/Veh)
A	≤ 5
B	> 5 and ≤ 10
C	> 10 and ≤ 20
D	> 20 and ≤ 30
E	> 30 and ≤ 45
F	> 45

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 98-0148

APPENDED -

LEVEL OF SERVICE
CALCULATION **WORKSHEETS**

Park Avenue/ Soquel Drive

EXISTING CONDITIONS

Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #1 Soquel Ave / Park Ave

cycle (sec):	60	Critical Vol./Cap. (X):	0.526
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	10.0
Optimal Cycle:	48	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	2	0 1	2 0	1	1 0
Volume Module:												
Base Vol:	255	12	493	9	29	10	11	283	171	241	492	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	255	12	493	9	29	10	11	283	171	241	492	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	268	13	519	9	31	11	12	298	180	254	518	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	268	13	519	9	31	11	12	298	180	254	518	18
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.03	1.05	1.05
Final Vol.:	268	13	519	9	31	11	12	313	380	261	544	19
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.99	0.99	0.85	0.95	1.00	0.85	0.95	1.00	1.00
Lanes:	0.95	0.05	1.00	0.22	0.78	1.00	1.00	2.00	1.00	2.00	1.93	0.07
Final Sat.:	1721	84	1615	423	1458	1615	1805	3800	1615	3610	3672	128
Capacity Analysis Module:												
Vol/Sat:	0.16	0.16	0.32	0.02	0.02	0.01	0.01	0.08	0.11	0.07	0.15	0.15
Crit Moves:			****	****					****	****		
Green/Cycle:	0.61	0.61	0.61	0.04	0.04	0.04	0.01	0.21	0.21	0.14	0.33	0.33
Volume/Cap:	0.25	0.25	0.53	0.53	0.53	0.17	0.44	0.39	0.53	0.53	0.44	0.44
Level Of Service Module:												
Uniform Del:	4.1	4.1	5.1	21.5	21.5	21.1	22.3	15.4	15.9	18.3	11.9	11.9
IncremntDel:	0.0	0.0	0.4	5.0	5.0	0.1	6.0	0.2	1.2	0.8	0.2	0.2
Delay Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Delay/Veh:	3.5	3.5	4.8	23.3	23.3	18.1	25.7	13.3	14.8	16.4	10.3	10.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	3.5	3.5	4.8	23.3	23.3	18.1	25.7	13.3	14.8	16.4	10.3	10.3
DesignQueue:	4	0	7	0	1	0	0	8	5	8	13	0

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Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 96-0-20

Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #1 Soquel Ave / Park Ave

Cycle (sec):	60	Critical Vol./Cap. (X):	0.553
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	10.1
Optimal Cycle:	51	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	0	1	0	1	0	2	0	1	2	0	1	1	0
Volume Module:												
Base Vol:	234	18	404	15	33	17	11	629	257	264	467	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	234	18	404	15	33	17	11	629	257	264	467	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PRF Volume:	246	19	425	16	35	18	12	662	271	278	492	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	246	19	425	16	35	18	12	662	271	278	492	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.03	1.05	1.05
Final Vol.:	246	19	425	16	35	18	12	695	271	286	516	22
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.96	0.96	0.85	0.98	0.98	0.85	0.95	1.00	0.85	0.95	0.99	0.99
Lanes:	0.93	0.07	1.00	0.31	0.69	1.00	1.00	2.00	1.00	2.00	1.92	0.08
Final Sat.:	1693	131	1615	584	1276	1615	1805	3800	1615	3610	3608	154
Capacity Analysis Module:												
Vol/Sat:	0.15	0.15	0.26	0.03	0.03	0.01	0.01	0.18	0.17	0.08	0.14	0.14
Crit Moves:			****		****			****		****		
Green/Cycle:	0.48	0.48	0.48	0.05	0.05	0.05	0.02	0.33	0.33	0.14	0.45	0.45
Volume/Cap:	0.31	0.31	0.55	0.55	0.55	0.22	0.32	0.55	0.51	0.55	0.32	0.32
Level Of Service Module:												
Uniform Del:	7.3	7.3	8.5	21.2	21.2	20.8	22.0	12.5	12.3	18.2	8.0	8.0
IncremntDel:	0.1	0.1	0.7	5.1	5.1	0.2	1.6	0.4	0.7	1.0	0.0	0.0
Delay Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Delay/Veh:	6.3	6.3	7.9	23.1	23.1	18.0	20.3	11.0	11.1	16.4	6.8	6.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	6.3	6.3	7.9	23.1	23.1	18.0	20.3	11.0	11.1	16.4	6.8	6.8
DesignQueue:	4	0	8	1	1	1	0	16	6	8	10	0

Level Of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

****

Intersection #1 Soquel Ave / Park Ave

****

Cycle (sec): 60 critical Vol./Cap. (X): 0.528
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 10.0
Optimal Cycle: 48 Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rightn:	Include			Include			Include			Indude		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	1	0 1	0 0	1	1 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	255	12	493	9	29	10	11	283	171	241	492	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	255	12	493	9	29	10	11	283	171	241	492	17
Added Vol:	0	0	1	0	0	0	0	3	0	2	10	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	255	12	494	9	29	10	11	286	171	243	502	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	268	13	520	9	31	11	12	301	180	256	528	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	268	13	520	9	31	11	12	301	180	256	528	18
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.03	1.05	1.05
Final Vol.:	268	13	520	9	31	11	12	316	180	263	555	19
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.99	0.99	0.85	0.95	1.00	0.85	0.95	1.00	1.00
Lanes:	0.95	0.05	1.00	0.22	0.78	1.00	1.00	2.00	1.00	2.00	1.93	0.07
Final Sat.:	1721	84	1615	423	1458	1615	1805	3800	1615	3610	3674	126
Capacity Analysis Module:												
Vol/Sat:	0.16	0.16	0.32	0.02	0.02	0.01	0.01	0.08	0.11	0.07	0.15	0.15
Crit Moves:			****	****					****	****		
Green/Cycle:	0.61	0.61	0.61	0.04	0.04	0.04	0.01	0.21	0.21	0.14	0.33	0.33
Volume/Cap:	0.26	0.26	0.53	0.53	0.53	0.17	0.45	0.39	0.53	0.53	0.45	0.45
Level Of Service Module:												
Uniform Del	4.1	4.1	5.1	21.5	21.5	21.1	22.3	15.5	16.0	18.3	11.9	11.9
IncremntDel:	0.0	0.0	0.4	5.1	5.1	0.1	7.3	0.2	1.2	0.8	0.2	0.2
Delay Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Delay/Veh:	3.5	3.5	4.8	23.3	23.3	18.1	26.3	13.3	14.8	16.4	10.3	10.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	3.5	3.5	4.0	23.3	23.3	18.1	26.3	13.3	14.8	16.4	10.3	10.3
DesignQueue:	4	0	7	0	1	0	0	8	8	8	13	0

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APPLICATION

Level Of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

Intersection #1 Soquel Ave / Park Ave

Cycle (sec): 60 — critical Vol./Cap. (X): 0.557
Loss Time (sec): 0 (Y+R = 4 sec) — Average Delay (sec/veh): 10.1
Optimal Cycle: 52 — Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Indude			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 0	1	0 1	0 0	1	1 0	2 0	1	2 0	1 1	0
Volume Nodule:												
Base Vol:	234	18	404	15	33	17	11	629	257	264	467	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	234	18	404	15	33	17	11	629	257	264	467	20
Added Vol:	0	0	2	0	0	0	0	11	0	1	6	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	234	18	406	15	33	17	11	640	257	265	473	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	246	19	427	16	35	18	12	674	271	279	498	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	246	19	427	16	35	18	12	674	271	279	498	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.03	1.05	1.05
Final Vol.:	246	19	427	16	35	18	12	707	271	287	523	22
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	-1900	1900	1900	1900
Adjustment:	0.96	0.96	0.85	0.98	0.98	0.85	0.95	1.00	0.85	0.95	0.99	0.99
Lanes:	0.93	0.07	1.00	0.31	0.69	1.00	1.00	2.00	1.00	2.00	1.92	0.08
Final Sat.:	1693	131	1615	584	1278	1615	1805	3800	1615	3610	3610	152
Capacity Analysis Module:												
Vol/Sat:	0.15	0.15	0.26	0.03	0.03	0.01	0.01	0.19	0.17	0.08	0.14	0.14
Crit Moves:			****		****			****		****		
Green/Cycle:	0.47	0.47	0.47	0.05	0.05	0.05	0.02	0.33	0.33	0.14	0.46	0.46
Volume/Cap:	0.31	0.31	0.56	0.56	0.56	0.23	0.32	0.56	0.50	0.56	0.32	0.32
Level Of Service Module:												
Uniform Del:	7.4	7.4	8.6	21.2	21.2	20.8	22.0	12.4	12.2	18.2	7.9	7.9
IncremntDel:	0.1	0.1	0.7	5.3	5.3	0.3	1.6	0.4	0.6	1.0	0.0	0.0
Delay Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Delay/Veh:	6.3	6.3	8.0	23.3	23.3	18.0	20.3	11.0	11.0	16.5	6.8	6.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	1.00
AdjDel/Veh:	6.3	6.3	8.0	23.3	23.3	18.0	20.3	11.0	11.0	16.5	6.8	6.8
DesignQueue:	4	0	8	1	1	1	0	17	6	8	10	0

Level Of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

Intersection #1 Soquel Ave / Park Ave

Cycle (sec):	60	Critical Vol./Cap. (X):	0.634
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	10.8
Optimal Cycle:	62	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	0	0	1	0	1	0	0	1	1	0
Volume Module:												
Base Vol:	255	12	493	9	29	10	11	283	171	241	492	17
Growth Adj:	1.21	1.00	1.21	1.00	1.00	1.00	1.00	1.21	1.21	1.21	1.21	1.00
Initial Bse:	309	12	,597	9	29	10	11	342	207	292	595	17
Added Vol:	0	0	1	0	0	0	0	3	0	2	10	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	309	12	598	9	29	10	11	345	207	294	605	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	325	13	629	9	31	11	12	364	218	309	637	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	325	13	629	9	31	11	12	364	218	309	631	18
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.03	1.05	1.05
Final Vol.:	325	13	629	9	31	11	12	382	218	318	669	19
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.85	0.99	0.99	0.85	0.95	1.00	0.85	0.95	1.00	1.00
Lanes:	0.96	0.04	1.00	0.22	0.76	1.00	1.00	2.00	1.00	2.00	1.94	0.06
Final Sat.:	1736	69	1615	423	1458	1615	1805	3800	1615	3610	3695	105
Capacity Analysis Module:												
Vol/Sat:	0.19	0.19	0.39	0.02	0.02	0.01	0.01	0.10	0.13	0.09	0.18	0.18
Crit Moves:			****	****					****	****		
Green/Cycle:	0.61	0.61	0.61	0.03	0.03	0.03	0.01	0.21	0.21	0.14	0.34	0.34
Volume/Cap:	0.30	0.30	0.63	0.63	0.63	0.20	0.53	0.47	0.63	0.63	0.53	0.53
Level Of Service Module:												
Uniform Del:	4.2	4.2	5.5	21.8	21.8	21.4	22.4	15.7	16.3	18.5	12.1	12.1
IncremntDel:	0.1	0.1	1.0	12.3	12.3	0.3	15.1	0.3	2.7	1.9	0.3	0.3
Delay Adj:	0.85	0.85	0.85	0.65	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Delay/Veh:	3.6	3.6	5.7	30.8	30.6	18.5	34.1	13.7	16.5	17.6	10.7	10.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	3.6	3.6	5.7	30.8	30.8	18.5	34.1	13.7	16.5	17.6	10.7	10.7
DesignQueue:	4	0	9	0	1	0	0	10	6	9	15	0

Level of Service Computation Report
1994 HCM operations Method (Future Volume Alternative)

Intersection #1 Soquel Ave / Park Ave

Cycle (sec):	60	Critical Vol./Cap. (X):	0.668
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	11.0
Optimal Cycle:	69	kvel Of Service:	B

Approach:	Worth Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Fights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Iants:	0 1	0	0 1	0 1	0	0 1	1 0	2	0 1	2 0	1	1 0
Colume Module:												
East Vol:	234	18	404	15	33	17	11	629	257	264	467	20
Growth Adj:	1.21	1.00	1.21	1.00	1.00	1.00	1.00	1.21	1.21	1.21	1.21	1.00
Initial Bse:	283	18	489	15	33	17	11	761	311	319	565	20
Added Vol:	0	0	2	0	0	0	0	11	0	1	6	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	283	18	491	15	33	17	11	772	311	320	571	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	298	19	517	16	35	18	12	813	327	337	601	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	298	19	517	16	35	18	12	813	327	337	601	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.03	1.05	1.05
Final Vol.:	298	19	517	16	35	18	12	a53	327	347	631	22
.turation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.96	0.96	0.85	0.98	0.98	0.85	0.95	1.00	0.85	0.95	1.00	1.00
Lanes:	0.94	0.06	1.00	0.31	0.69	1.00	1.00	2.00	1.00	2.00	1.93	0.07
Final Sat.:	1715	109	1615	584	1278	1615	1805	3800	1615	3610	3672	128
Capacity Analysis Module:												
Vol/Sat:	0.17	0.17	0.32	0.03	0.03	0.01	0.01	0.22	0.20	0.10	0.17	0.17
Crit Moves:			****		****			****		****		
Green/Cycle:	0.48	0.48	0.48	0.04	0.04	0.04	0.02	0.34	0.34	0.14	0.46	0.46
Volume/Cap:	0.36	0.36	0.67	0.67	0.67	0.27	0.37	0.67	0.60	0.67	0.37	0.37
Level Of Service Module:												
Uniform Del:	7.5	7.5	9.1	21.6	21.6	21.2	22.1	13.0	12.6	18.5	8.0	8.0
IncremntDel:	0.1	0.1	1.6	13.0	13.0	0.6	3.2	1.0	1.4	2.3	0.1	0.1
Delay Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Delay/Veh:	6.5	6.5	9.3	31.3	31.3	18.6	22.0	12.0	12.1	18.0	6.8	6.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	6.5	6.5	9.3	31.3	31.3	18.6	22.0	12.0	12.1	18.0	6.8	6.8
DesignQueue:	5	0	10	1	1	1	0	20	8	10	12	0

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APPLICATION GILROY 98-0498

APPENDIX E -

LEVEL OF SERVICE CALCULATION WORKSHEETS

Soquel Drive / Atherton **Drive**

EXISTING CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

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Intersection #3 Soquel Ave / Atherton Dr

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Average Delay (sec/veh): 0.1 Level Of Service: A

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Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 1		0 0 0	0 0		0 0 1	1 0		0 0 2	0 0	
Volume Module:												
Base Vol:	0	0	22	0	0	0	0	713	5	0	641	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	22	0	0	0	0	713	5	0	641	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PEF Volume:	0	0	22	0	0	0	0	713	5	0	641	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	22	0	0	0	0	713	5	0	641	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	24	0	0	0	0	713	5	0	641	0
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	2.6	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	5.5	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	359	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	911	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	1.00	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	911	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	4.1	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	A	*	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		4.1			0.0			0.0			0.0	

EXISTING CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Soquel Ave / Atherton Dr

Average Delay (sec/veh): 0.0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	1	0 0	0 0	0	0 0	1 1	0	0 0	2 0	0
Volume Module:												
Base Vol:	0	0	15	0	0	0	0	859	30	0	779	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	15	0	0	0	0	859	30	0	779	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	16	0	0	0	0	904	32	0	820	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	16	0	0	0	0	904	32	0	820	0
Adjusted Volume Module:												
Grade:		0%			0%			0%			0%	
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	17	0	0	0	0	904	32	0	820	0
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	2.6	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	5.5	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	468	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	802	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	1.00	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	802	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	4.6	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	e	A	*	e	*	*	*	*	*	+	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	+	*	*	*	*	*	*	*
ApproachDel:		4.6			0.0			0.0			0.0	

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EXISTING PLUS PROJECT CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #3 Soquel Ave / Athcrton Dr

****

Average Delay (sec/veh): 0.1 Level Of Service: A

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Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	stop Sign					*stop* Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Indude					Indude					Include				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0
Volume Module:																				
Base Vol:	0	0	22			0	0	0			0	713	5			0	641	0		
Growth Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
Initial Bse:	0	0	22			0	0	0			0	713	5			0	641	0		
Added Vol:	0	0	10			0	0	0			0	0	2			0	1	0		
PasserByVol:	0	0	0			0	0	0			0	0	0			0	0	0		
Initial Fut:	0	0	32			0	0	0			0	713	7			0	642	0		
User Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
PHF Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
PHF Volumc:	0	0	32			0	0	0			0	713	7			0	642	0		
Reduct Vol:	0	0	0			0	0	0			0	0	0			0	0	0		
Final Vol.:	0	0	32			0	0	0			0	713	7			0	642	0		
Adjusted Volume Module:																				
Grade:	00					0%					0%.					0%				
% Cycle/Cars:	xxxx	xxxx				xxxx	xxxx				xxxx	xxxx				xxxx	xxxx			
% Truck/Comb:	xxxx	xxxx				xxxx	xxxx				xxxx	xxxx				xxxx	xxxx			
PCE Adj:	1.10	1.10	1.10			1.10	1.10	1.10			1.10	1.00	1.00			1.10	1.00	1.00		
Cycl/Car PCE:	xxxx	xxxx				xxxx	xxxx				xxxx	xxxx				xxxx	xxxx			
rck/Cmb PCE:	xxxx	xxxx				xxxx	xxxx				xxxx	xxxx				xxxx	xxxx			
Adj Vol.:	0	0	35			0	0	0			0	713	7			0	642	0		
Critical Gap Module:																				
MoveUp Time:	xxxx	xxxx	2.6			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx		
Critical Gp:	xxxx	xxxx	5.5			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx		
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	360			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx		
Potent Cap.:	xxxx	xxxx	910			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx		
Adj Cap:	xxxx	xxxx	1.00			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx		
Move Cap.:	xxxx	xxxx	910			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx		
Level Of Service Module:																				
Stopped Del:	xxxx	xxxx	4.1			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx		
LOS by Move:	*	*	A			*	*	*			*	*	*			*	*	*		
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx		
Shrd StpDel:	xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx			xxxx	xxxx	xxxx		
Shared LOS:	*	*	*			*	*	*			*	*	*			*	*	*		
ApproachDel:	4.1					0.0					0.0					0.0				

Environmental Review Initial Study

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APPLICATION 98-0148

EXISTING PLUS PROJECT CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #3 Soquel Ave / Atherton Dr

****

Average Delay (sec/veh): 0.1 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movementa	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop sign			stop sign			Uncontrolled			Uncontrolled	
Rights:		Include			Include			Include			Include	
Lanes:	0 0	0	0 1	0 0	0	0 0	0 0	1	1 0	0 0	2	0 0
Volume Module:												
Base Vol:	0	0	15	0	0	0	0	859	30	0	779	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	15	0	0	0	0	859	30	0	779	0
Added Vol:	0	0	6	0	0	0	0	0	9	0	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	21	0	0	0	0	859	39	0	781	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	22	0	0	0	0	904	41	0	822	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	22	0	0	0	0	904	41	0	822	0
Adjusted Volume Module:												
Grade:		00			00			0%			0%	
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	24	0	0	0	0	904	41	0	822	0
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	2.6	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	5.5	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	473	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	790	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	
Adj cap:	xxxx	xxxx	1.00	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Hove Cap.:	xxxx	xxxx	798	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	4.6	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	•	•	A	*	•	•	•	*	*	•	•	•
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	•	•	•	•	•	*	•	*	*	•	*	•
ApproachDel:		4.6			0.0			0.0			0.0	

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Environmental Review Inital Study
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APPLICATION 98-0448

kvel Of Service Computation Report
1994 HCM Unsignalitcd Method (Future Volume Alternative)

Intersection #3 Soquel Ave / Atherton Dr

Average Delay (sec/veh) : 0.1 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	stop sign			Stop sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	1	0 0 0	0	0	0 0	1 1	0	0 0	2 0	0
Volume Module:												
Base Vol:	0	0	22	0	0	0	0	713	5	0	641	0
Growth Adj:	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.21	1.07	1.00	1.21	1.00
Initial Bse:	0	0	24	0	0	0	0	863	5	0	776	0
Added Vol:	0	0	10	0	0	0	0	0	2	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	34	0	0	0	0	863	7	0	777	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	34	0	0	0	0	863	7	0	777	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	34	0	0	0	0	863	7	0	777	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj :	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol. :	0	0	37	0	0	0	0	863	7	0	777	0
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	2.6	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	5.5	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module :												
Cnflict Vol:	xxxx	xxxx	435	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent cap.:	xxxx	xxxx	833	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj cap:	xxxx	xxxx	1.00	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	833	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	4.5	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	•	•	A	*	•	*	*	•	•	•	•	•
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	•	•	•	•	•	•	•	•	•	•	•	•
ApproachDel:	4.5			0.0			0.0			0.0		

Environmental Review Inital Study
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APPLICATION 90-0148

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CUMULATIVE CONDITIONS

Level Of Service Computation Report
1994 H M Unsignalized Method ...

Intersection #3 Soquel Ave / Atherton Dr

Average Delay (sec/veh): 0.1 Level Of Service: A

Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	1	0 0	0 0	0	0 0	1 1	0	0 0	2 0	0
Volume Module:												
Base Vol:	0	0	15	0	0	0	0	859	30	0	779	0
Growth Adj:	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.21	1.07	1.00	1.21	1.00
Initial Bse:	0	0	16	0	0	0	0	1039	32	0	943	0
Added Vol:	0	0	6	0	0	0	0	0	9	0	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	22	0	0	0	0	1039	41	0	945	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	23	0	0	0	0	1094	43	0	994	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	23	0	0	0	0	1094	43	0	994	0
Adjusted Volume Module:												
Grade:		0%			0%			0%			0%	
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	26	0	0	0	0	1094	43	0	994	0
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	2.6	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	5.5	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	569	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	713	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	1.00	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	713	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	5.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	B	*	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		5.2			0.0			0.0			0.0	

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ATTACHMENT 19
APPLICATION 98-0140

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APPENDIX F -

LEVEL OF SERVICE
CALCULATION WORKSHEETS

Soquel Drive / **Cabrillo** College **Drive**

EXISTING CONDITIONS

~ve@f Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #4 Soquel Ave / Cabrillo College Dr

Cycle (sec):	60	critical Vol./Cap. (X):	0.344
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	6.6
optimal Cycle:	35	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 0	1	0	0 0	0 0	0	1 1	0 1	1 0	2 0	0
Volume Module:												
Base Vol:	80	0	64	0	0	0	21	487	116	94	517	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	80	0	64	0	0	0	21	487	116	94	517	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	84	0	67	0	0	0	22	513	122	99	544	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	84	0	67	0	0	0	22	513	122	99	544	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.00	1.05	1.00
Final Vol.:	84	0	67	0	0	0	23	538	'122	99	571	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	0.95	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.08	1.92	1.00	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	156	3644	1615	1805	3800	0
Capacity Analysis Module:												
Vol/Sat:	0.05	0.00	0.04	0.00	0.00	0.00	0.15	0.15	0.08	0.05	0.15	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.14	0.00	0.14	0.00	0.00	0.00	0.43	0.63	0.63	0.23	0.44	0.00
Volume/Cap:	0.34	0.00	0.31	0.00	0.00	0.00	0.34	0.23	0.12	0.23	0.34	0.00
Level Of Service Module:												
Uniform Del:	17.9	0.0	17.8	0.0	0.0	0.0	8.7	3.6	3.4	14.1	8.5	0.0
IncremntDel:	0.3	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0
Delay Adj:	0.85	0.00	0.85	0.00	0.00	0.00	0.85	0.85	0.85	0.85	0.85	0.00
Delay/Veh:	15.6	0.0	15.4	0.0	0.0	0.0	7.5	3.1	2.9	12.1	7.3	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.6	0.0	15.4	0.0	0.0	0.0	7.5	3.1	2.9	L2.1	7.3	0.0
DesignQueue:	2	0	2	0	0	0	0	7	2	3	11	0

Environmental Review Inttal Study
ATACHMENT 19
APPLICATION 98-0148

EXISTING CONDITIONS

Level Of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

****

Intersection #4 Soquel Avt / Cabtillo College Dr

****

Cycle (sec): 60 Critical Vol./Cap. (X): 0.443
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 7.2
Optimal Cycle: 41 Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 0	1	0 0	0 0	0	0 1	1 0	1	1 0	2 0	0
Volume Module:												
Base Vol:	99	0	111	0	0	0	5	707	e5	99	562	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	99	0	111	0	0	0	5	707	85	99	562	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	104	0	117	0	0	0	5	744	89	104	592	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	104	0	117	0	0	0	5	744	89	104	592	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.00	1.05	1.00
Final Vol.:	104	0	117	0	0	0	6	781	89	104	621	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	0.95	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.02	1.98	1.00	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	29	3771	1615	1805	3800	0
Capacity Analysis Module:												
Vol/Sat:	0.06	0.00	0.07	0.00	0.00	0.00	0.21	0.21	0.06	0.06	0.16	0.00
Crit Moves:			****				****				****	
Green/Cycle:	0.16	0.00	0.16	0.00	0.00	0.00	0.47	0.65	0.65	0.18	0.37	0.00
Volume/Cap:	0.35	0.00	0.44	0.00	0.00	0.00	0.44	0.32	0.08	0.32	0.44	0.00
Level Of Service Module:												
Uniform Del:	16.9	0.0	17.2	0.0	0.0	0.0	8.2	3.4	2.9	16.2	10.9	0.0
IncremntDel:	0.3	0.0	0.8	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.0
Delay Adj:	0.85	0.00	0.85	0.00	0.00	0.00	0.85	0.85	0.85	0.85	0.85	0.00
Delay/Veh:	14.7	0.0	15.4	0.0	0.0	0.0	7.1	2.9	2.5	14.0	9.4	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.7	0.0	15.4	0.0	0.0	0.0	7.1	2.9	2.5	14.0	9.4	0.0
DesignQueue:	3	0	3	0	0	0	0	10	1	3	14	0

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Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 99-0126

EXISTING PLUS PROJECT CONDITIONS

Level Of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

****

Intersection #4 Soquel Ave / Cabrillo College Dr

****

Cycle (sec): 60 Critical Vol./Cap. (X): 0.340
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 6.6
Optimal Cycle: 35 Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 0	1	0 0	0 0	0	0 1	1 0	1	1 0	2 0	0
Volume Module:												
Bast Vol:	80	0	64	0	0	0	21	487	116	94	517	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	80	0	64	0	0	0	21	487	116	94	517	0
Added Vol:	0	0	0	0	0	0	0	10	0	3	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	80	0	64	0	0	0	21	497	116	97	518	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	84	0	67	0	0	0	22	523	122	102	545	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	84	0	67	0	0	0	22	523	122	102	545	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.00	1.05	1.00
Final Vol.:	84	0	67	0	0	0	23	549	122	102	573	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	0.95	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.08	1.92	1.00	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	153	3647	1615	1805	3800	0
Capacity Analysis Module:												
Vol/Sat:	0.05	0.00	0.04	0.00	0.00	0.00	0.15	0.15	0.08	0.06	0.15	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.13	0.00	0.13	0.00	0.00	0.00	0.43	0.63	0.63	0.24	0.43	0.00
Volume/Cap:	0.35	0.00	0.31	0.00	0.00	0.00	0.35	0.24	0.12	0.24	0.35	0.00
Level Of Service Module:												
Uniform Del:	17.9	0.0	17.8	0.0	0.0	0.0	8.6	3.7	3.4	14.1	8.6	0.0
IncremntDel:	0.4	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0
Delay Adj:	0.85	0.00	0.85	0.00	0.00	0.00	0.85	0.85	0.85	0.85	0.85	0.00
Delay/Veh:	15.6	0.0	15.4	0.0	0.0	0.0	7.4	3.1	2.9	12.0	7.4	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.6	0.0	15.4	0.0	0.0	0.0	7.4	3.1	2.9	12.0	7.4	0.0
DesignQueue:	2	0	2	0	0	0	0	7	2	3	11	0

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EXISTING PLUS PROJECT CONDITIONS

Level Of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

Intersection #4 Soquel Ave / Cabrillo College Dr

Cycle (sec): 60 Critical Vol./Cap. (X): 0.445
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 7.3
Optimal Cycle: 41 Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0	0 1	0	0 0	0 0	0	1 1	0 1	1	0 2	0 0
Volume Module:												
Base Vol:	99	0	111	0	0	0	5	707	85	99	562	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bsc:	99	0	111	0	0	0	5	707	85	99	562	0
Added Vol:	0	0	0	0	0	0	0	6	0	9	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	99	0	111	0	0	0	5	713	85	108	564	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	104	0	117	0	0	0	5	751	89	114	594	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	104	0	117	0	0	0	5	751	89	114	594	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.00	1.05	1.00
Final Vol.:	104	0	117	0	0	0	6	788	89	114	623	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	0.95	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.02	1.98	1.00	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	29	3771	1615	1805	3800	0
Capacity Analysis Module:												
Vol/Sat:	0.06	0.00	0.07	0.00	0.00	0.00	0.21	0.21	0.06	0.06	0.16	0.00
Crit Moves:			****				****				****	
Green/Cycle:	0.16	0.00	0.16	0.00	0.00	0.00	0.47	0.64	0.64	0.19	0.37	0.00
Volume/Cap:	0.35	0.00	0.45	0.00	0.00	0.00	0.45	0.32	0.09	0.32	0.45	0.00
Level Of Service Module:												
Uniform Del:	17.0	0.0	17.2	0.0	0.0	0.0	8.1	3.7	3.1	15.8	10.9	0.0
IncremntDel:	0.3	0.0	0.8	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.0
Delay Adj:	0.85	0.00	0.85	0.00	0.00	0.00	0.85	0.85	0.85	0.85	0.85	0.00
Delay/Veh:	14.7	0.0	15.5	0.0	0.0	0.0	7.0	3.2	2.6	13.6	9.4	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.7	0.0	15.5	0.0	0.0	0.0	7.0	3.2	2.6	13.6	9.4	0.0
DesignQueue:	3	0	3	0	0	0	0	10	1	3	14	0

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Environmental Review Initial Stud)
ATTACHMENT 19
APPLICATION 99-0145

CUMULATIVE CONDITIONS

Level Of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

Intersection #4 Soquel Ave / Cabrillo College Dr

Cycle (sec): 60 critical Vol./Cap. (X): 0.413
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 6.5
Optimal Cycle: 39 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 0	1	0 0	0 0	0	0 1	1 0	1	1 0	2 0	0
Volume Module:												
Base Vol:	80	0	64	0	0	0	21	487	116	94	517	0
Growth Adj:	1.07	1.00	1.07	1.00	1.00	1.00	1.07	1.21	1.07	1.07	1.21	1.00
Initial Bse:	86	0	68	0	0	0	22	589	124	101	626	
Added Vol:	0	0	0	0	0	0	0	*10*	0	3	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	*0*
Initial Fut:	86	0	68	0	0	0	22	599	124	104	627	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PXF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	90	0	72	0	0	0	24	631	131	109	660	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	90	0	72	0	0	0	24	631	131	109	660	
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.00	1.05	1.00
Final Vol.:	90	0	*72*	0	0	0	25	662	131	109	693	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	0.95	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.07	1.93	1.00	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	138	3662	1615	*1805*	3800	0
Capacity Analysis Module:												
Vol/Sat:	0.05	0.00	0.04	0.00	0.00	0.00	0.18	0.18	0.08	0.06	0.18	0.00
Crit Moves:	****						****				****	
Green/Cycle:	0.12	0.00	0.12	0.00	0.00	0.00	0.44	0.66	0.66	0.22	0.44	0.00
Volume/Cap:	0.41	0.00	0.37	0.00	0.00	0.00	0.41	0.27	0.12	0.27	0.41	0.00
Level Of Service Module:												
Uniform Del:	18.6	0.0	18.4	0.0	0.0	0.0	8.8	3.2	2.9	14.8	8.7	0.0
IncremntDel:	0.7	0.0	0.6	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0
Delay Adj:	0.85	0.00	0.85	0.00	0.00	0.00	0.85	0.85	0.85	0.85	0.85	0.00
Delay/Veh:	16.5	0.0	16.2	0.0	0.0	0.0	7.6	2.8	2.5	12.6	7.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.5	0.0	16.2	0.0	0.0	0.0	7.6	2.8	2.5	12.6	7.5	0.0
DesignQueue:	3	0	2	0	0	0	0	8	*2*	3	14	0

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 98-0148

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CUMULATIVE CONDITIONS

kvel Of Service Camputation Report
1994 HCM Operations Method (Future Volume Alternative)

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Intersection #4 Soquel Ave / Cabrillo College Dr

****

Cycle (sec): 60 critical Vol./Cap. (X): 0.528
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 7.3
Optimal Cycle: 48 Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	1	0	0	0	0	0	1	0	1
Volume Module:												
Base Vol:	99	0	111	0	0	0	5	707	85	99	562	0
Growth Adj:	1.07	1.00	1.07	1.00	1.00	1.00	1.07	1.21	1.07	1.07	1.21	1.00
Initial Bse:	106	0	119	0	0	0	5	855	91	106	680	0
Added Vol:	0	0	0	0	0	0	0	6	0	9	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	106	0	119	0	0	0	5	861	91	115	682	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	112	0	125	0	0	0	6	907	96	121	718	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	112	0	125	0	0	0	6	907	96	121	718	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.00	1.05	1.00
Final Vol.:	112	0	125	0	0	0	6	952	96	121	754	0
Saturation Flow Module:												
Sat./Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	0.95	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.01	1.99	1.00	1.00	2.00	0.00
Final Sat.:	1805	0	1615	0	0	0	24	3776	1615	1805	3800	0
Capacity Analysis Module:												
Vol./Sat:	0.06	0.00	0.08	0.00	0.00	0.00	0.25	0.25	0.06	0.07	0.20	0.00
Crit Moves:			****				****				****	
Green/Cycle:	0.15	0.00	0.15	0.00	0.00	0.00	0.48	0.67	0.67	0.18	0.38	0.00
Volume/Cap:	0.42	0.00	0.53	0.00	0.00	0.00	0.53	0.37	0.09	0.37	0.53	0.00
Level Of Service Module:												
Uniform Del:	17.7	0.0	18.0	0.0	0.0	0.0	8.3	3.2	2.6	16.5	11.1	0.0
IncremntDel:	0.7	0.0	1.8	0.0	0.0	0.0	0.2	0.0	0.0	0.4	0.3	0.0
Delay Adj:	0.85	0.00	0.85	0.00	0.00	0.00	0.85	0.85	0.85	0.85	0.85	0.00
Delay/Veh:	15.7	0.0	17.1	0.0	0.0	0.0	7.3	2.8	2.2	14.3	9.7	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.7	0.0	17.1	0.0	0.0	0.0	7.3	2.8	2.2	14.3	9.7	0.0
DesignQueue:	3	0	4	0	0	0	0	11	1	3	17	0

****

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 96-0149

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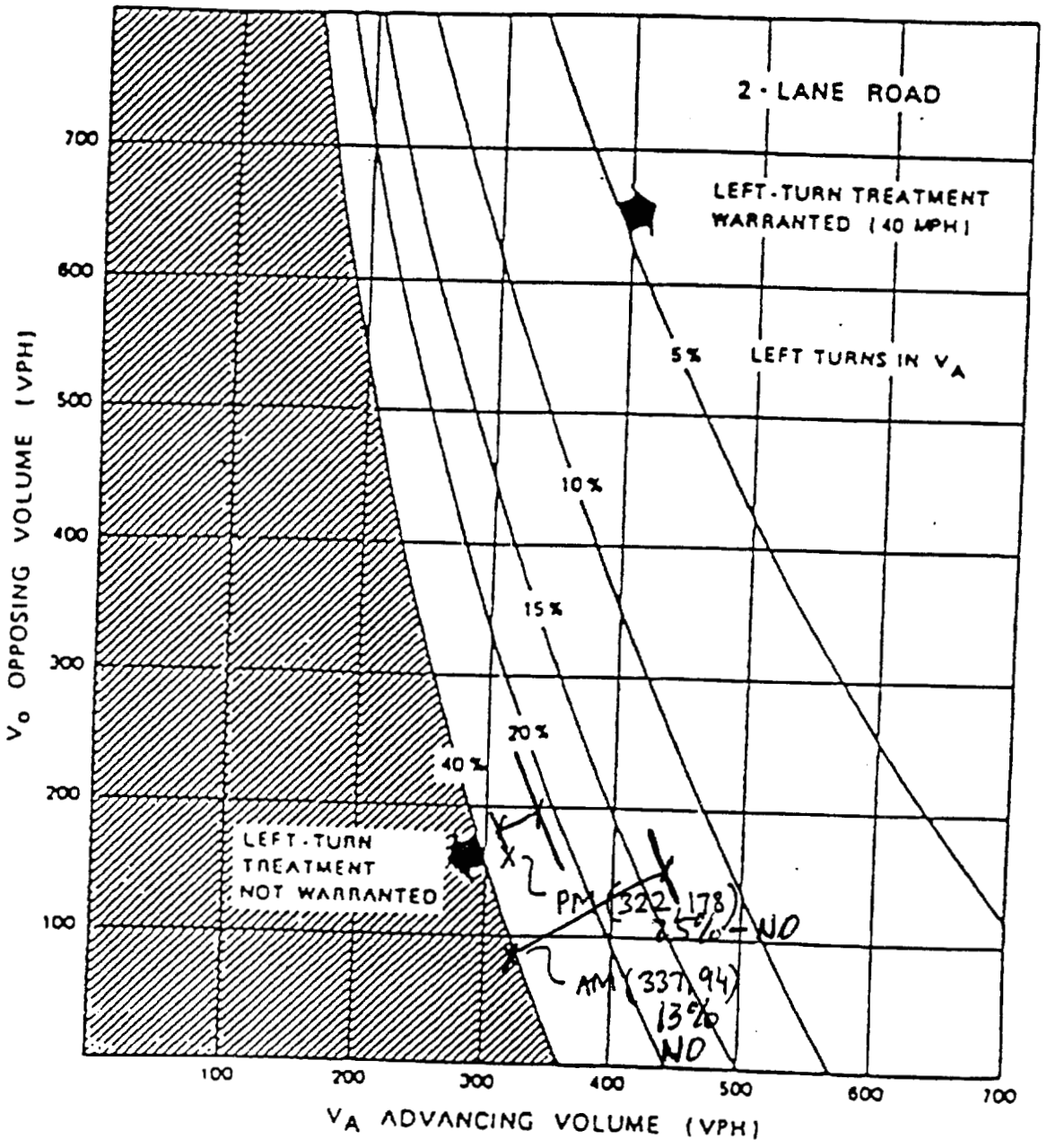
APPENDIX G -

LEVEL OF SERVICE
CALCULATION AND
LEFT TURN LANE WARRANT

Cabrillo College Drive/Willowbrook Lane

EXISTING



Source: Transportation Research Board, "Xntersection Channelization Guide", NCHRP Report 279, November, 1985

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 980148

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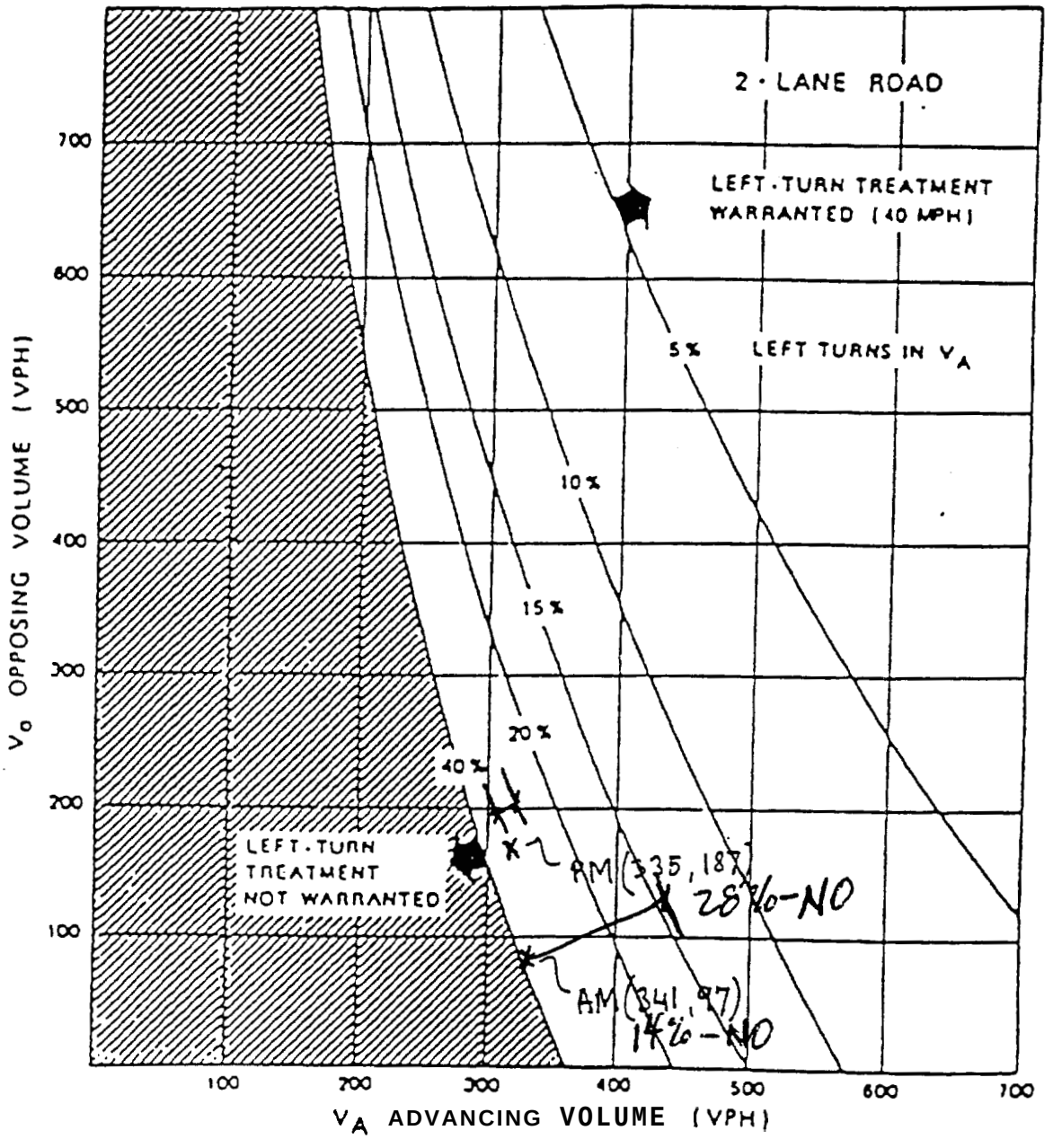
EXISTING + PROJECT



Source: **Transportation Research Board, "Intersection Channelization Guide", NCHRP Report *279*, November, 1985**

Environmental Review Inital Stud)
ATTACHMENT 14
APPLICATION 99-0146

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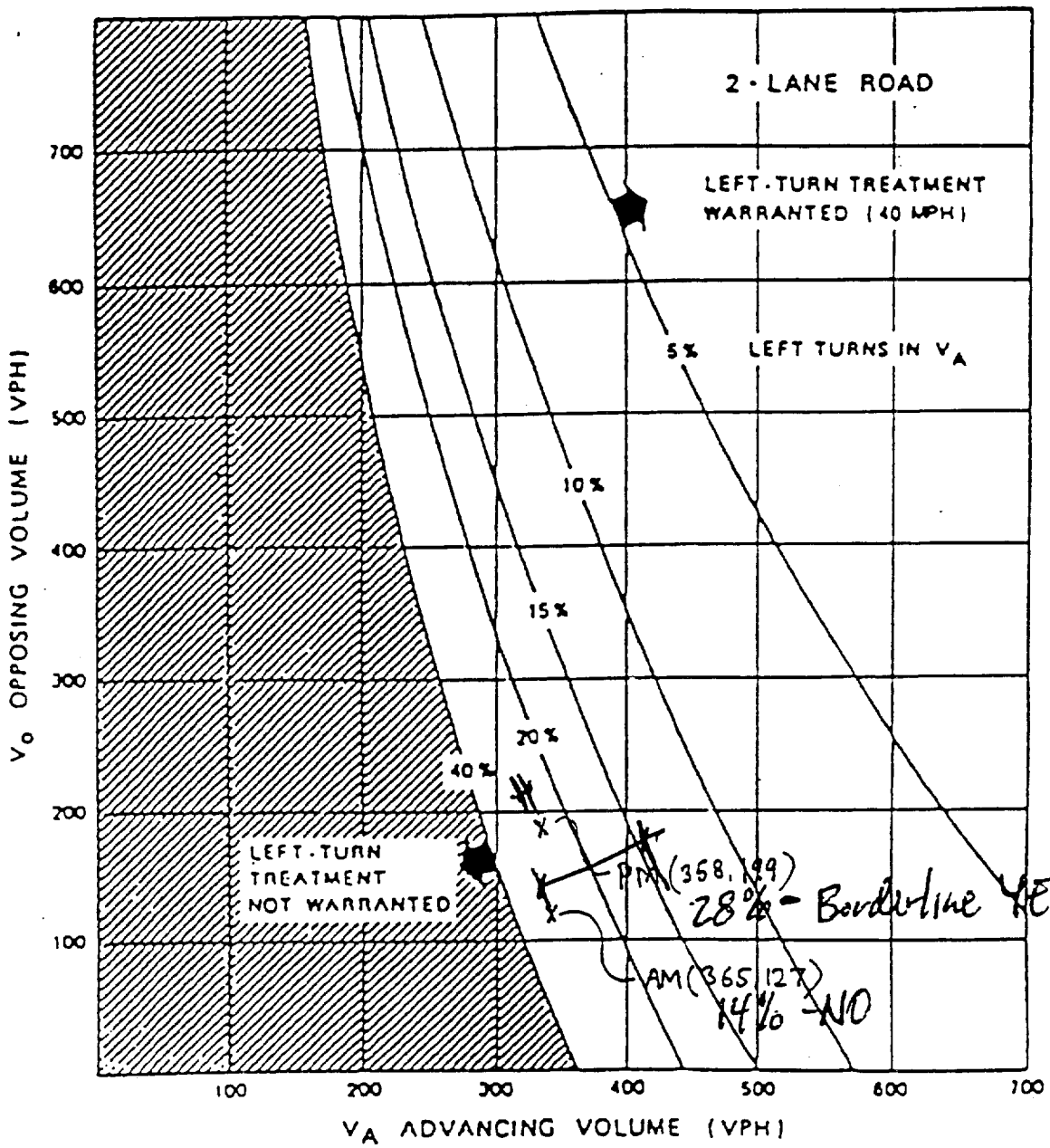
CUMULATIVE



Source: Transportation Research **Board**, "Intersection **Channelization Guide", NCHRP Report 279,** November, **1985**

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 98-0148

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EXISTING CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

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Intersection #5 Cabrillo College Dr / Willowbrook Ln

****

Average Delay (sec/veh): 0.9 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop sign			stop sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	8	0	99	44	293	0	0	90	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	8	0	99	44	293	0	0	90	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	8	0	104	46	308	0	0	95	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	8	0	104	46	308	0	0	95	4
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	9	0	115	51	308	0	0	95	4
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	452	xxxx	97	99	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	580	xxxx	1237	1538	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.96	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	556	xxxx	1237	1538	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	6.6	xxxx	3.2	2.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	1133	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	3.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*
ApproachDel:	0.0			3.4			0.3			0.0		

Environmental Review Inital Study
ATTACHMENT 10
APPLICATION 98-048

292

EXISTING CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

****

Intersection #5 Cabrillo College Dr / Willowbrook Ln

****

Average Delay (sec/veh): 0.9 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0 1!	0 0		0 1	0 0 0		0 0 0	1 0	
Volume Module:												
Base Vol:	0	0	0	9	0	59	82	240	0	0	164	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	9	0	59	82	240	0	0	164	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	9	0	62	86	253	0	0	173	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	9	0	62	86	253	0	0	173	15
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	10	0	68	95	253	0	0	173	15
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	519	xxxx	180	187	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	530	xxxx	1122	1396	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.92	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	488	xxxx	1122	1396	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	7.5	xxxx	3.4	2.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	957	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	3.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*
ApproachDel:	0.0			3.9			0.8			0.0		

Environmental Review Inital Stud)
ATTACHMENT 19
APPLICATION 98-048

EXISTING PLUS PROJECT CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #5 Cabrillo College Dr / Willowbrook Ln

****

Average Delay (sec/veh): 1.0 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0	0 0	0	0 1!	0 0	0	1 0	0 0	0	0 0	1 0
Volume Module:												
Base Vol:	0	0	0	8	0	99	44	293	0	0	90	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	8	0	99	44	293	0	0	90	4
Added Vol:	0	0	0	0	0	12	4	0	0	0	0	3
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	8	0	111	48	293	0	0	90	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	8	0	117	51	308	0	0	95	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	8	0	117	51	308	0	0	95	7
Adjusted Volume Module:												
Grade:		0%			0%			00			0%	
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	9	0	129	56	308	0	0	95	7
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	457	xxxx	98	102	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	575	xxxx	1234	1533	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.96	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	550	xxxx	1234	1533	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	6.6	xxxx	3.2	2.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	1139	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	3.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*
ApproachDel:		0.0			3.5			0.4			0.0	

EXISTING PLUS PROJECT CONDITIONS

Level of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #5 Cabrillo College Dr / Willowbrook Ln

****

Average Delay (sec/veh): 1.0 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	stop sign			stop sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	9	0	59	82	240	0	0	164	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	9	0	59	82	240	0	0	164	14
Added Vol:	0	0	0	0	0	7	13	0	0	*0*	*0*	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	*0*	0
Initial Fut:	0	0	0	9	0	66	95	240	0	0	164	23
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	*0.95*	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	9	0	69	100	253	0	0	173	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	*0*	0
Final Vol.:	0	*0*	*0*	9	0	69	100	253	*0*	0	173	24
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	10	0	76	110	253	0	0	173	24
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	537	xxxx	185	197	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	517	xxxx	1116	1381	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.91	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	469	xxxx	1116	1381	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
stopped Del:	xxxxx	*xxxx*	xxxxx	7.8	xxxx	3.4	2.8	*XXXX*	xxxxx	xxxxx	*XXXX*	xxxxx
LOS by Move:	•	*	*	•	•	•	A	*	*	•	•	•
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	*xxxx*	958	xxxxx	xxxx	xxxx	xxxxx	xxxx	*xxxx*	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	4.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	*xxxx*	xxxxx
Shared LOS:	*	*	•	*	A	*	*	*	*	•	•	•
ApproachDel:		0.0			4.0			0.9			*0.0*	

Environmental Review Inital *Stud;*

ATTACHMENT 19

APPLICATION 99-0148

CUMULATIVE CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 Cabrillo College Dr / Willowbrook Ln

Average Delay (sec/veh): 1.0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	8	0	99	44	293	0	0	90	4
Growth Adj:	1.00	1.00	1.00	1.07	1.00	1.07	1.07	1.07	1.00	1.00	1.07	1.07
Initial Bse:	0	0	0	9	0	106	47	314	0	0	96	4
Added Vol:	0	0	0	0	0	12	4	0	0	0	0	3
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	9	0	118	51	314	0	0	96	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	9	0	124	54	330	0	0	101	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	9	0	124	54	330	0	0	101	8
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	10	0	137	59	330	0	0	101	8
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	489	xxxx	105	109	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	552	xxxx	1225	1521	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.55	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	525	xxxx	1225	1521	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
stopped Del:	xxxxx	xxxx	xxxxx	7.0	xxxx	3.3	2.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	1123	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	3.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*
ApproachDel:	0.0			3.5			0.4			0.0		

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 98-0188

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CUMULATIVE CONDITIONS

Level Of Service Computation **Report**
1994 HCM Unsignalized Method (Future **Volume** Alternative)

Intersection #5 Cabrillo **College** Dr / **Willowbrook Ln**

Average **Delay** (sec/veh): 1.0 **Level** Of **Service**: A

Approach:	**North** Bound			**South** Bound			**East** Bound			West **Bound**		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop **sign**			stop **sign**			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base **Vol:**	0	0	0	9	0	59	82	240	0	0	164	14
Growth **Adj:**	1.00	1.00	1.00	1.07	1.00	1.07	1.07	1.07	1.00	1.00	1.07	1.07
Initial Bse:	0	0	0	10	0	63	88	257	0	0	175	15
Added Vol:	0	0	0	0	0	7	13	0	0	0	0	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	10	0	70	101	257	0	0	175	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF *Adj*:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PKF Volume:	0	0	0	10	0	74	106	270	0	0	185	25
Reduct **Vol:**	0	0	0	0	0	0	0	0	0	0	0	0
Final **Vol.**:	0	0	0	10	0	74	106	270	0	0	185	25
Adjusted **Volume** Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		XXXX	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	11	0	81	117	270	0	0	185	25
Critical Gap Module:												
MoveUp **Time**:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict **Vol:**	xxxx	xxxx	xxxxx	574	xxxx	197	210	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	493	xxxx	1100	1362	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.90	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	443	xxxx	1100	1362	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level **Of** Service **Module:**												
Stopped **Del**:	xxxxx	xxxx	xxxxx	8.3	xxxx	3.5	2.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	933	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	+	A	*	*	*	*	*	*	*
ApproachDel:		0.0			4.1			0.9			0.0	

Environmental Review Inital *Study*
ATTACHMENT 19
APPLICATION 98-048

APPENDIX H -

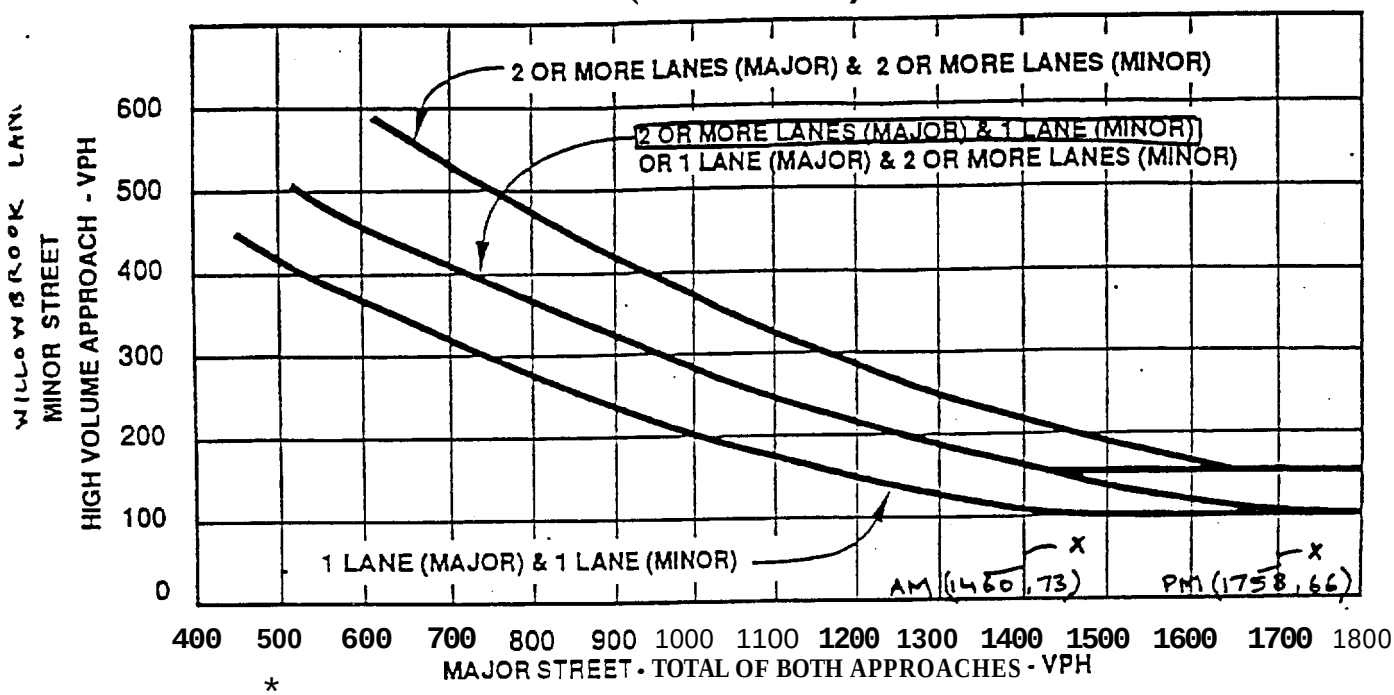
LEVEL OF SERVICE
CALCULATION WORKSHEETS

Soquel Drive / Willowbrook Lane

ATTACHMENT 19
APPLICATION 98-0149

EXISTING

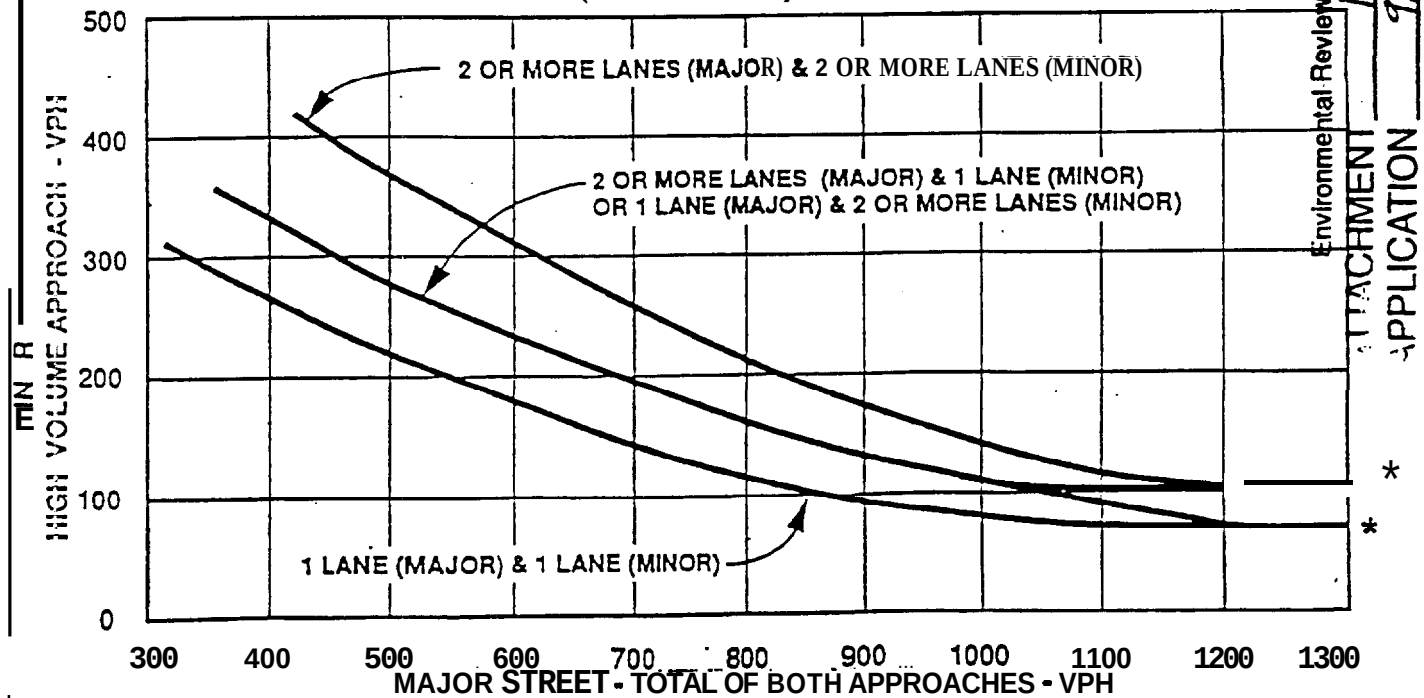
PEAK HOUR VOLUME WARRANT
(Urban Areas)



* NOTE: SOQUEL DRIVE

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOWME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)



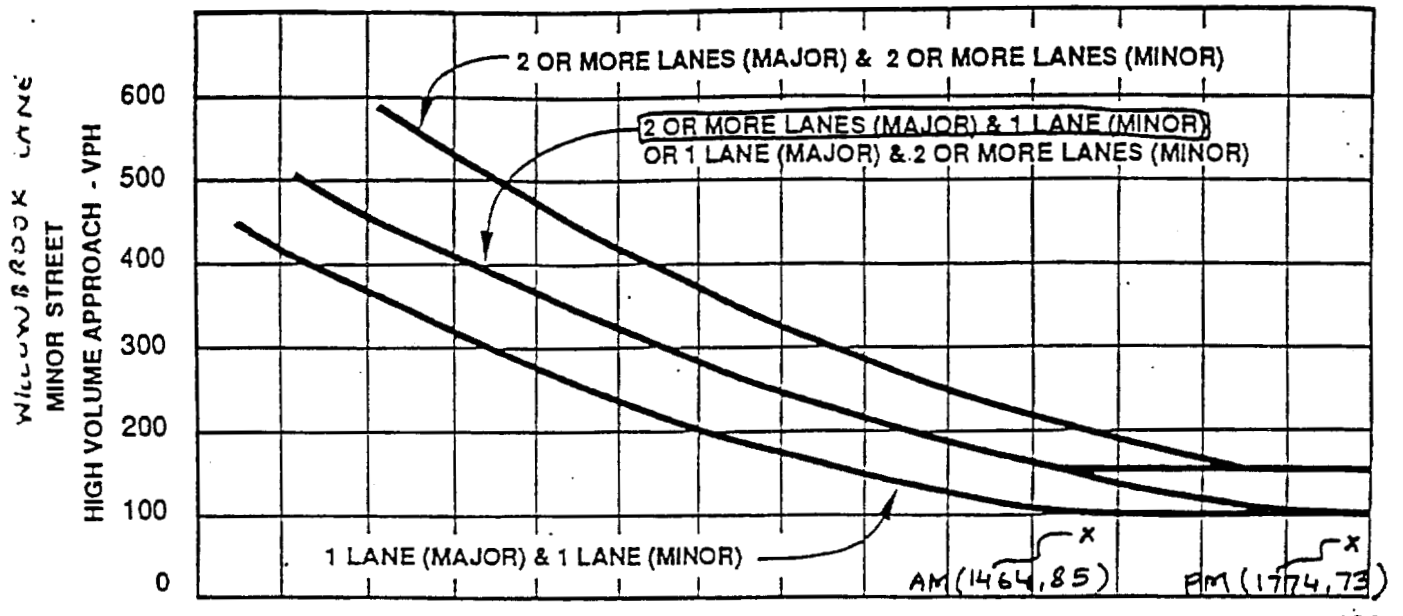
Environmental Review Initial Study
ATTACHMENT 19
APPLICATION 98-0148

* NOTE: 299

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING PLUS PROJECT

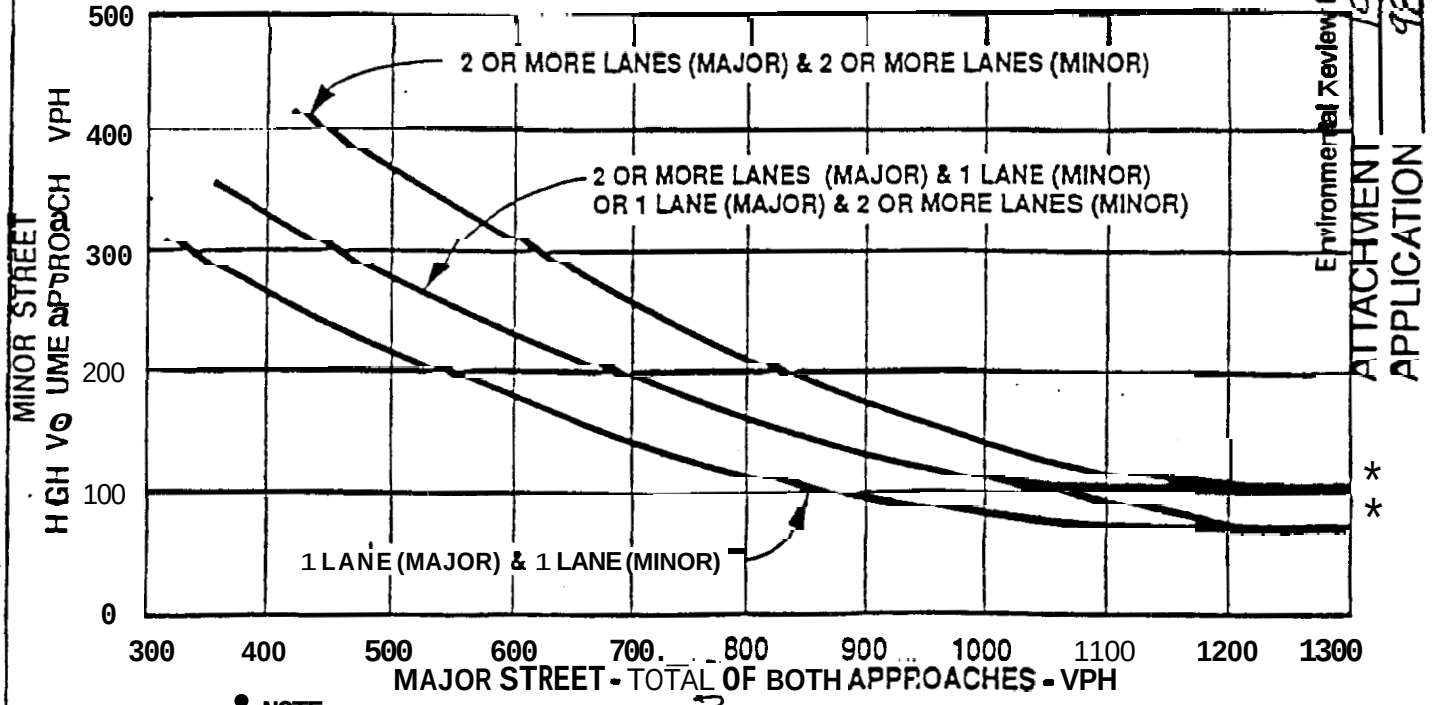
PEAK HOUR VOLUME WARRANT
(Urban Areas)



* NOTE: SOQUEL DRIVE

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)



Environmental Review Initial Study
ATTACHMENT 13
APPLICATION 95-104

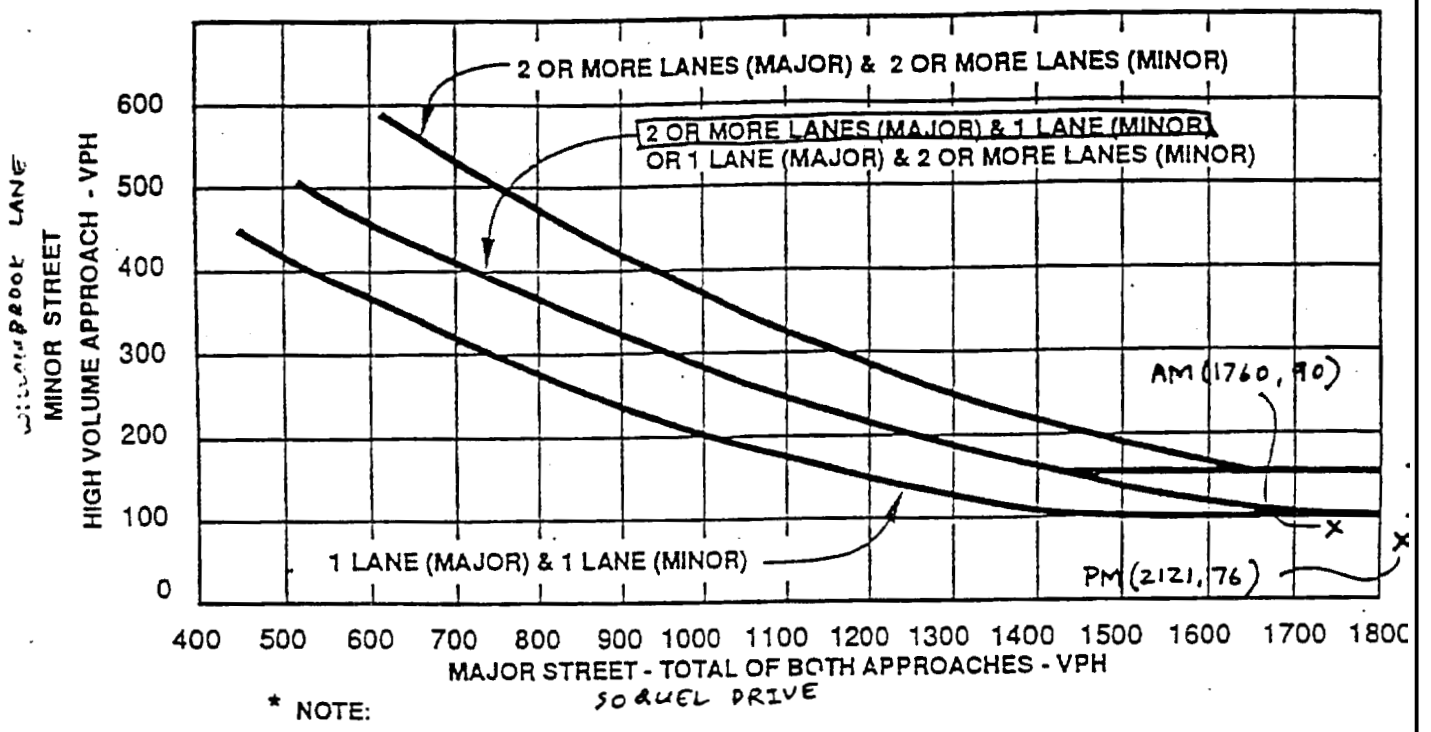
* *

• NOTE: 300

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH *TWO* OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

CUMULATIVE

PEAK HOUR VOLUME WARRANT
(Urban Areas)

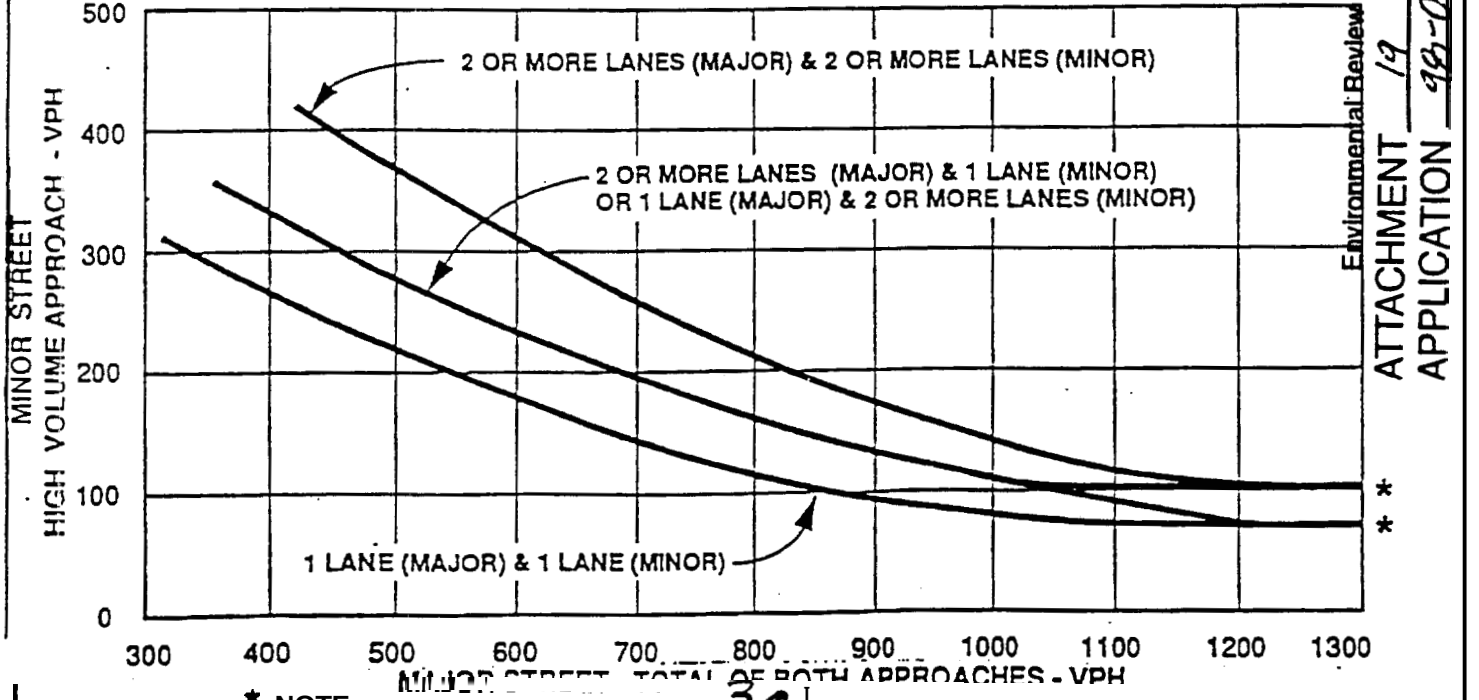


SOQUEL DRIVE

* NOTE:

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)



Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 98-0148

* NOTE

30

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH *TWO* OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

EXISTING CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Soquel Ave / Willowbrook Ln

Average Delay (sec/veh): 2.2 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	47	0	26	1	0	15	6	745	46	16	646	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	47	0	26	1	0	15	6	745	46	16	646	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	49	0	27	1	0	16	6	784	48	17	680	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	49	0	27	1	0	16	6	784	48	17	680	1
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	54	0	30	1	0	17	7	784	48	19	680	1
Critical Gap Module:												
MoveUp Time:	3.4	xxxx	2.6	3.4	xxxx	2.6	2.1	xxxx	xxxxx	2.1	xxxx	xxxxx
Critical Gp:	7.0	xxxx	5.5	7.0	xxxx	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1512	xxxx	416	1488	xxxx	341	681	xxxx	xxxxx	833	xxxx	xxxxx
Potent Cap.:	114	xxxx	852	118	xxxx	931	739	xxxx	xxxxx	612	xxxx	xxxxx
Adj Cap:	0.95	xxxx	1.00	0.94	xxxx	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Move Cap.:	109	xxxx	852	111	xxxx	931	739	xxxx	xxxxx	612	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	59.9	xxxx	4.4	32.8	xxxx	3.9	4.9	xxxx	xxxxx	6.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	A	A	*	*	B	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	158	xxxxx	111	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	40.1	xxxxx	32.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	E	*	E	*	*	*	*	*	*	*	*
ApproachDel:		40.1			5.7			0.0			0.2	

Environmental Review Initial Study
ATTACHMENT 19
APPLICATION 98-048

EXISTING CONDITIONS

Level of Service computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 **Soquel Ave / Willowbrook Ln**

Average Delay (sec/veh): 3.4 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			stop sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0 0		0 1	0 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	313	2	26	2	1	7	21	892	86	37	717	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	38	2	26	2	1	7	21	892	86	37	717	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PEF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PBF Volume:	40	2	27	2	1	7	22	939	91	39	755	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	40	2	27	2	1	7	22	939	91	39	755	3
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	44	2	30	2	1	8	24	939	91	43	755	3
Critical Gap Module:												
MoveUp Time:	3.4	3.3	2.6	3.4	3.3	2.6	2.1	xxxx	xxxxx	2.1	xxxx	xxxxx
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1801	1803	515	1757	1847	379	758	xxxx	xxxxx	1029	xxxx	xxxxx
Potent Cap.:	75	96	759	80	91	890	672	xxxx	xxxxx	480	xxxx	xxxxx
Adj Cap:	0.89	0.88	1.00	0.85	0.88	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Move Cap.:	66	84	759	68	80	890	672	xxxx	xxxxx	480	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	128.6	43.8	4.9	54.7	45.9	4.1	5.5	xxxx	xxxxx	8.2	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	A	B	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	105	xxxxx	71	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	77.3	xxxxx	51.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	F	*	*	*	*	*	*	*	*
ApproachDel:		77.3			18.4			0.1			0.4	

Environmental Review Inital Study
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APPLICATION 99-048

EXISTING PLUS PROJECT CONDITIONS

Level Of Service computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Soquel Ave / Willowbrook Ln

Average Delay (sec/veh): 3.4 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	stop sign			stop sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0 0		0 1	0 0 1		1 0	1 1 0		1 0	1 1 0	
Volume Module:												
Base Vol:	47	0	26	1	0	15	6	745	46	16	646	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	47	0	26	1	0	15	6	745	46	16	646	1
Added Vol:	12	0	0	0	0	0	0	2	1	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	59	0	26	1	0	15	6	747	47	17	646	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PXF Volume:	62	0	27	1	0	16	6	786	49	18	680	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	62	0	27	1	0	16	6	786	49	18	680	1
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	68	0	30	1	0	17	7	786	49	20	680	1
Critical Gap Module:												
MoveUp Time:	3.4	xxxx	2.6	3.4	xxxx	2.6	2.1	xxxx	xxxxx	2.1	xxxx	xxxxx
Critical Gp:	7.0	xxxx	5.5	7.0	xxxx	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1515	xxxx	418	1491	xxxx	341	681	xxxx	xxxxx	836	xxxx	xxxxx
Potent Cap.:	114	xxxx	850	118	xxxx	931	739	xxxx	xxxxx	610	xxxx	xxxxx
Adj Cap:	0.95	xxxx	1.00	0.93	xxxx	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Move Cap.:	108	xxxx	850	110	xxxx	931	739	xxxx	xxxxx	610	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	75.9	xxxx	4.4	33.0	xxxx	3.9	4.9	xxxx	xxxxx	6.1	xxxx	xxxxx
LOS by Move:	F	*	A	D	A	A	A	*	A	B	A	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	147	xxxxx	110	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	54.0	xxxxx	33.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	F	F	A	D	*	*	*	A	A	*	*	A
ApproachDel:		54.0			5.8			0.0			0.2	

Environmental Review Inital Study
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APPLICATION 98-0148

EXISTING PLUS PROJECT CONDITIONS

Level Of Service computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Soquel Ave / Willowbrook Ln

Average Delay (sec/veh): 5.2 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	stop sign			stop sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 1 0 0 1			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	38	2	26	2	1	7	21	892	86	37	717	3
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	38	2	26	2	1	7	21	892	86	37	717	3
Added Vol:	7	0	0	0	0	0	0	9	5	2	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial rut:	45	2	2 6	2	1	7	21	901	91	39	717	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95,	0.95	0.95	0.95
PHF Volumc:	47	2	27	2	1	7	22	948	96	41	755	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	47	2	27	2	1	7	22	948	96	41	755	3
Adjusted Volume Module:												
Grade:	0%			00			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	52	2	30	2	1	8	24	948	96	45	755	3
Critical Gap Module:												
MoveUp Time:	3.4	3.3	2.6	3.4	3.3	2.6	2.1	xxxx	xxxxx	2.1	xxxx	xxxxx
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1815	1817	522	1769	1864	379	758	xxxx	xxxxx	1044	xxxx	xxxxx
Potent Cap.:	73	94	753	78	89	890	672	xxxx	xxxxx	472	xxxx	xxxxx
Adj cap:	0.88	0.87	1.00	0.85	0.87	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Move Cap.:	65	82	753	66	77	890	672	xxxx	xxxxx	472	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	177.4	45.0	5.0	56.0	47.3	4.1	5.5	xxxx	xxxxx	8.4	xxxx	xxxxx
LOS by Move:	•	•	*	•	•	A	B	*	•	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	97	xxxxx	70	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	112	xxxxx	53.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	•	F	*	F	*	•	•	•	•	•	•	•
ApproachDel:	112.4			18.8			0.1			0.5		

Environmental Review Inital Stud
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APPLICATION 98-0148

CUMULATIVE CONDITIONS

Level of Service computation Report

1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Soquel Ave / Willowbrook Ln

Average Delay (sec/veh): 12.3 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	stop sign			Stop sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Indude			Include		
Lanes:	0 0 1! 0 0			0 1 0 0 1			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	47	0	26	1	0	15	6	745	46	16	646	1
Growth Adj:	1.07	1.00	1.07	1.00	1.00	1.00	1.00	1.21	1.07	1.07	1.21	1.00
Initial Bse:	50	0	28	1	0	15	6	901	49	17	782	1
Added Vol:	12	0	0	0	0	0	0	2	1	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	62	0	28	1	0	15	6	903	50	18	782	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	66	0	29	1	0	16	6	951	53	19	823	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	66	0	29	1	0	16	6	951	53	19	823	1
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	XXXX	XXXX		XXXX	XXXX		XXXX	XXXX		XXXX	XXXX	
% Truck/Comb:	XXXX	XXXX		XXXX	XXXX		XXXX	XXXX		XXXX	XXXX	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	XXXX	XXXX		XXXX	XXXX		XXXX	XXXX		XXXX	XXXX	
Trck/Cmb PCE:	XXXX	XXXX		XXXX	XXXX		XXXX	XXXX		XXXX	XXXX	
Adj Vol.:	72	0	32	1	0	17	7	951	53	21	823	1
Critical Gap Module:												
MoveUp Time:	3.4	XXXX	2.6	3.4	XXXX	2.6	2.1	XXXX	XXXXX	2.1	XXXX	XXXXX
Critical Gp:	7.0	XXXX	5.5	7.0	XXXX	5.5	5.5	XXXX	XXXXX	5.5	XXXX	XXXXX
Capacity Module:												
Cnflict Vol:	1826	XXXX	502	1800	XXXX	412	824	XXXX	XXXXX	1004	XXXX	XXXXX
Potent Cap.:	72	XXXX	771	75	XXXX	856	619	XXXX	XXXXX	496	XXXX	XXXXX
Adj Cap:	0.94	XXXX	1.00	0.92	XXXX	1.00	1.00	XXXX	XXXXX	1.00	XXXX	XXXXX
Move Cap.:	68	XXXX	771	69	XXXX	856	619	XXXX	XXXXX	496	XXXX	XXXXX
Level Of Service Module:												
Stopped Del:	330.4	XXXX	4.9	53.1	XXXX	4.3	5.9	XXXX	XXXXX	7.6	XXXX	XXXXX
LOS by Move:	F	*	A	F	*	A	B	*	A	B	*	A
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	XXXX	94	XXXXX	69	XXXX	XXXXX	XXXX	XXXX	XXXXX	XXXX	XXXX	XXXXX
Shrd StpDel:	XXXXX	230	XXXXX	53.1	XXXX	XXXXX	XXXXX	XXXX	XXXXX	XXXXX	XXXX	XXXXX
Shared LOS:	*	F	A	F	*	A	*	A	*	A	A	A
ApproachDel:	229.9			7.3			0.0			0.2		

Environmental Review Inital Study
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APPLICATION 98-0149

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Level Of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

Intersection #2 Soquel Ave / Willowbrook Ln

Cycle (sec):	45	Critical Vol./Cap. (X):	0.351
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	1.5
Optimal Cycle:	29	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1! 0	0	0	1	0	1	1	0	1	0
Volume Module:												
Base Vol:	47	0	26	1	0	15	6	745	46	16	646	1
Growth Adj:	1.07	1.00	1.07	1.00	1.00	1.00	1.00	1.21	1.07	1.07	1.21	1.00
Initial Bse:	50	0	28	1	0	15	6	901	49	17	782	1
Added Vol:	12	0	0	0	0	0	0	2	1	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	62	0	28	1	0	15	6	903	50	18	782	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	66	0	29	1	0	16	6	951	53	19	823	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	66	0	29	1	0	16	6	951	53	19	823	1
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.05	1.05
Final Vol.:	66	0	29	1	0	16	6	999	56	19	864	1
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.83	0.92	1.00	0.85	0.95	0.99	0.99	0.95	1.00	1.00
Lanes:	0.69	0.00	0.31	1.00	0.00	1.00	1.00	1.89	0.11	1.00	1.99	0.01
Final Sat.:	1101	0	484	1748	0	1615	1805	3562	200	1805	3796	4
Capacity Analysis Module:												
Vol/Sat:	0.06	0.00	0.06	0.00	0.00	0.01	0.00	0.28	0.28	0.01	0.23	0.23
Crit Moves:	****							****		****		
Green/Cycle:	0.17	0.00	0.17	0.17	0.00	0.17	0.01	0.80	0.80	0.03	0.82	0.82
Volume/Cap:	0.35	0.00	0.35	0.00	0.00	0.06	0.28	0.35	0.35	0.35	0.28	0.28
Level Of Service Module:												
Uniform Del:	12.5	0.0	12.5	11.8	0.0	11.9	16.7	1.0	1.0	16.3	0.7	0.7
IncrementDel:	0.3	0.0	0.3	0.0	0.0	0.0	1.8	0.0	0.0	1.6	0.0	0.0
Delay Adj:	0.85	0.00	0.85	0.85	0.00	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Delay/Veh:	11.0	0.0	11.0	10.0	0.0	10.1	16.0	0.8	0.8	15.4	0.6	0.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.0	0.0	11.0	10.0	0.0	10.1	16.0	0.8	0.8	15.4	0.6	0.6
DesignQueue:	1	0	1	0	0	0	0	5	0	0	4	0

Environmental Review Inital Stud)
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APPLICATION 98-0146

3-87

CUMULATIVE CONDITIONS

Level of Service computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #2 Soquel Ave / Willowbrook Ln

****

Average Delay (sec/veh): 25.3 Level Of Service: D

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	stop sign			Stop sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!		0 0	0 1	0 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	38	2	26	2	1	7	21	E92	E6	37	717	3
Growth Adj:	1.07	1.00	1.07	1.00	1.00	1.00	1.00	1.21	1.07	1.07	1.21	1.00
Initial Bse:	41	2	28	2	1	7	21	1079	92	40	868	3
Added Vol:	7	0	0	0	0	0	0	9	5	2	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	48	2	28	2	1	7	21	1088	97	42	868	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	50	2	29	2	1	7	22	1146	102	44	913	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	50	2	29	2	1	7	22	1146	102	44	913	3
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	55	2	32	2	1	8	24	1146	102	48	913	3
Critical Gap Module:												
MoveUp Time:	3.4	3.3	2.6	3.4	3.3	2.6	2.1	xxxx	xxxxx	2.1	xxxx	xxxxx
Critical Gp:	7.0	6.5	5.5	7.0	6.5	5.5	5.5	xxxx	xxxxx	5.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	2176	2179	624	2127	2228	458	916	xxxx	xxxxx	1248	xxxx	xxxxx
Potent Cap.:	43	58	669	46	54	611	552	xxxx	xxxxx	367	xxxx	xxxxx
Adj Cap:	0.84	0.83	1.00	0.80	0.63	1.00	1.00	xxxx	xxxxx	1.00	xxxx	xxxxx
Move Cap.:	36	48	669	37	45	611	552	xxxx	xxxxx	367	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	1047	78.3	5.6	103.5	81.9	4.5	6.8	xxxx	xxxxx	11.1	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	A	B	*	*	C	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	56	xxxxx	39	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	648	xxxxx	96.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared MS:	*	F	*	F	*	*	*	*	*	*	*	*
ApproachDel:	647.8			32.0			0.1			0.6		

Environmental Review Inital Study
ATTACHMENT 9
APPLICATION 99040

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Level Of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

Intersection #2 Soquel Ave / Willowbrook Ln

Cycle (sec):	45	Critical Vol./Cap. (X):	0.424
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	1.5
Optimal Cycle:	32	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	38	2	26	2	1	7	21	892	86	37	717	3
Growth Adj:	1.07	1.00	1.07	1.00	1.00	1.00	1.00	1.21	1.07	1.07	1.21	1.00
Initial Bse:	41	2	28	2	1	7	21	1079	92	40	868	3
Added Vol:	7	0	0	0	0	0	0	9	5	2	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	48	2	28	2	1	7	21	1088	97	42	868	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	50	2	29	2	1	7	22	1146	102	44	913	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	2	29	2	1	7	22	1146	102	44	913	3
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.05	1.05
Final Vol.:	50	2	29	2	1	7	22	1203	107	44	959	3
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.82	0.82	0.82	0.88	0.88	0.85	0.95	0.99	0.99	0.95	1.00	1.00
Lanes:	0.62	0.02	0.36	0.67	0.33	1.00	1.00	1.84	0.16	1.00	1.99	0.01
Final Sat.:	967	39	561	1115	557	1615	1805	3455	307	1805	3788	12
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.05	0.00	0.00	0.00	0.01	0.35	0.35	0.02	0.25	0.25
Crit Moves:		****						****		****		
Green/Cycle:	0.12	0.12	0.12	0.12	0.12	0.12	0.04	0.82	0.82	0.06	0.84	0.04
Volume/Cap:	0.42	0.42	0.42	0.01	0.01	0.04	0.30	0.42	0.42	0.42	0.30	0.30
Level Of Service Module:												
Uniform Del:	13.9	13.9	13.9	13.2	13.2	13.2	15.9	0.8	0.8	15.6	0.6	0.6
IncremntDel:	0.9	0.9	0.9	0.0	0.0	0.0	0.7	0.1	0.1	1.7	0.0	0.0
Delay Adj:	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Delay/Veh:	12.8	12.8	12.8	11.2	11.2	11.3	14.3	0.8	0.8	14.9	0.5	0.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.8	12.8	12.8	11.2	11.2	11.3	14.3	0.8	0.8	14.9	0.5	0.5
DesignQueue:	1	0	1	0	0	0	1	6	1	1	6	6

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 98-0148

APPENDIX I -

LEVEL OF SERVICE
CALCULATION WORKSHEETS

Atherton Drive / Sesnon Circle (North)

EXISTING **PLUS PROJECT CONDITIONS**

Level *Of* **Service** Computation **Report**
1994 HCM Unsignalized Method {Future Volumc Alternative)

Intersection #6 Artherton Dr / Project D/W # 1

Average Delay (sec/veh) : 0.7 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights :	Include			Include			Include			Include		
Lanes :	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	22	0	0	5	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	22	0	0	5	0	0	0	0	0	0	0
Added Vol :	0	7	2	1	2	0	0	0	0	6	0	3
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	29	2	1	7	0	0	0	0	6	0	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHP Volumc:	0	31	2	1	7	0	0	0	0	6	0	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	31	2	1	7	0	0	0	0	6	0	3
Adjusted Volume Module:												
Grade:		0B			0B			0%			0%	
0 Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj :	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	31	2	1	7	0	0	0	0	7	0	3
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	33	xxxx	xxxxx	xxxx	xxxx	xxxxx	40	xxxx	32
Potent Cap.:	xxxx	xxxx	xxxxx	1654	xxxx	xxxxx	xxxx	xxxx	xxxxx	1004	xxxx	1335
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.00	xxxx	1.00
Move Cap.:	xxxx	xxxx	xxxxx	1654	xxxx	xxxxx	xxxx	xxxx	xxxxx	1003	xxxx	1335
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.6	xxxx	2.7
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1094	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.3	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	A	*
ApproachDel:		0.0			0.3			0.0			3.3	

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EXISTING PLUS PROJECT CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalitcd Method (futureVolume Alternative)

****

Intersection #6 Artherton Dr / Project D/W # 1

****

Average Delay (sec/veh): 0.4 Level Of Service: A

****

Approach:	North Bound			South Bound			*East* Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Uncontrolled			Uncontrolled			stop sign			stop sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 1	0	0 1	0 0	0	0 0	0 0	0	0 0	1! 0	*0*
Volume Module:												
Base Vol:	*0*	15	0	0	30	0	0	0	0	0	0	*0*
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	15	0	0	30	0	0	0	0	0	0	0
Added Vol:	0	5	7	3	6	0	*0*	0	0	4	0	2
PasserByVol:	0	0	0	0	0	0	*0*	0	0	0	0	*0*
Initial Fut:	0	20	*7*	3	36	0	0	0	0	4	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	*0.95*	0.95
PHF Volume:	0	21	*7*	3	38	0	0	0	0	4	0	2
Reduct Vol:	0	0	*0*	0	0	0	*0*	0	0	0	0	0
Final Vol.:	0	21	7	3	38	0	0	0	0	4	0	2
Adjusted Volume Module:												
Grade:		*0%*			0%			*00*			0%	
% Cycle/Cars:	xxxx	MXX		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	*XXXX*	xxxx		xxxx	xxxx		xxxx	*xxxx*		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	*xxxx*		xxxx	*xxxx*		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	21	*7*	3	38	0	0	0	0	5	0	*2*
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxMx	xxxxx	xxxx	xxxxx	3.4	xxxx	*2.6*
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	*6.5*	xxxx	*5.5*
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	28	xxxx	xxxxx	xxxx	xxxx	xxxxx	66	xxxx	25
Potent Cap.:	xxxx	xxxx	xxxxx	1662	xxxx	xxxxx	xxxx	xxxx	xxxxx	970	xxxx	1345
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.00	xxxx	1.00
Move Cap.:	xxxx	xxxx	xxxxx	1662	xxxx	xxxxx	xxxx	xxxx	xxxxx	968	xxxx	1345
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.7	xxxx	2.7
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1068	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.4	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	A	*
ApproachDel:		0.0			0.2			0.0			3.4	

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Environmental Review Inital Study
ATTACHMENT 19
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CUMULATIVE CONDITIONS

Level of Service computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #6 Atherton Dr / Project DW # 1

****

Average Delay (sec/veh): 0.7 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -		RL -	T -		RL -	T -		RL -	T -	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 1	0	0 1	0 0	0	0 0	0 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	0	22	0	0	5	0	0	0	0	0	0	0
Growth Adj:	1.00	1.07	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bsc:	0	24	0	0	5	0	0	0	0	0	0	0
Added Vol:	0	7	2	1	2	0	0	0	0	6	0	3
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	31	2	1	7	0	0	0	0	6	0	3
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	32	2	1	8	0	0	0	0	6	0	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	32	2	1	8	0	0	0	0	6	0	3
Adjusted Volume Module:												
Grade:		0%			0%			0%			0%	
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	32	2	1	8	0	0	0	0	7	0	3
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	34	xxxx	xxxxx	xxxx	xxxx	xxxxx	42	xxxx	33
Potent Cap.:	xxxx	xxxx	xxxxx	1651	xxxx	xxxxx	xxxx	xxxx	xxxxx	1001	xxxx	1332
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.00	xxxx	1.00
Move Cap.:	xxxx	xxxx	xxxxx	1651	xxxx	xxxxx	xxxx	xxxx	xxxxx	1000	xxxx	1332
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.6	xxxx	2.7
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1091	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.3	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	A	*
ApproachDel:		0.0			0.3			0.0			3.3	

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ATTACHMENT 19
APPLICATION 98-0148

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CUMULATIVE CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #6 Atherton Dr / Project D/W # 1

****

Average Delay (sec/veh): 0.4 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			stop sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	1	0	0	1 0 0	0	0 0 0	0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	0	15	0	0	30	0	0	0	0	0	0	0
Growth Adj:	1.00	1.07	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	16	0	0	32	0	0	0	0	0	0	0
Added Vol:	0	5	7	3	6	0	0	0	0	4	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	21	7	3	38	0	0	0	0	4	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PRF Volume:	0	22	7	3	40	0	0	0	0	4	0	2
Rcduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	22	7	3	40	0	0	0	0	4	0	2
Adjusted Volume Module:												
Gradt:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	22	7	3	40	0	0	0	0	5	0	2
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	30	xxxx	xxxxx	xxxx	xxxx	xxxxx	69	xxxx	26
Potent Cap.:	xxxx	xxxx	xxxxx	1660	xxxx	xxxxx	xxxx	xxxx	xxxxx	966	xxxx	1343
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.00	xxxx	1.00
Move Cap.:	xxxx	xxxx	xxxxx	1660	xxxx	xxxxx	xxxx	xxxx	xxxxx	964	xxxx	1343
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.8	xxxx	2.7
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1064	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.4	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	A	*
ApproachDel:		0.0			0.2			0.0			3.4	

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 99-0149

APPENDIX J -

LEVEL OF SERVICE CALCULATION WORKSHEETS

Atherton **Drive /** Sesnon Circle **(South)**

EXISTING PLUS PROJECT CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #16 Artherton Dr / Project D/W # 2

****

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	22	0	0	5	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	22	0	0	5	0	0	0	0	0	0	0
Added Vol:	0	6	3	1	7	0	0	0	0	8	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	28	3	1	12	0	0	0	0	8	0	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	29	3	1	13	0	0	0	0	8	0	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	29	3	1	13	0	0	0	0	8	0	4
Adjusted Volume Module:												
Grade:		0%			0%			0%			0%	
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	29	3	1	13	0	0	0	0	9	0	5
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	33	xxxx	xxxxx	xxxx	xxxx	xxxxx	45	xxxx	31
Potent Cap.:	xxxx	xxxx	xxxxx	1654	xxxx	xxxxx	xxxx	xxxx	xxxxx	998	xxxx	1335
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.00	xxxx	1.00
Move Cap.:	xxxx	xxxx	xxxxx	1654	xxxx	xxxxx	xxxx	xxxx	xxxxx	997	xxxx	1335
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.6	xxxx	2.7
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1089	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.3	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	A	*
ApproachDel:		0.0			0.2			0.0			3.3	

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 96-0148

EXISTING PLUS PROJECT CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalitcd Method (Future Volume Alternative)

****

Intersection #16 Artherton Dr / Project D/W # 2

****

Average Delay (sec/veh): 0.4 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop sign			stop sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	15	0	0	30	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	15	0	0	30	0	0	0	0	0	0	0
Added Vol:	0	10	10	4	6	0	0	0	0	5	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	25	10	4	36	0	0	0	0	5	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	26	11	4	38	0	0	0	0	5	0	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	26	11	4	38	0	0	0	0	5	0	2
Adjusted Volume Module:												
Grade:	0%			0%			00			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	26	11	5	38	0	0	0	0	6	0	2
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	37	xxxx	xxxxx	xxxx	xxxx	xxxxx	74	xxxx	32
Potent Cap.:	xxxx	xxxx	xxxxx	1646	xxxx	xxxxx	xxxx	xxxx	xxxxx	960	xxxx	1335
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.00	xxxx	1.00
Move Cap.:	xxxx	xxxx	xxxxx	1646	xxxx	xxxxx	xxxx	xxxx	xxxxx	957	xxxx	1335
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.8	xxxx	2.7
LOS by Move:	•	*	•	A	*	•	*	•	•	*	•	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1041	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.5	xxxxx
Shared LOS:	•	*	•	•	•	•	*	•	•	*	A	•
ApproachDel:	0.0			0.2			0.0			3.5		

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 98-0140

CUMULATIVE CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #16 Atherton Dr / Project D/W # 2

Average Delay (sec/veh): 0.8 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 1	0	0 1	0 0	0	0 0	0 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	0	22	0	0	5	0	0	0	0	0	0	0
Growth Adj:	1.00	1.07	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	24	0	0	5	0	0	0	0	0	0	0
Added Vol:	0	6	3	1	7	0	0	0	0	8	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	30	3	1	12	0	0	0	0	8	0	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	31	3	1	13	0	0	0	0	8	0	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	31	3	1	13	0	0	0	0	8	0	4
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	31	3	1	13	0	0	0	0	9	0	5
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	34	xxxx	xxxxx	xxxx	xxxx	xxxxx	47	xxxx	33
Potent Cap.:	xxxx	xxxx	xxxxx	1651	xxxx	xxxxx	xxxx	xxxx	xxxxx	995	xxxx	1333
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.00	xxxx	1.00
Move Cap.:	xxxx	xxxx	xxxxx	1651	xxxx	xxxxx	xxxx	xxxx	xxxxx	994	xxxx	1333
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.7	xxxx	2.7
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1086	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.3	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	A	*
ApproachDel:	0.0			0.2			0.0			3.3		

Environmental Review Inital Stu
ATTACHMENT 19
APPLICATION 98-0148

3 of 8

CUMULATIVE CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #16 Atherton Dr / Project D/W # 2

Average Delay (sec/veh): 0.4 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	15	0	0	30	0	0	0	0	0	0	0
Growth Adj:	1.00	1.07	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	16	0	0	32	0	0	0	0	0	0	0
Added Vol:	0	10	10	4	6	0	0	0	0	5	0	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	26	10	4	38	0	0	0	0	5	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	27	11	4	40	0	0	0	0	5	0	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	27	11	4	40	0	0	0	0	5	0	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	27	11	5	40	0	0	0	0	6	0	2
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6
Critical Gp:	xxxxx	xxxx	xxxxx	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	38	xxxx	xxxxx	xxxx	xxxx	xxxxx	77	xxxx	33
Potent Cap.:	xxxx	xxxx	xxxxx	1644	xxxx	xxxxx	xxxx	xxxx	xxxxx	956	xxxx	1333
Adj Cap:	xxxx	xxxx	xxxxx	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.00	xxxx	1.00
Move Cap.:	xxxx	xxxx	xxxxx	1644	xxxx	xxxxx	xxxx	xxxx	xxxxx	953	xxxx	1333
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.8	xxxx	2.7
LOS by Move:	•	•	•	A	*	•	*	•	•	*	*	•
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1037	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.5	xxxxx
Shared LOS:	•	•	•	•	•	•	•	•	•	*	A	•
ApproachDel:	0.0			0.2			0.0			3.5		

Environmental Review Initial Study
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APPLICATION 98-0148

APPENDIX K -

LEVEL OF SERVICE
CALCULATION WORKSHEETS

Atherton **Drive / Baseline Drive**

EXISTING PLUS PROJECT CONDITIONS

Level Of Service computation **Report**
1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 Artherton Dr / Baseline Dr

Average Delay (sec/veh): 2.0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			stop sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	0	0	5	22	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	5	22	0	0	0	0	0
Added Vol:	8	4	0	0	1	15	5	0	3	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	4	0	0	1	20	27	0	3	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	8	4	0	0	1	21	28	0	3	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	8	4	0	0	1	21	28	0	3	0	0	0
Adjusted Volume Module:												
Grade:	0%			0%			.0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	9	4	0	0	1	21	31	0	3	0	0	0
Critical Gap Module:												
MoveUp Time:	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	xxxxx	xxxx	xxxxx
Critical Gp:	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	22	xxxx	xxxxx	xxxx	xxxx	xxxxx	24	xxxx	12	xxxx	xxxx	xxxxx
Potent Cap.:	1673	xxxx	xxxxx	xxxx	xxxx	xxxxx	1025	xxxx	1366	xxxx	xxxx	xxxxx
Adj Cap:	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.99	xxxx	1.00	xxxx	xxxx	xxxxx
Hove Cap.:	1673	xxxx	xxxxx	xxxx	xxxx	xxxxx	1020	xxxx	1366	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.6	xxxx	2.6	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1046	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.5	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:	1.5			0.0			3.5			0.0		

Environmental Review Inital Stud
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EXISTING PLUS PROJECT CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #7 Artherton Dr / Baseline Dr

****

Average Delay (sec/veh): 1.9 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Uncontrolled			Uncontrolled			stop sign			Stop sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0	0	0	0 0	1 0	0	0 1!	0 0	0	0 0	0 0
Volume Module:												
Base Vol:	0	0	0	0	0	30	15	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	30	15	0	0	0	0	0
Added Vol:	6	2	0	0	2	9	18	0	12	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	2	0	0	2	39	33	0	12	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PKF Volume:	6	2	0	0	2	41	35	0	13	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	6	2	0	0	2	41	35	0	13	0	0	0
Adjustcd Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	7	2	0	0	2	41	38	0	14	0	0	0
critical Gap Module:												
MoveUp Time:	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	xxxxx	xxxx	xxxxx
Critical Gp:	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	43	xxxx	xxxxx	xxxx	xxxx	xxxxx	31	xxxx	23	xxxx	xxxx	xxxxx
Potent Cap.:	1635	xxxx	xxxxx	xxxx	xxxx	xxxxx	1016	xxxx	1349	xxxx	xxxx	xxxxx
Adj Cap:	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.00	xxxx	1.00	xxxx	xxxx	xxxxx
Move Cap.:	1635	xxxx	xxxxx	xxxx	xxxx	xxxxx	1012	xxxx	1349	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.7	xxxx	2.7	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1084	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.4	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:		1.7			0.0			3.4			0.0	

Environmental Review Inital St
ATTACHMENT 19
APPLICATION 98-0148

322

CUMULATIVE CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #7 Atherton Dr / Baseline Dr

****

Average Delay (sec/veh): 2.1 Level Of Service: A

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			stop sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	0	0	5	22	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.07	1.07	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	5	24	0	0	0	0	0
Added Vol:	8	4	0	0	1	15	5	0	3	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	4	0	0	1	20	29	0	3	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	8	4	0	0	1	21	30	0	3	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	8	4	0	0	1	21	30	0	3	0	0	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	9	4	0	0	1	21	33	0	3	0	0	0
Critical Gap Module:												
MoveUp Time:	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	xxxxx	xxxx	xxxxx
Critical Gp:	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	22	xxxx	xxxxx	xxxx	xxxx	xxxxx	24	xxxx	12	xxxx	xxxx	xxxxx
Potent Cap.:	1673	xxxx	xxxxx	xxxx	xxxx	xxxxx	1025	xxxx	1366	xxxx	xxxx	xxxxx
Adj Cap:	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.99	xxxx	1.00	xxxx	xxxx	xxxxx
Move Cap.:	1673	xxxx	xxxxx	xxxx	xxxx	xxxxx	1019	xxxx	1366	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.6	xxxx	2.6	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1044	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.5	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:	1.5			0.0			3.5			0.0		

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 96-0140

323

CUMULATIVE CONDITIONS

Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 Athcrton Dr / Baseline Dr

Average Delay (sec/veh): 1.8 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			stop sign			stop sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0	0 0	0	0	0 1 0	0	0	1! 0 0	0	0	0 0 0
Volume Module:												
Base Vol:	0	0	0	0	0	30	15	0	0	0	0	0
Growth Adj:	1.00	1.90	1.00	1.00	1.00	1.07	1.07	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	32	16	0	0	0	0	0
Added Vol:	6	2	0	0	2	9	18	0	12	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0.	0
Initial Fut:	6	2	0	0	2	41	34	0	12	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	6	2	0	0	2	43	36	0	13	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	6	2	0	0	2	43	36	0	13	0	0	0
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	7	2	0	0	2	43	39	0	14	0	0	0
Critical Gap Module:												
MoveUp Time:	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	xxxxx	xxxx	xxxxx
Critical Gp:	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	45	xxxx	xxxxx	xxxx	xxxx	xxxxx	32	xxxx	24	xxxx	xxxx	xxxxx
Potent Cap.:	1631	xxxx	xxxxx	xxxx	xxxx	xxxxx	1014	xxxx	1347	xxxx	xxxx	xxxxx
Adj Cap:	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.00	xxxx	1.00	xxxx	xxxx	xxxxx
Move Cap.:	1631	xxxx	xxxxx	xxxx	xxxx	xxxxx	1010	xxxx	1347	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.7	xxxx	2.7	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	1080	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	3.4	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	•	•	*	•	•	•	*	A	•	•	•	•
ApproachDel:	1.7			0.0			3.4			0.0		

Environmental Review Inital Study
ATTACHMENT 19
APPLICATION 90-0148

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HIGGINS ASSOCIATES
CIVIL & TRAFFIC ENGINEERS

5 First Street, Suite A, Gilroy, CA 95020 • 408 848-3122 • fax 408 848-2202 • e-mail info@kbhiggins.com

March 3, 2000

Richard Beale
Richard Beale Land Use Planning, Inc.
100 Doyle Street, Suite E
Santa Cruz, CA *95062*

Dear Richard:

The following are our responses to the concerns of the County of Santa Cruz to our traffic study of the proposed Atherton Place Subdivision.

1. Traffic counts were not performed on Baseline Drive, nor the intersection of Willowbrook Lane and Baseline Drive. Neither were part of the original scope of the project. Seven-day counts at the intersection were planned recently for inclusion in this letter, but time constraints and weather conditions required the substitution of morning and evening peak hour counts instead. Exhibit 1 contains the AM and PM peak hour volumes from those counts. Exhibit 1 also contains the projected existing plus project AM and PM peak hour volumes for the Willowbrook Lane/Baseline Drive intersection.

2. Using the aforementioned peak hour counts, the Willowbrook/Baseline intersection was analyzed to see if it meets the warrant for all-way stop control. The California Department of Transportation's *Traffic Manual*, 1987, contains warrants for all-way stop conditions. The all-way stop warrants require any of the following conditions to be met before all-way stop control is implemented:

    1. Where traffic signals are warranted and urgently needed, the multiway stop may be an interim measure that can be installed quickly to control traffic while arrangements are being made for the signal installations.

    2. An accident problem, as indicated by five or more reported accidents within a 12 month period of a type susceptible to correction by an multiway stop installation. Such accidents include right- and left-turn collisions as well as right-angle collisions.

    3. Minimum traffic volumes

        a. The total vehicular volume entering the intersection from all approaches must average at least 500 vehicles per hour for any 8 hours of an average

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Environmental Review Inital Study
ATTACHMENT 9
APPLICATION 99-0148

b. The combined vehicular and pedestrian volume from the minor street or highway must average at least 200 units per hour for the same 8 hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the maximum hour, but

c. When the 85-percentile approach speed of the major street traffic exceeds 40 miles per hour, the minimum vehicular volume warrant is 70 percent of the above requirements.

The intersection was found to not meet any of the multi-way stop warrants as defined by the California Department of Transportation's *Traffic Manual,* 1987. County of Santa Cruz Traffic Engineer John Presleigh confirmed to my staff that the intersection did not meet the accident provision where at least 5 correctable accidents occur within a 12-month period. In addition, the existing peak hour volumes show that less than 250 vehicles per hour travel through the intersection during either peak hour period. After adding in the projected peak hour trips from the project, the peak hour existing plus project traffic volumes are still less than 250 vehicles per hour. With both existing and existing plus project peak hour volumes under 250 vehicles per hour, it is highly unlikely that the intersection ever meets the minimum 500 vehicles per hour entering the intersection during any 8 hours of an average day, as required for the stop warrant. In addition, the 70 percent (350 vehicles per hour) vehicular volume requirement associated with an 85th percentile approach speed of 40 miles per hour on the major street would likely not be met either.

3. The Cabrillo College Master Plan Draft Environmental Impact Report, describing the growth plans of the college, was not directly taken into account in the Atherton Place traffic study. However, student growth of approximately 2,400 students by the year 2005--about the projected growth in enrollment proposed in the Master Plan--was considered. A 21% growth factor, 3% per year for the seven years between 1998 and 2005, was applied to through traffic volumes along Soquel Drive. This 21% growth corresponds to the percent increase in student population if enrollment increases by 2,400 students. Also, a 7% growth factor, 1% for seven years, was applied to turning volumes south of the Soquel Drive corridor to account for increased parking movements and cut-through traffic in the nearby neighborhoods, such as Willowbrook Drive.

4. Traffic from special events at Twin Lakes Church were not taken into account in the original analysis. This traffic will have little to no effect on traffic during the peak weekday morning and evening traffic periods because these events are normally scheduled outside of the peak commute periods.

Although the Willowbrook/Baseline intersection did not meet the volume or accident warrants, the issues of speeding and stop sign installation should still be considered by the County. Based upon observations of existing traffic conditions on Willowbrook Lane, speeding appears to be a problem. The street is a straight, 0.4 mile-long neighborhood street with moderate amounts of parking and pedestrian traffic, including pedestrian trips to the park by young children. This speeding could be reduced by many different traffic calming options. An all-way stop, while commonly used for this purpose, gives mixed results in reducing speeding and may be routinely ignored during times of low cross-traffic volumes. Other more permanent treatments such as speed humps, speed tables, roundabouts, and roadway narrowing may help reduce speeding, but can be expensive and may not have universal support amongst the neighborhood. As an initial measure, it is suggested that the neighborhood, in conjunction with the County, work to reduce speeding. During field observations, it was noted that the majority of speeding vehicles were those going to or from homes in the Willowbrook/Baseline/Atherton neighborhood. Community meetings, workshops, or written communication aimed at informing community members of the unsafe conditions associated with travel speeds on Willowbrook Lane could help reduce excessive speeding in a cost effective manner in lieu of physical improvements or traffic control measures. If such meetings and communications do not substantially reduce speeding, then other options should be considered.

Another important consideration at the Willowbrook/Baseline intersection is sight distance. Willowbrook Park, at the northeast corner of the Willowbrook/Baseline intersection, limits sight distance for vehicles approaching the intersection on Baseline Drive. When cars are parked on the east side of Willowbrook Lane north of Baseline Drive, the combination of the intersection grade and the parked cars can make it nearly impossible to see vehicles heading southbound on Willowbrook Lane. Many drivers are forced to inch out into the intersection in order to see oncoming traffic. It is suggested that the all-way stop be considered so that Baseline Drive vehicles can be more assured that movements from the westbound Baseline Drive approach can be made without conflict with the Willowbrook Lane traffic. In lieu of the all-way stop, parking restrictions could be implemented.

-3W

Environmental Review Initial Study
ATTACHMENT 19
APPLICATION 98-0148

I hope that these findings and remarks alleviate the concerns of the County of Santa Cruz. We felt it appropriate that despite having no direct link to the proposed project, the speeding and intersection sight distance problems be brought to both your and the County's attention. However, it should be noted that these conditions are existing and will only be minimally accentuated by the proposed project, not caused by it. If you or the County have any further questions on the matter, please contact me.

Sincerely yours,

Keith B. Higgins, CE, TE

kbh:jw/mm

attachments

F:\2000\Jobs\A00-047\A00-047Letter.wpd

Environmental Review Initial study

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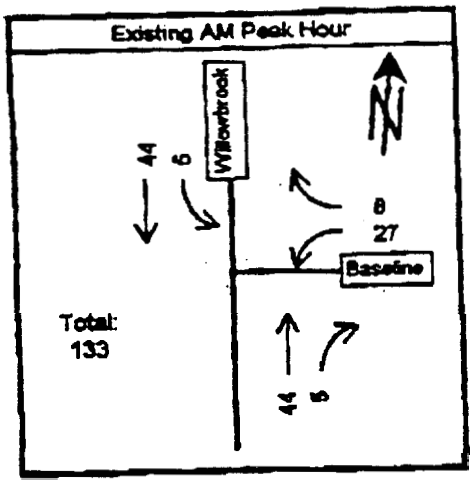
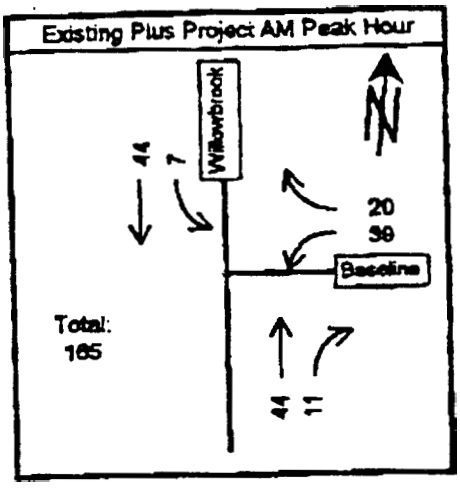
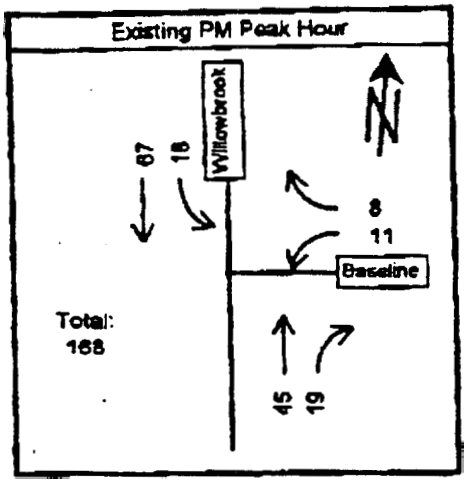
ATTACHMENT 19
APPLICATION 92-0148







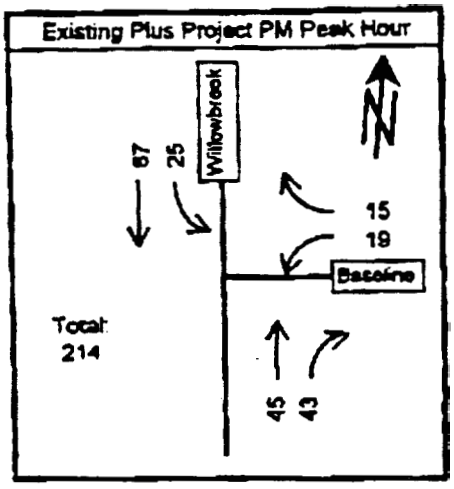


EXHIBIT 1-EXISTING *AND* **EXISTING PLUS** PROJECT **CONDITIONS**

COUNTY OF SANTA CRUZ

INTER-OFFICE CORRESPONDENCE

DATE: **May 1, 1998**

TO: Planning Department, ATTENTION: Jackie Young

FROM: Santa Cruz County Sanitation District

SUBJECT: SEWER AVAILABILITY AND DISTRICT'S CONDITIONS **OF** SERVICE FOR THE **FOLLOWING** PROPOSED DEVELOPMENT

APN: **37-251-21 & 22** APPLICATION **NO.: 98-0148**

PARCEL ADDRESS: .Vacant (east ***of*** Atherton Dr., between Soquel and Cabrillo College Drives)

PROJECT DESCRIPTION: Create **58** single family residential lots

---

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 ietter shall apply until the tentative map approval expires.

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.

Department of Public **Works** and District approval shall be obtained **for** an engineered sewer improvement plan, showing on-site and off-site sewers needed to provide service to each lot or unit proposed, before sewer connection permits can be issued. The improvement plan shall conform to the County's 'Design Criteria" and shall also show any roads and easements. Such easements shall require proof of recordation or all existing and proposed easements shall also be delineated on the Final Map.

Other:

1. Continue to **work** with Sanitation District staff ***to*** get approval of plans and map. Current submittal allows for conditional approval only.

2. Show profile on all sections **of** proposed sewer line.

3. Sewer line across lots **48** and **49** shall **be** realigned, within 20 foot wide easement, and offset from property line by **10** feet.

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ATTACHMENT 20

APPLICATION 98-0148

4. All public sanitary sewer easements, shall be 20 feet wide, and, with the exception of the proposed sewer adjacent to **lots 48** and **49**, paved to a width of **8** feet.
5. Align downstream section of sewer adjacent to southerly property lines **of** lots **49** through **53.**

Diane Romeo
Diane Romeo
Sanitation Engineering

DR:rb/366

c: Applicant: Richard Beale Land Use Planning, Inc.
100 Doyle ***St.*** **,** Suite **F**
Santa Cruz, CA **95003**
Property Owner:
Twin Lakes Baptist Church
2701 Cabrillo College Dr.
Aptos, CA **95003**

(Rev. **3-96)**

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ATTACHMENT 20
APPLICATION 96-0148

COUNTY OF SANTA CRUZ
INTER-OFFICE CORRESPONDENCE

DATE: April 9, 1998

TO: Alvin James, Planning Director

FROM: Tom Burns, Redevelopment Agency Administrator

SUBJECT: Application **98-0148,** APN 037-251-21, 58 lot subdivision, south side of Soquel Drive

---

The applicant is proposing to complete a *58* lot subdivision on a parcel located on the north side of Cabrillo College Drive and the south side of Soquel Drive, just west of Atherton Drive. I have the following comments regarding the proposed project.

First and foremost, there is a larger planning policy issue underlying the proposed design of this site that should be addressed before consideration is given to the specific site standards and design issues of this development. Particulary, the proposed 58 lot subdivision is proposed on a site zoned 'Multi-family residential-3000" and designated 'Urban High Residential" by the General Pian. The subject parcel is surrounded on the west by property designated "Urban High Residential" and developed with high density multi-family dwellings, and on the east by Porter Gulch. I strongly question the appropriateness and compatibility of the proposed single family lots in this area given that this is one of the last remaining high density multi-family residential sites in the urban area. Furthermore, though the General Plan and Zoning Ordinance permit the development of single family residential lots, it appears that the proposed project does not meet the objectives of the General Plan to provide high density multi-family housing as a higher densify residential development can be achieved by providing multi-family dwellings than by providing single family lots. Thus, I strongly recommend that the project be required to be redesigned to provide multi-family housing.

In the event that the Planning Department intends to support single family residential, I would appreciate the opportunity to provide comments on the specific site standards and design issues associated with this parcel. There are numerous significant issues that are of concern to the Agency.

c c Jackie Young, Project Planner

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ATTACHMENT 1

APPLICATION 98-0148

Right of Way Department
340 Pajaro Street, Room 132
Salinas, CA 93901

PACIFIC BELL
A Pacific Telesis Company

March 24,1998

County of Santa Cruz
701 Ocean Street
Santa Cruz, CA 95060
Attn: Young

RE: 98-0148 - APN#037 251 21 - 58 single family dwellings

pacific Bell has reviewed the above mentioned subdivision requirements.

Pacific Bell has no conflicts with any existing or proposed easements and no additional utility casements are required by Pacific Bell.

Upon approval by your city council and final recordation of this map please furnish this office a copy for file.

Sincerely,

Toni Cantrell

Toni Cantrell
Right of Way Administrator
408 754-8165

cc: Linda Oakes, Pacific Bell Engineer

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ATTACHMENT 22
APPLICATION 98-0148

SOQUEL CREEK WATER DISTRICT

5180 SOQUEL DR.
P.O. BOX 158
SOQUEL, CA 95073-0158
TEL 831-476-8500 / 831-688-2288
FAX 831-476-4291

FILE COPY

December 9, 1999

Mr. Richard Beale
Land Use Planning, Inc.
100 Doyle Street, Suite E
Santa Cruz, CA 95062

Subject: Atherton Place Subdivision, Aptos
APN 37-251-14 & 20 – 58-Units

Dear Mr. Beale:

In response to the subject application, the Board of Directors of the Soquel Creek Water District at their regular meeting of December 7, 1999, voted to serve your proposed development subject to such conditions and reservations as may be imposed at the time of entering into a final contract for service. 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. Instead, this present indication to serve is intended to acknowledge that, under existing conditions, water service would be available provided the developer, without cost to the District:

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 for water conservation required by the District at the time of application for service;
4) completes LAFCO annexation requirements, if applicable.

Future conditions which may 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.

Sincerely,
SOQUEL CREEK WATER DISTRICT

Jeffery N. Gailey
Engineering Manager/Chief Engineer

JNG:CJR:jjy

Environmental Review Inital Study
ATTACHMENT 23
APPLICATION 98-0148

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TOTAL P.02

Dana Bland & Associates, Consulting Biologists
P.O. Box 636, Aptos, CA 95001 • Phone (831) 688-2104 • FAX (831) 688-8093

February 1, 2000

Kathy Lyons
Biotic Resources Group
P.O. Box 14
Santa Cruz, CA 95063

Subject: Atherton Place Residential Development – Monarch Butterflies

Dear Kathy,

As per your request, this letter is to document the results of a survey for monarch butterflies at the proposed Atherton Place residential development.

Ecology of Monarch Butterfly

Monarch butterflies (*Danaus plexippus*) migrate to central California and overwinter in Eucalyptus, pine and acacia trees. They are present in Santa Cruz County between September 1 and March 1, and prefer dense stands of trees that provide protection from the wind. The California Department of Fish and Game (CDFG) recognizes monarchs as a "Special Status Animal" because their winter residence in California represents a critical stage in their life cycle and because of declining habitat from land development.

Methods

On January 21, 2000, Dana Bland surveyed the Eucalyptus grove located on the east side of Atherton Drive near the intersection with Baseline Drive near Cabrillo College. The grove was surveyed on foot, and binoculars were used to scan the upper branches of the trees to search for monarch butterflies

Results

The weather conditions on January 21, 2000 were mild with a temperature of 62°F, partly cloudy skies and light winds from 11:50 a.m. to 1:10 p.m. Visibility was excellent throughout the Eucalyptus grove and from the perimeter of the grove. No monarch butterflies were observed either flying about or hanging from trees. Based on this survey, it appears that no monarch butterflies are roosting in this grove for the 1999-2000 winter season. It is unlikely that monarchs would take up a new roost in this grove so late in the winter season.

If you have any questions, please feel free to call me.

Sincerely,

Dana Bland

Dana Bland

Cc: Rich Beale

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ATTACHMENT 24
APPLICATION 98-0148

COUNTY OF SANTA CRUZ

INTER-OFFICE CORRESPONDENCE

DATE: March 29, 2000

TO: Jackie Young, Planning Department

FROM: John Presleigh, Department of Public Works

SUBJECT: ATHERTON PLACE, 58 TOWNHOME UNITS, APPLICATION NO. 98-0148
APN:037-251-21, TRAFFIC REPORT ADDENDUM COMMENTS

The Transportation and Road Planning Engineering section has reviewed the traffic report addendum dated March 3, 2000, for the above project and makes the following comments:

1. The addendum has been reviewed and is acceptable as presented.
2. The intersection of Willowbrook Lane and Baseline Drive does not meet warrants for an all-way stop controlled intersection. The intersection will not be significantly impacted by the project traffic in terms of traffic safety.
3. Sight distance at the intersection of Willowbrook Lane and Baseline Drive may be a hindrance when vehicles are parked on Willowbrook Lane adjacent to the park. This is a common occurrence for local streets and is an acceptable traffic operations issue unless future complaints are brought to the attention of this department. If a sight distance issue is raised this department will evaluate appropriate actions to correct any deficiencies.

Please contact me or Jack Sohriakoff, Civil Engineer, at 454-2160 if you have any questions.

JRS:mg

Copy to: Paia Levine, Planning Department
Survey/Development Review

ATHM

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Environmental Review Initial Study
ATTACHMENT 25
APPLICATION 98-0148

COUNTY OF SANTA CRUZ

INTER-OFFICE CORRESPONDENCE

DATE: **February 9, 2000**

TO: Paia Levine, Planning Department

FROM: John Presleigh, Department of Public Works

SUBJECT: CABRILLO GARDENS DEVELOPMENT PROJECT, APN 037-251-21 AND 22
APPLICATION NUMBER 98-0148

Transportation and Road Planning Engineering is responding to your request to comment on a letter dated January 7, 2000, from Robert Allen regarding the above subject.

Mr. Allen suggested a redesign of the Soquel Drive and Atherton Drive intersection to allow left turns in and out of the intersection. Our department has reviewed this proposal and we do not recommend it because it would add additional conflicting movements onto Soquel Drive which is a major arterial roadway. In addition, the sight distance for vehicles turning left out of Atherton Drive cannot be improved, therefore, it is imperative that the right-turn in and out of the intersection remain in effect. We have recommended as a condition on the subject project that the sight distance at this location be improved for right turns from Atherton Drive. Future plans also call for signalized intersections at Willowbrook Drive and the west entrance to Cabrillo College. Both of these future improvements should further improve operations in the area.

If you have any questions, please call me or Greg Martin at ext. 2160.

GJM: bbs

Copy to: Jackie Young, Planning Department ✓

CGDB

337

~~267~~

Environmental Review Inital Study
ATTACHMENT 26
APPLICATION 98-0148

COUNTY OF SANTA CRUZ
PLANNING DEPARTMENT
MEMORANDUM

DATE: July 26,2001

TO: Joan Van Der Hoeven, Project Planner

FROM: Larry Kasparowitz, Urban Designer

SUBJECT: 98-0148

SITE DESIGN COMMENTS

- It would create less paving if the joint units shared a double wide driveway and the approach to the garages were flared to the units. I realize that this creates cross easements, but it seems like a small price.
- I would like to see one of the double units moved back at least three feet to create a break in the front façade and a shadow line.
- The parking spaces directly backing out to Atherton Drive fi-om the proposed park area in the North Site area is troubling from a safety aspect. I would even recommend eliminating them, since the park area is not that big, and the parallel parking should actually be enough to serve this.
- On the South Site area, I have similar concerns about 90 degree parking exiting onto a street, but in this case it seems even more precarious because of the curved nature of the street.

ARCHITECTURAL DESIGN COMMENTS

- See above comments regarding the setback of one of the double units.
- I would like to see the relationship between the upper and lower windows on adjacent units so that there is some consideration for privacy.
- The units are nicely designed...it is important that all the details shown on the preliminary plans are included in the Building Permit set.
- The garage and front door selections are also important to the character of the units. They should be reviewed at Building Permit submission.

Environmental Review Inital **Study**
ATTACHMENT 37 1 of 2
APPLICATION 98-0148

LANDSCAPE DESIGN COMMENTS

- Fence design(s) should be reviewed at Building Permit submission.

- I am skeptical about the front yards being maintained by the homeowner's association. My sense is that people normally will want to change planting in their front yard without permission. I also believe that this will be a large financial burden to the association (lawn requires lots of maintenance and shrub areas need weeding and cleaning regularly). However, if that is the case and the front yards are maintained by the association, then I believe that the landscape design could be more innovative and not look like individual lots. The entire front streetscape could then be designed as one landscape, which could flow between lots without regard to lot lines.

- The landscape plan should indicate the materials for the walks and the driveways. Use of some variation in pattern or material would be appropriate.

Gregory Lewis - Landscape Architect #2176
736 Park Way, Santa Cruz, **CA** 95065
(831)425-4747 FAX(831)425-1107

Response to County Comments

August 14,2001

Rich Beale – Land Planner
100 Doyle St.
Santa Cruz, **CA** 95062

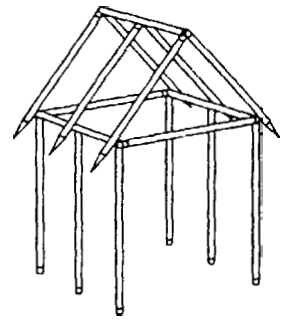
PROJECT
Atherton Place, Aptos

We chose to have the front yards maintained by the homeowner's association in order to assure the neighborhood that the landscaping would be maintained in a consistent and professional manner. There are many projects in the County where this is done. There is at least one project of individual homes in Scotts Valley called the Vineyards where this is done. Some residents prefer this method and they can exercise there horticultural creativity in their rear yards if the desire.

Our goal is for the homes **and** landscaping to be compatible and complimentary to each other and the neighborhood without being identical **or** monotonous. **A** limited selection of trees, shrubs, and ground covers will be used and repeated throughout the project. We **will** resist using large expanses of lawn in order to conserve water but there will be a consistent selection of ground covers and low shrubs that will flow from lot to lot without regard to lot lines.

Environmental **Revlew** lnital Study
ATTACHMENT 23 1of1
APPLICATION 98-0143

THACHER & THOMPSON ARCHITECTS
200 Washington Street, Suite 201
Santa Cruz, California *95060*
831 457-3939, fax 831 426-7609
www.tntarch.com



PROJECTMEMORANDUM

TO:	County of Santa Cruz Planning Dept.	**ATTN:**	Joan Van Der Hoeven
FAX #:		**PAGES:**	*2*
DATE:	August 14, 2001	**FROM:**	
PROJECT.	Atherton 01 .SD	**CLIENT**	Bowers/Bowman

☐ **URGENT** ☐ **AS REQUESTED** ☐ **FOR YOUR USE** ☐ **FOR YOUR REVIEW AND COMMENT**

COMMENTS:

RE: 98-0148

Below is our response to the memorandum from Larry Kasparowitz on July 26, 2001 regarding the Atherton Place project at **6260** Soquel Drive in Aptos:

SITE DESIGN COMMENTS

1. In the two cases where **C2** units are attached the depth of driveways to the garage are **24'** and ***28'*** respectively. Requiring the driveways to narrow from *39'* wide to a single driveway apron of **18'** in width would require **11.5'** of horizontal maneuvering for the outside parking space in each garage. The driveway lengths are too short for such a maneuver. Sharing a single drive would also necessitate losing two **onsite** parking spaces in the driveways.
2. The plan on sheet **A1** shows the C2 double units currently staggered from their neighbors. We also feel the current plan and elevation reads well **as** a lively single building versus two separate but joined buildings. However if the board of supervisors wishes we will not object **to** creating a 3 ft. offset in plan in order to create the desired break and shadow line.
3. We are trying to provide more parking to help alleviate some of the neighbors concerns. If the board of supervisors wishes we can eliminate the seven spaces provided and replace them with three parallel spaces along the street.
4. We've eliminated the five spaces on the north side of the extension to Cabrillo Drive in order to provide a continuous sidewalk from Cabrillo drive to the Atherton drive. However we feel we should keep **the** six **spaces** south of Bowers Court **as** we **feel the safety** danger **is limited** by ample visibility to the north and the curve to the south. There is no on street parking along Bowers Court unlike Atherton Drive.

ARCHITECTURAL DESIGN COMMENTS

1. See comment #2 above.
2. Privacy issues seem limited to second floor windows and rooms overlooking neighboring side yards. The **A1 AND A2 UNITS** have no bath windows, four bedroom windows, and two loft

windows overlooking side yards. The loft windows look across to neighbors in various configurations but mainly at second floor bathroom windows that if altered would provide privacy. The only problematic configuration occurs where the loft at lot 16 looks out at the bedroom windows of lot 15. The two master bedroom windows are smaller, high windows and pose no privacy issue. The two front bedroom windows upstairs are important to the room. Although one may be eliminated where necessary at least one should remain. The only real problems again occur between lots 15 and 16 and between lots 19 and 20. The bathroom windows on lot 17 can be altered to protect the bedroom on lot 16 if necessary. **B1 AND 62 UNITS** have two bathroom and three bedroom second floor windows overlooking side yards. Bathroom windows can have obscure windows, be moved higher, or replaced with skylights where appropriate. Bedroom windows are secondary windows and can be eliminated where necessary. **B3 AND 64 UNITS** have four bathroom and five bedroom second floor windows overlooking side yards. Again bathroom windows can be obscured, moved higher, or replaced with skylights where appropriate. Side yard windows at bedrooms are secondary and can be altered or replaced if necessary. **C1 AND C2 UNITS** have one bathroom and one bedroom window overlooking neighboring side yards. Again, the bathroom window can be altered. The bedroom window is secondary and can be removed if necessary although it doesn't appear there are any conflicts. We can provide plans showing the relationship of windows and rooms at each if necessary.

PLEASE GIVE US A CALL IF YOU HAVE ANY FURTHER QUESTIONS.

ATTACHMENT 29 2 of 2
APPLICATION 98-0148

STATE OF CALIFORNIA — BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS. Governor

DEPARTMENT OF TRANSPORTATION
50 HIGUERA STREET
SAN LUIS OBISPO, CA 93403-8114
TELEPHONE: (805) 549-3111
TDD (805)549-3259

July 30,2001

5-SCr-001-12.09
Atherton Place Permit 98-0148

Ms. Joan Van Der Hoeven
County of Santa Cruz Planning Dept
701 Ocean St, 4" Floor
Santa Cruz, CA 95060

Dear Ms. Van Der Hoeven:

Thank you for the opporiunity to review the plans and revised traffic study for the Atherton Development. The following comments are offered for your consideration:

Although the project is downsized from the original concept, there is no discussion of impacts to the state highway system. Although this project does not cause a direct impact to the state facility, the project trips will contribute incrementally to a state highway that operates at level of service (LOS) "F". The proponent should discuss the cumulative impacts and proportional mitigation to SR 1 in the traffic study. The lead agency should ensure appropriate mitigation measures are in the conditions of approval.

On plan sheet page 8 of 8, Atherton Place, Townhouse Planned Development Alternate Plan, (job no. 97278), the preliminary grading plan for the south section identifies storm drain and drain detention features. A 197' storm drain terminating in a gabion dissipater in or near a natural drainage channel. This channel appears to direct flows into a box culvert passing under SR 1. Since there is no discussion accompanying this project transmittal, the lead agency should require drainage calculations and analysis for impacts upon the drainage system down stream of the project. Drainage calculations could be included in the initial study for review.

Thank you for your consideration of our initial comments on this proposed project. Please contact me at (805) 542-4751 if you have any questions.

Sincereiy,

Chris Shaeffer
District 5
Development Review Coordinator

cc: L. Wilshusen, SCCRTC
File, S. Chesebro, R. Barnes, L. Wickham

Environmental Review Inital Study
ATTACHMENT 30 1of1
APPLICATION 98-0148

Santa Cruz Metropolitan
Transit District

METRO

Santa Cruz Metropolitan Transit District
Facilities Maintenance Department
370 Encinal, Suite 100
Santa Cruz, Ca. 95060

Date:	August 1,2001
Street:	Soquel/Atherton
Planner:	Van Der Hoeven
APN:	037-251-21
Applicant:	Beale
Project:	Atherton Place Development
Request:	Construct a turnout and shelter at the Sesnon House- Cabrillo College

The Santa Cruz Metropolitan Transit District requests the following Transit Improvements as a condition of approval:

The District requests that a new bus stop at Soquel/Sesnon House- Cabrillo College be constructed as a condition of this permit. The bus stop shall be connected to the public way, allow for the buses to be out of the travel lanes, and sheltered. Applicant should also consider installing and maintaining lighting and trash containers.

The District will provide specifications for the transit improvement upon request. If you have any further questions please feel free to contact me at 426-6080.

Sincerely,

David J. Konno

Manager of Facilities Maintenance

SCMTD

Environmental **Review** Inital Study
ATTACHMENT 3 1 of 1
APPLICATION 98-0143

370 Encinal Street, Suite 100, Santa Cruz, CA 95060 (831) 426-6080 FAX (831) 426-6117
METRO OnLine at http://www.scmtd.com

HIGGINS ASSOCIATES
CIVIL & TRAFFIC ENGINEERS

1335 First Street, Suite A, Gilroy, CA 95020 • 408 848-3122 • fax 408 848-2202 • e-mail info@kbhiggins.com

July 3, 2001

MEMORANDUM

TO: Richard Beale

FROM: Dan Takacs

SUBJECT: Atherton Place Revised Site Plan Traffic Impacts

This memorandum describes potential traffic impacts associated with the revised site plan for the Atherton Place project in Santa Cruz County, California. A revised site plan for the Atherton Place project has been prepared that reflects the following changes to the project development plan and access plan:

1. The number of units to be developed in the northerly section of the project has been reduced from 37 to 14, with 7 units fronting Atherton Drive and 7 units accessed from an access driveway to Atherton Drive. The site plan for the northerly section is shown on Exhibit 1a.
2. The number of units in the southerly section of the project has been reduced from 21 to 19 units and access to these units will be provided from Cabrillo College Drive. An emergency access only will be provided from Atherton Drive. The site plan for the southerly section is shown on Exhibit 1b.

The reduction of the number of units to be developed from the previously proposed 58 units to 33 units will reduce the volume of vehicle trips generated by the project. The reduction of trips generated by the project will reduce traffic related impacts associated with development of the project, which were determined to be not significant in previous analyses.

Traffic impacts associated with the project were previously documented in a traffic study prepared in 1999 and a study update documented in a 2001 letter report.[1] This memorandum documents a comparison of the trip generation for the revised project versus the original 58-unit project. The trip distributiodtrip assignment for the revised project is compared with the trip distributiodtrip assignment for the previous project to establish whether the revised project will increase the volume of peak hour trips at any of the study intersections. In addition, the intersection of Cabrillo College Drive with the proposed access road to the project is analyzed for existing, existing plus project and cumulative conditions.

---

1 *Atherton Place Subdivision Traffic Study*, Higgins Associates, June 1999. Letter to Richard Beale from Dan Takacs, March 13, 2001.

Existing Traffic Volumes

The project will share access with an existing driveway to Cabrillo College Drive. The existing driveway provides access to a small retail development.

To ascertain the existing turning volumes at the intersection of Cabrillo College Drive and the existing driveway serving the commercial development, AM and PM peak period intersection turning movement counts were performed on Wednesday, June 20, 2001. The existing ***AM*** and PM peak hour Cabrillo College Drive/Commercial Center driveway are shown on Exhibit 2 with the existing intersection volumes at other study intersections. Because Cabrillo College had already dismissed for the summer at the time the new counts were obtained, only the turning movements from the count were utilized. Through volumes at the commercial driveway were balanced with previously collected volumes at the Cabrillo College Drive/Willowbrook Lane intersection.

Existing Traffic Operations

Intersection levels of service for the Cabrillo College Drive intersection with the existing commercial center driveway are shown on Exhibit 9. Cabrillo College Drive is two-lanes wide at the driveway serving the commercial development. The intersection of Cabrillo College Drive and the commercial area driveway currently operates at LOS A and the southbound left turn movement from the commercial driveway operates at **LOS** B during the AM and PM peak hours. No capacity related improvements are required at the intersection for existing conditions. Intersection level of service calculation worksheets are included **as** Attachment A.

Left turn channelization warrants for the left turn movement from the eastbound Cabrillo College Drive approach to the commercial driveway were analyzed. The left turn channelization worksheet is included as Attachment B. At the current time, the turning volumes during the AM and PM peak hours do not warrant a left turn lane.

Typically, a right turn taper is considered when right turn volumes exceed 20 vehicles per hour and a right turn lane is considered when the right turn volumes exceed 40 vehicles per hour. The volume of traffic turning right from the Cabrillo College Drive into the commercial center was 3 vehicles during the AM peak hour and **2** vehicles during the PM peak hour. Right turn channelization is not warranted on the westbound Cabrillo College Drive approach to the commercial access driveway.

Project Trip Generation

A comparison of the trip generation for the 33-unit project and the original 58-unit proposal is contained on Exhibit **2.** The revised project will generate **3** 16 trips per day with 25 trips generated during the ***AM*** peak hour and **33** trips generated during the PM peak hour. The revised project **will** reduce the number of units by **25** resulting in a reduction of **239** daily trips, 19 trips during the AM peak hour and 26 trips during the PM peak hour.

ATTACHMENT 32 20f24
APPLICATION 95-0143

Project Trip Distribution and Assignment

The reduction in project trip generation will reduce the volume of trips added to the road network compared with the previous 58-unit proposal. In addition, providing access to the south section via Cabrillo College Drive will reduce project trips added to Willowbrook Drive and Atherton Place.

Exhibit **4** shows the project trip assignment for the original 58-unit project and Exhibit 5 shows the project trip assignment for the 33-unit project. The difference between the 58-unit and 33-unit trip assignments is shown on Exhibit ***6***. The revised project will result in less trips added to the local road network than the previous proposal. The revised project will reduce project trips to Willowbrook Drive north of Cabrillo College Drive by 15 trips during the AM peak hour and 23 trips during the **PM** peak hour. Trips added to the northbound left turn movement from Willowbrook Lane to westbound Soquel Drive are reduced by 10 trips during the ***AM*** peak hour and ***6*** trips during the PM peak hour. The number of project trips added to Baseline Drive east of Willowbrook Lane will decrease from 43 vehicles with the 58-unit project to 3 vehicles during the PM peak hour with the proposed 33-unit project. Project impacts to Baseline Drive and Atherton Drive will not be significant with the revised project.

Existing Plus Project and Cumulative Traffic Operations

Operations were evaluated at the Cabrillo College Drive intersection with the proposed project access under Existing Plus Project and Cumulative Conditions. Intersection levels of service were not recalculated at the other study intersections because the revised project will reduce the volume of trips added to the local road network and the previous analyses determined that project and cumulative impacts would not be significant with the 58-unit project. Exhibits 7 and **8** show the Existing Plus Project and Cumulative condition AM and **PM** peak hour traffic forecasts, respectively.

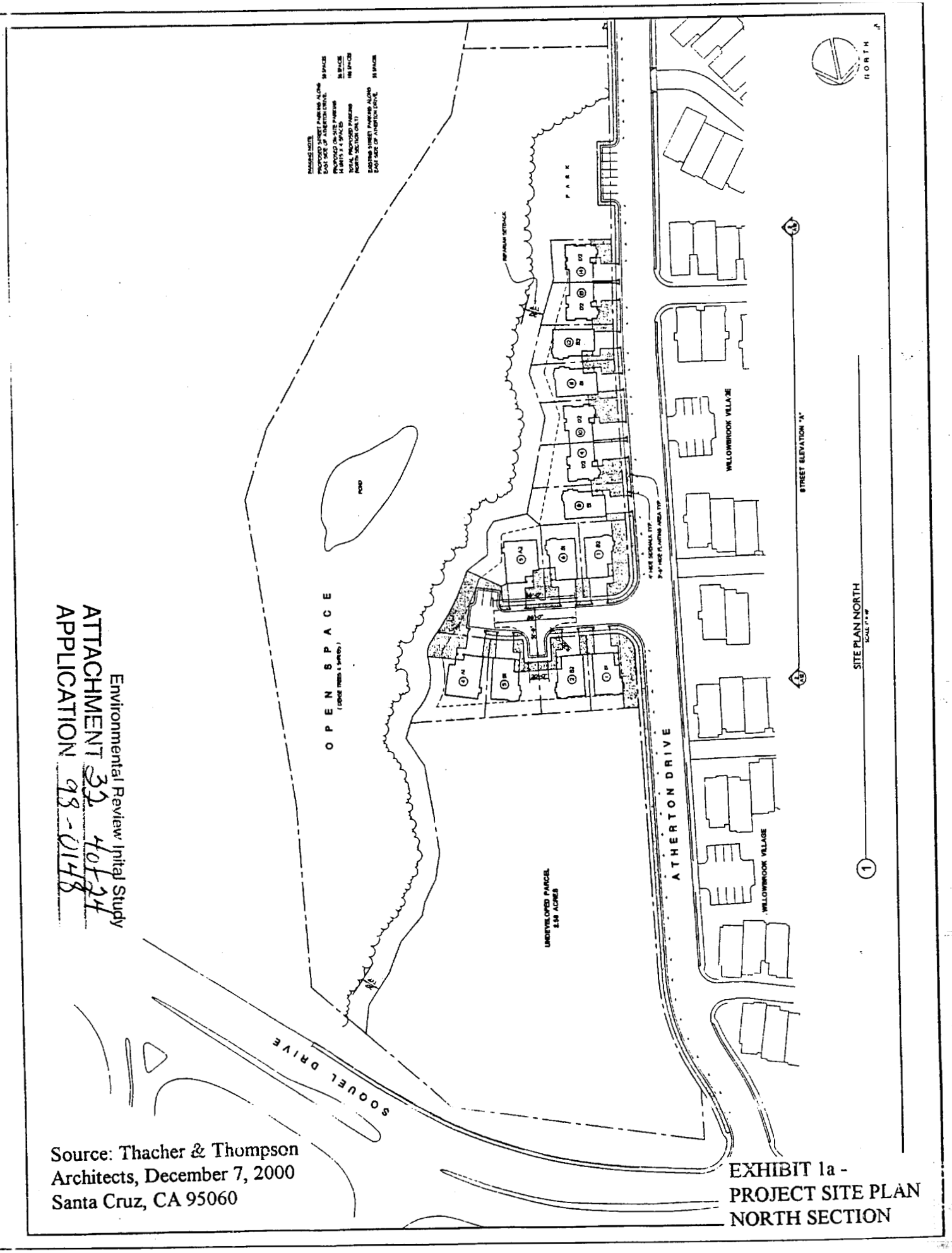
As shown on Exhibit 9, levels of service at the Cabrillo College Drive intersection with the project access road remain unchanged under Existing Plus Project and Curnulative conditions. No capacity related improvements would be required at the intersection. In addition, left turn and right turn channelization is not warranted at the intersection.

Summary

The revised project will reduce the volume of trafficadded to the local road network. The volume of traffic added to the Willowbrook Lane, Baseline Drive and Atherton Drive will be significantly reduced given the lower development size and revised access plan. Left and right turn channelization will not be warranted at the intersection of Cabrillo College Drive and the project access road.

Please call me if you have any questions regarding this information.

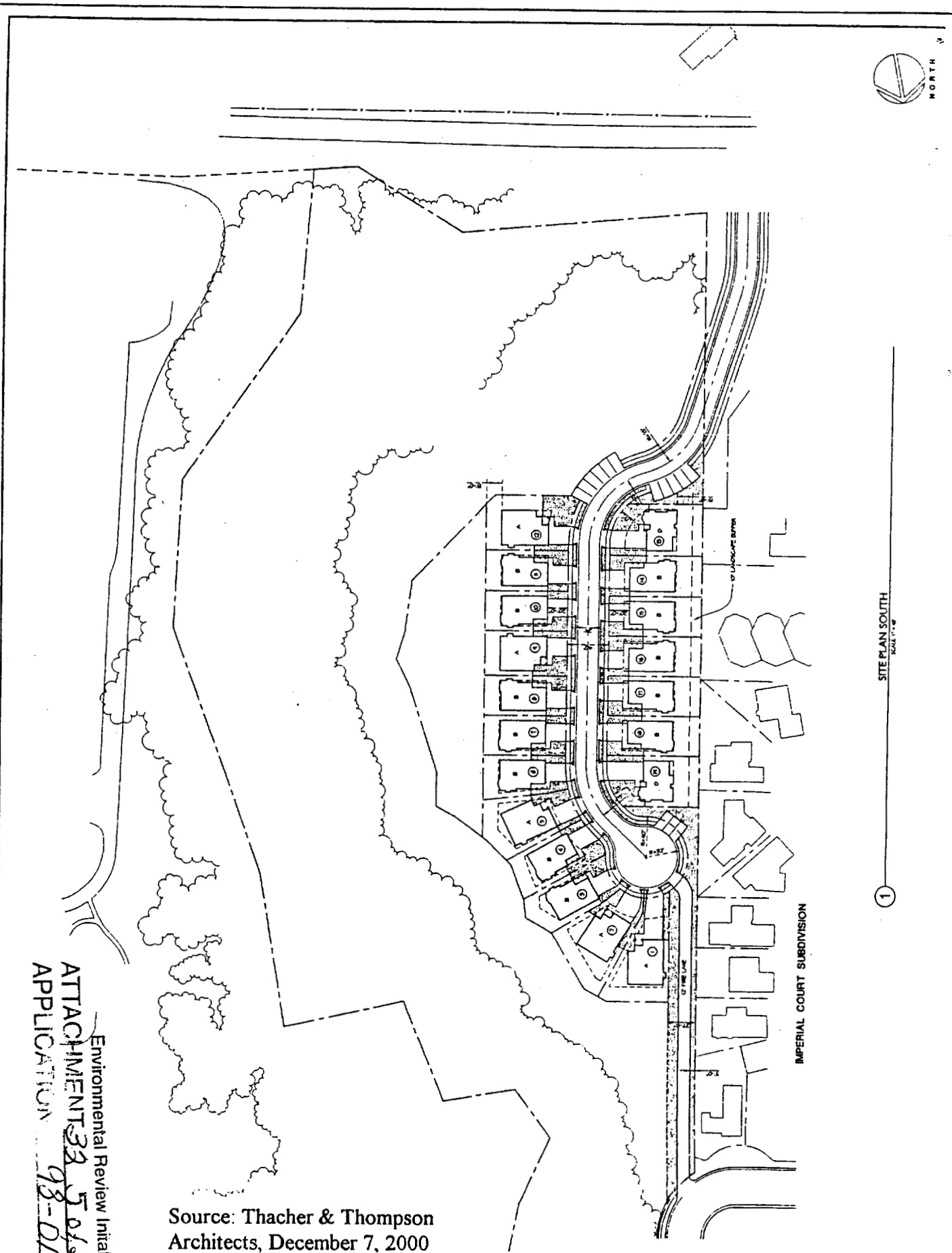
ATTACHMENT 32 3 of 24
APPLICATION 98-0145



Environmental Review Inital Study
ATTACHMENT 32 4 of 24
APPLICATION 98-0148

Source: Thacher & Thompson
Architects, December 7, 2000
Santa Cruz, CA 95060

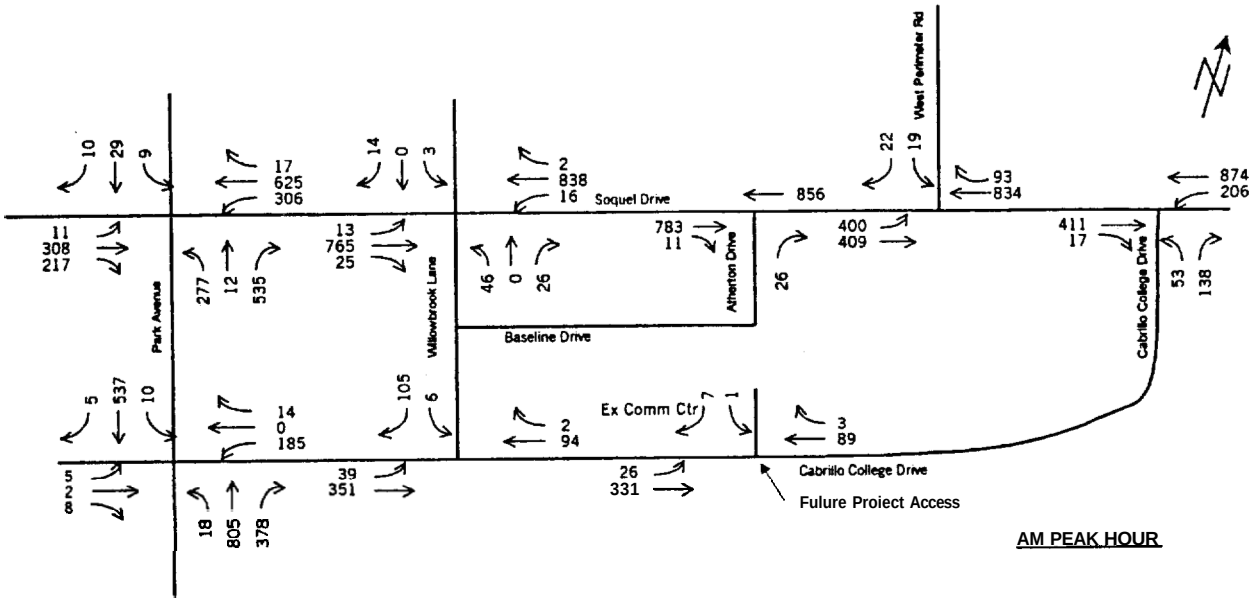
EXHIBIT 1a -
PROJECT SITE PLAN
NORTH SECTION



Source: Thacher & Thompson Architects, December 7, 2000 Santa Cruz, CA *95060*

EXHIBIT 1b - PROJECT SITE PLAN SOUTH SECTION

Environmental Review Initial Study
ATTACHMENT 33
APPLICATION 93-0424



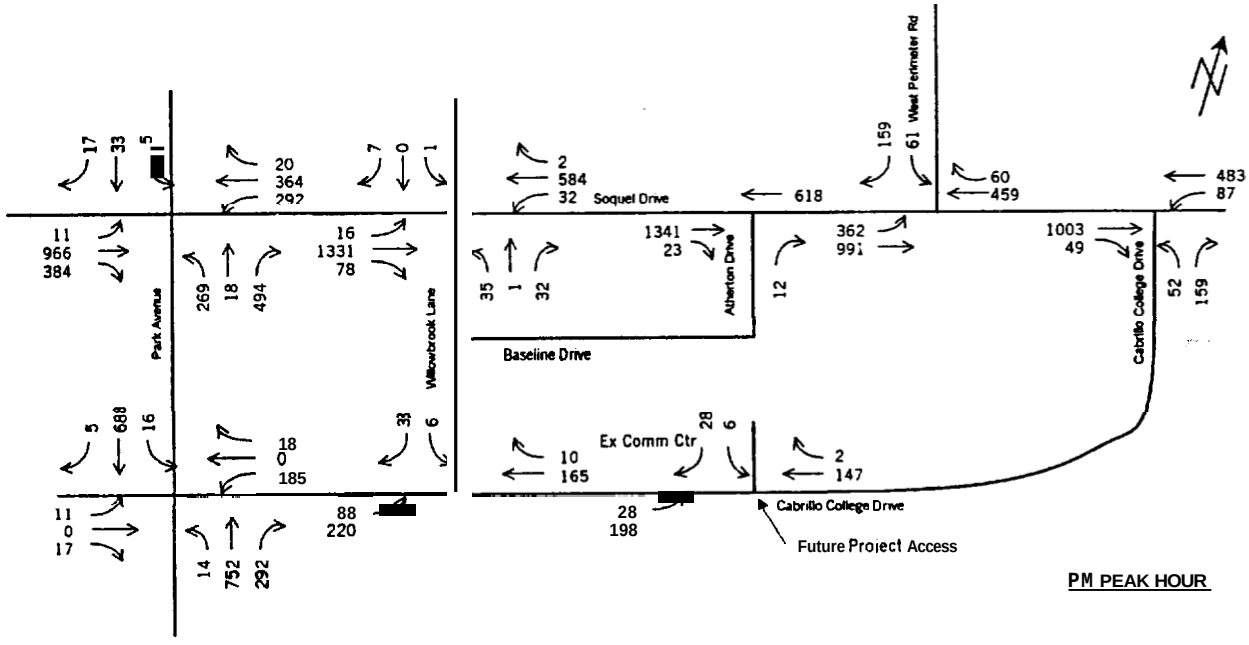


EXHIBIT 2-
EXISTING PEAK HOUR **VOLUMES**
***YEAR* 2001**

Environmental Review Inital Study
ATTACHMENT 32 6 of 24
APPLICATION 98-0145

PROJECT TRIP GENERATION RATES

Land Use	Unit	Daily Total Trips/Unit	AM Peak Hour Trips				PM Peak Hour Trips			
			Total	% of Daily	In %	Out %	Total	% of Daily	In %	Out %
1. Single family homes	d.u.	9.57	0.75	8%	25%	75%	1.01	11%	64%	36%

Note

1. Trip generation rates published by ITE, Trip Generation Manual, 6th Edition, 1997, ITE Land Use Code 210.

PROJECT TRIP GENERATION SUMMARY

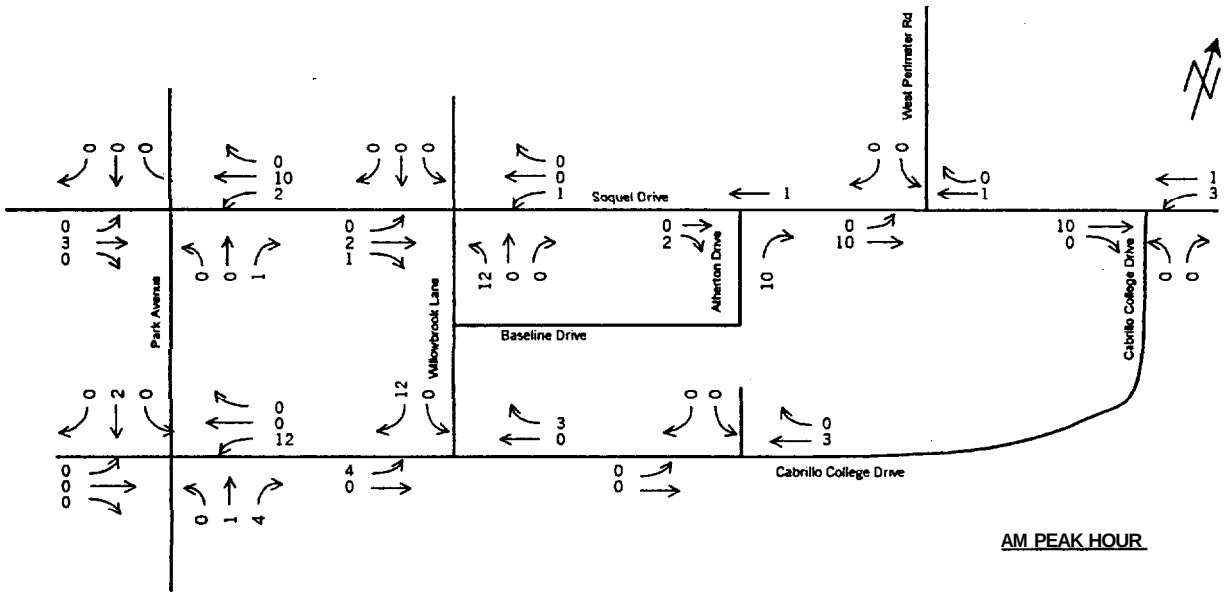
Land Use	Size		Daily Total Trips (ADT)	AM Peak Hour Trips				PM Peak Hour Trips			
				Total	% of ADT	In	out	Total	% of ADT	In	out
ORIGINAL PROJECT											
1. Residential	58	d. u.	555	44	8%	11	33	59	11%	38	21
PROPOSEDPROJECT											
1. North Section Residential	14	d. u.	134	11	8%	3	8	14	11%	9	5
2. South Section Residential	19	d. u.	182	14	8%	3	11	19	11%	12	7
TOTAL	33	d. u.	316	25	0%	6	19	33	11%	21	12
DIFFERENCE	(25)		(239)	(19)		(5)	(14)	(26)		(17)	(9)

Environmental Review Initial Study
ATTACHMENT 32 7 of 24
APPLICATION 93-0145

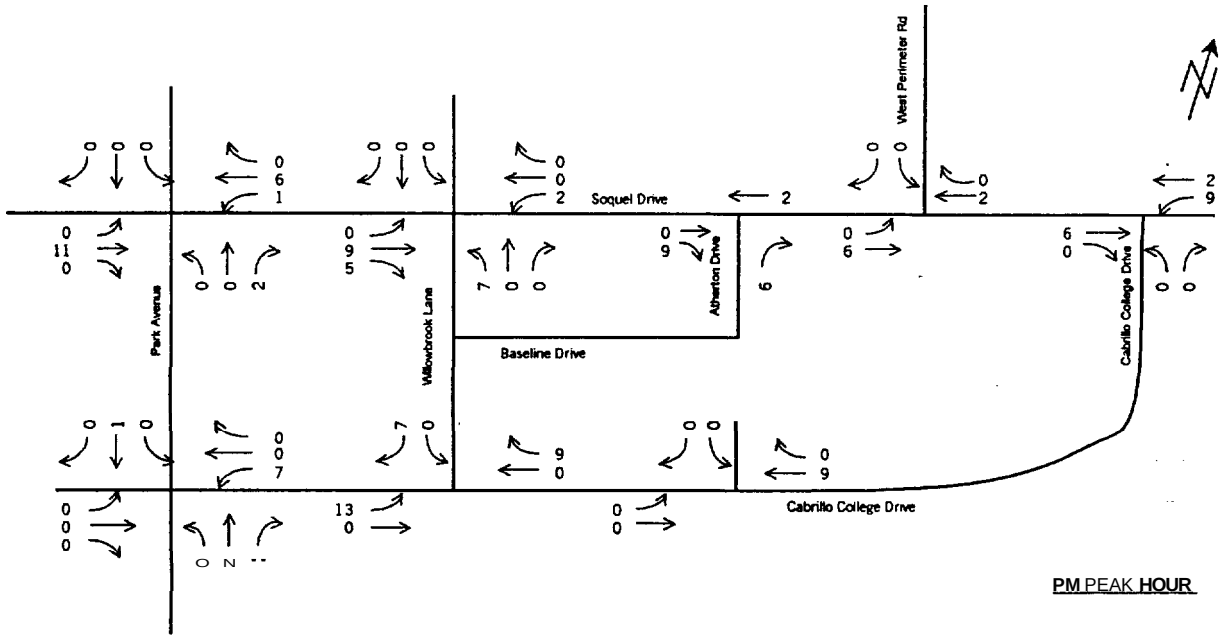
EXHIBIT 3 - PROJECT TRIP GENERATION

F:\2001\Jobs\A01-147\Exhibits\A01-147tripgen.WB3

HIGGINS ASSOCIATES

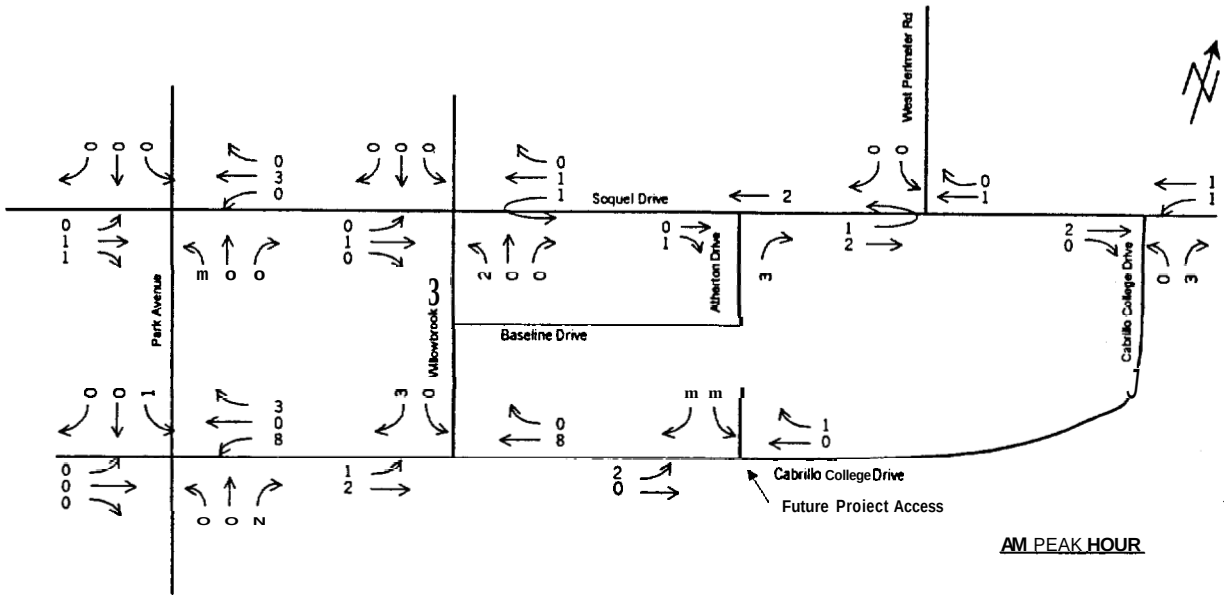


AM PEAK HOUR



PM PEAK HOUR

EXHIBIT 4-
PROJECT
TRIP **ASSIGNMENT**
(58 UNIT **PROJECT)**



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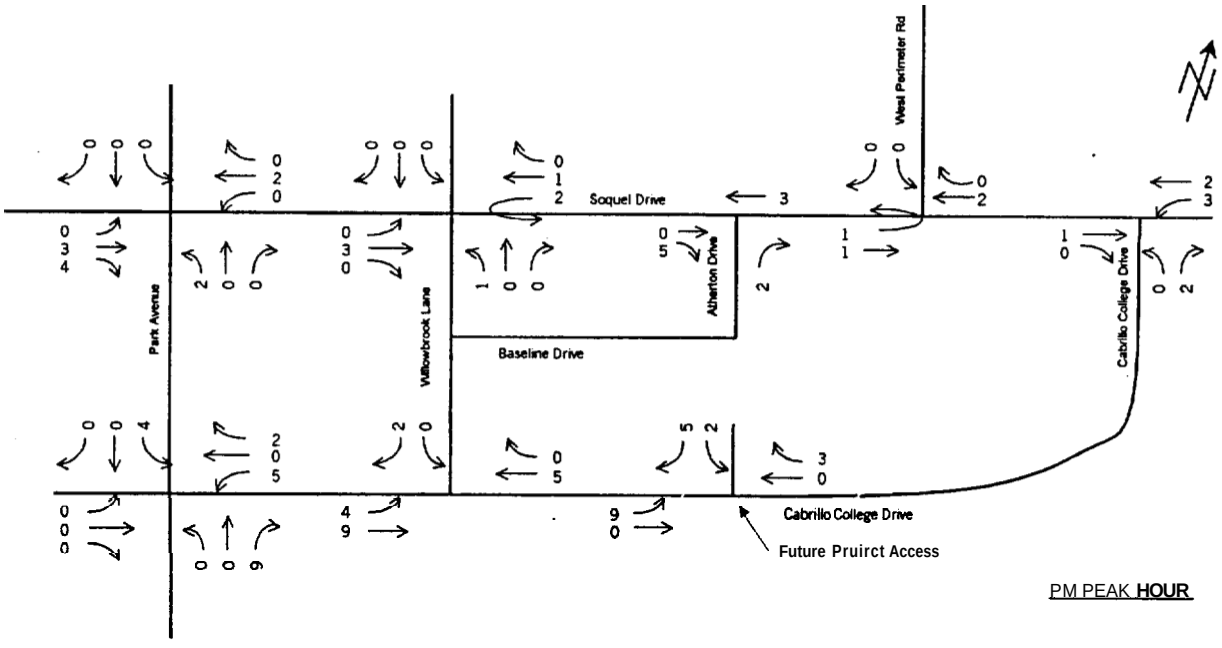
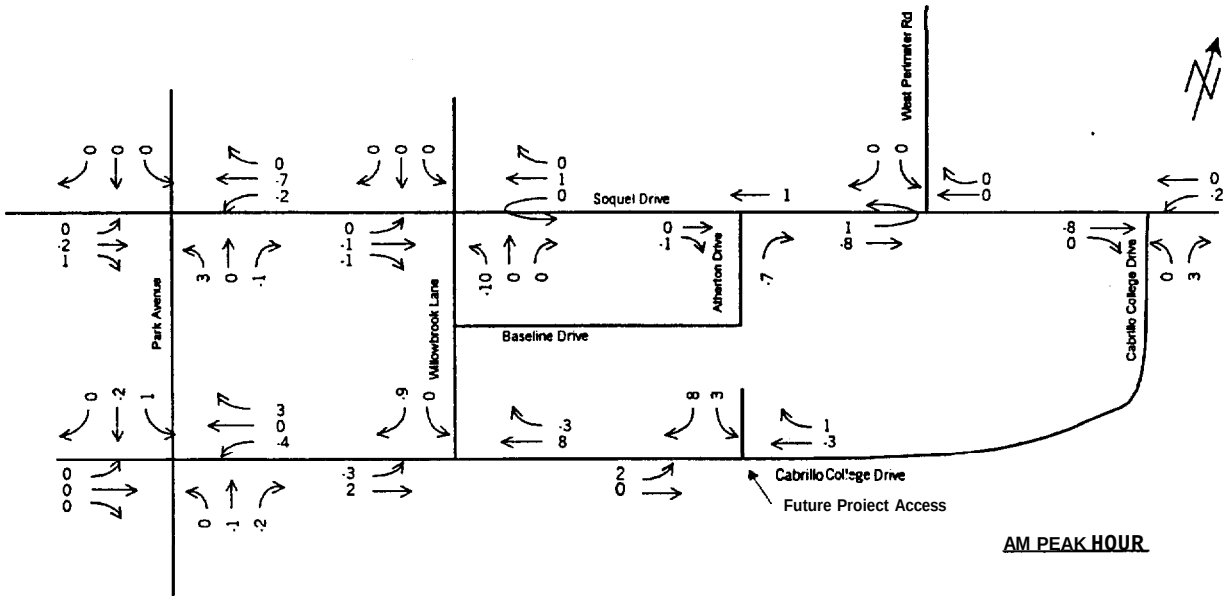


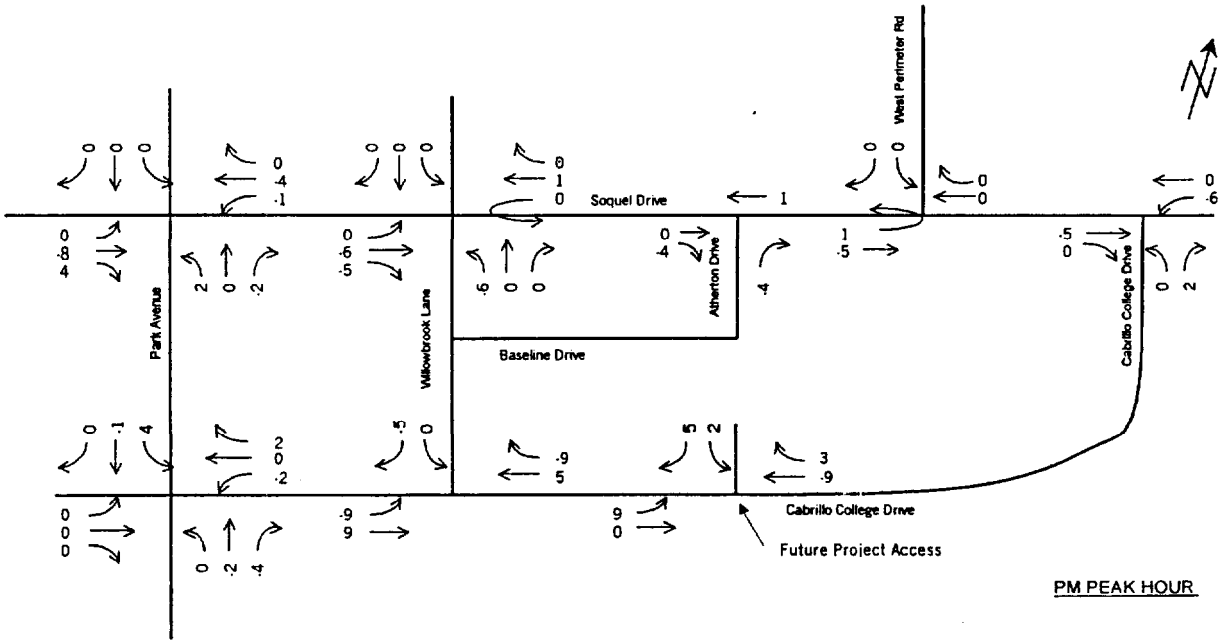
PM PEAK HOUR

EXHIBIT 5-
REVISED PROJECT
TRIP **ASSIGNMENT**
(33 UNIT PROJECT)

Environmental Review Inital Study
ATTACHMENT 33 9 of 24
APPLICATION 93-0145



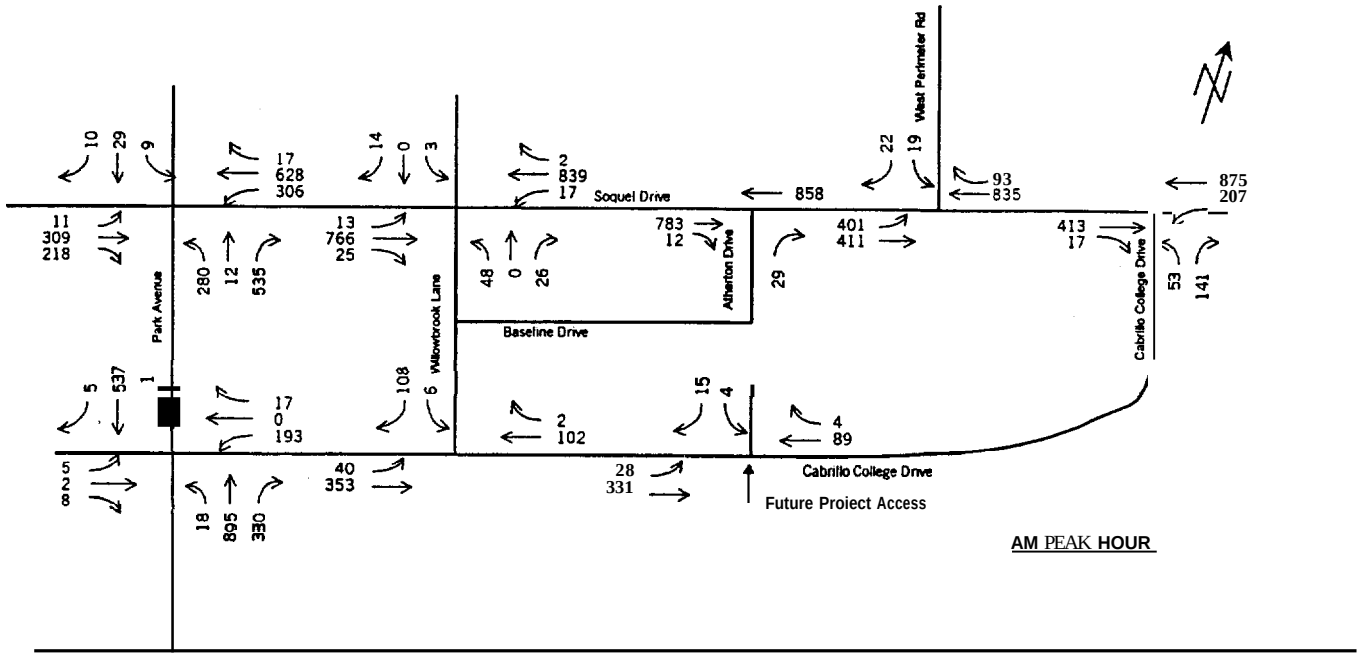
AM PEAK HOUR



PM PEAK HOUR

EXHIBIT **6-**
TRIP ASSIGNMENT
DIFFERENCE
REVISED PROJECT (33 UNITS) -
ORIGINAL **PROJECT** (***58*** UNITS)

Environmental Review Initial Study
ATTACHMENT 32 10 of 24
APPLICATION 98-0143



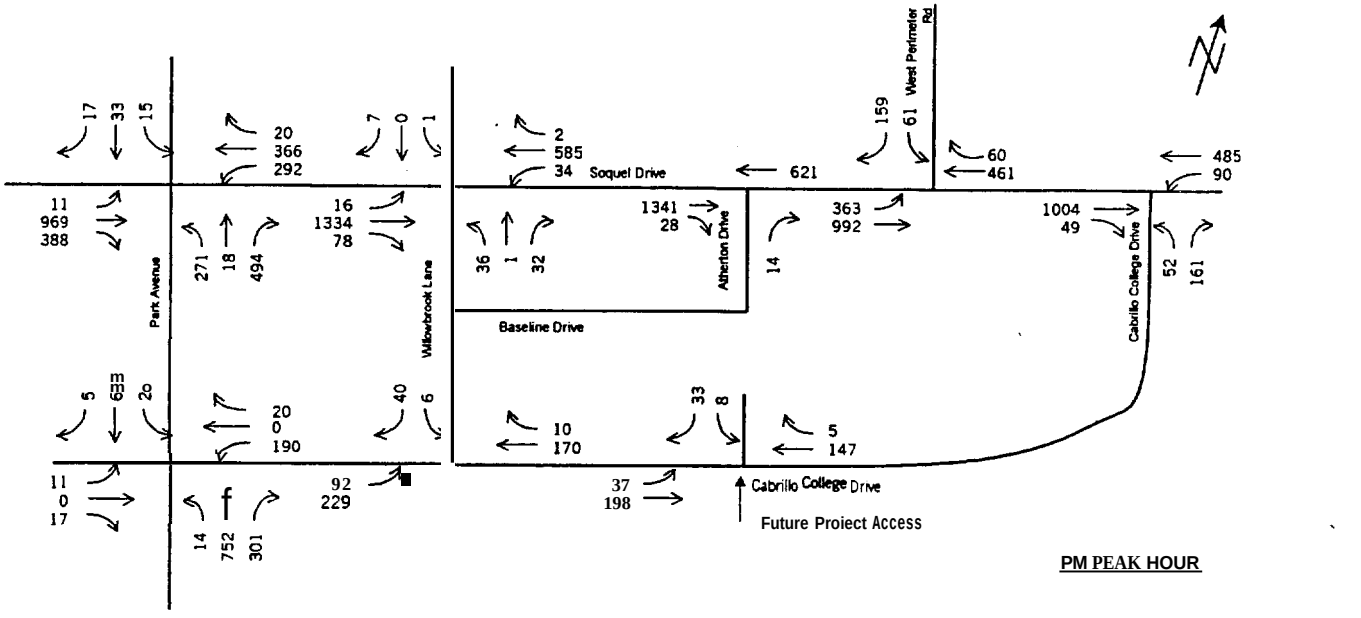
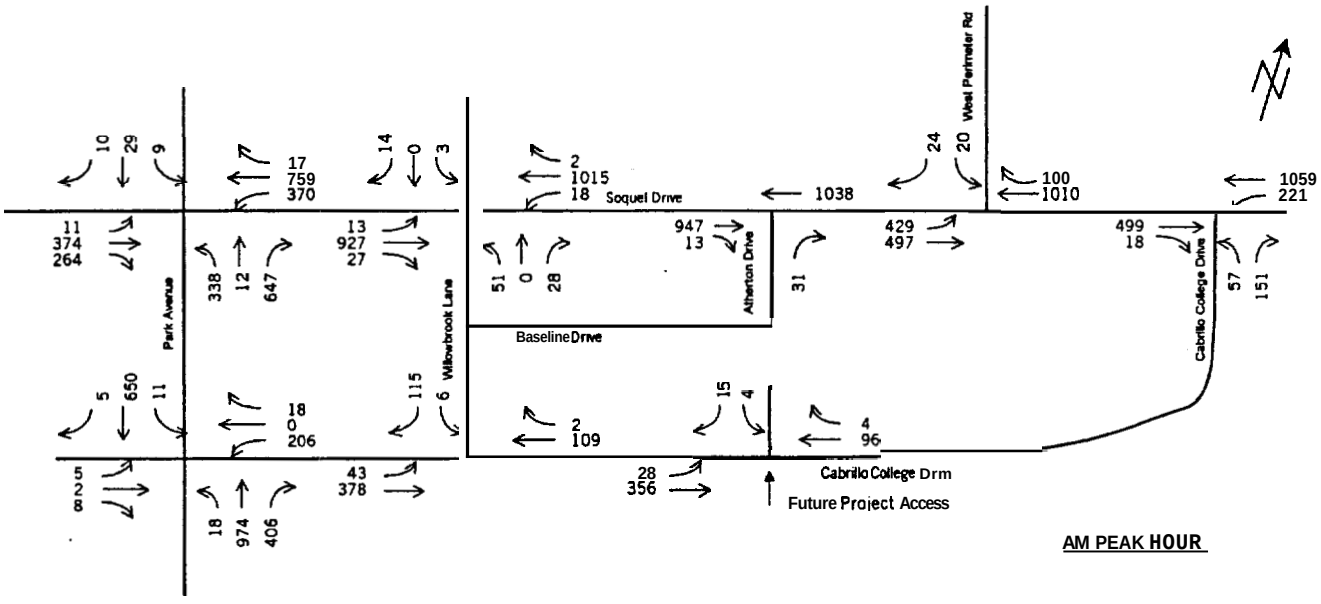


EXHIBIT 7-
EXISTING + PROJECT PEAK HOUR VOLUMES WITH 33 UNIT PROJECT

Environmental Review Inital Study
ATTACHMENT 33 11 OF 24
APPLICATION 98-0148



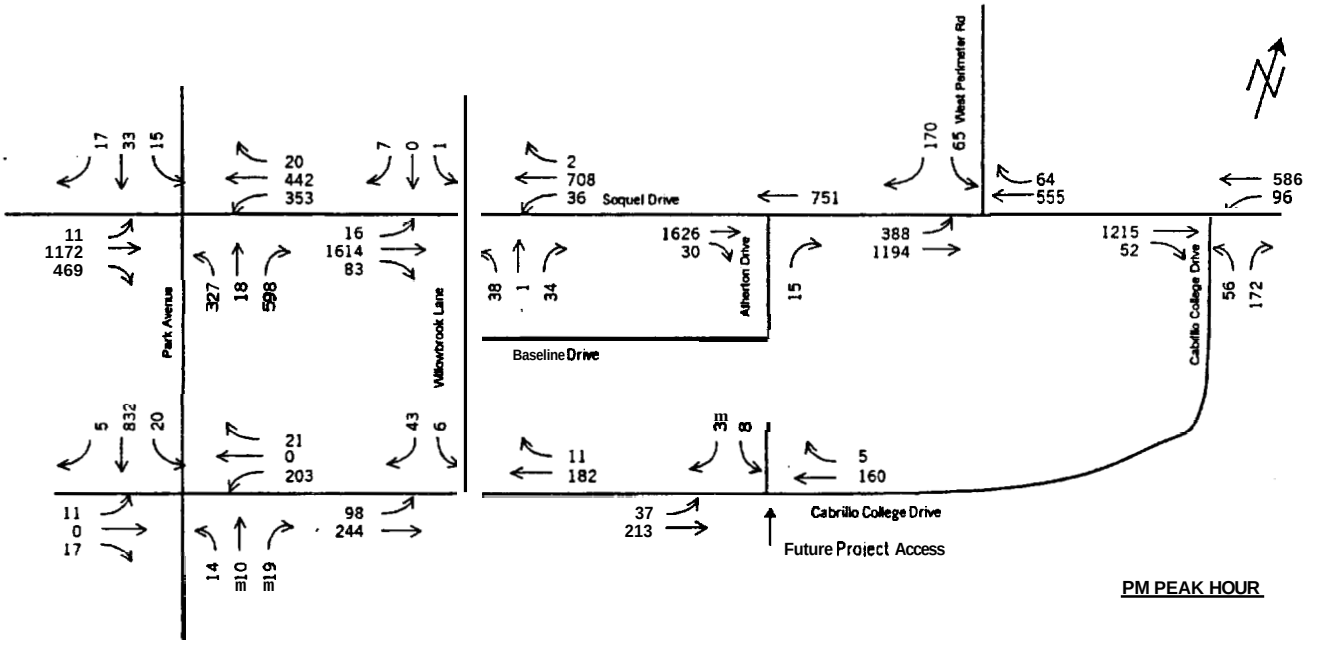


EXHIBIT 8-
REVISED
CUMULATIVE
PEAK HOUR
VOLUMES

Environmental Review Inital Study
ATTACHMENT 33 13 of 24
APPLICATION 98-0148

Intersection	Existing Traffic Control		INTERSECTION LEVEL OF SERVICE											
			Existing				Existing+ Project				Cumulative			
			AM		PM		AM		PM		AM		PM	
			LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del
Cabrillo College Dr/Future Proj Access	SB	Overall LOS	A	0.2	A	0.5	A	0.3	A	0.6	A	0.3	A	0.6
	STOP	SB LT LOS	B	6.3	B	5.8	B	6.4	B	5.9	B	6.7	B	6.2

Notes:

1. LOS - Level of Service.
2. Del - Average stopped delay per vehicle.
3. App - Approach.
4. LT - Left turn.
5. NB, SB, WB, EB - Northbound, Southbound, Westbound, Eastbound.

EXHIBIT 9 - INTERSECTION LEVEL OF SERVICE

Environmental Review Inital Study
ATTACHMENT 33 14 of 24
APPLICATION 98-0148

ATTACHMENT A -

INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

Level *Of* Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #18 Cabrillo College Drive/Commercial Access

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: **B**

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	1	0	7	26	331	*0*	0	89	**3**
Growth Adj:	1.00	1.00	1.00	1.00	1.00	**1.00**	1.00	1.00	1.00	**1.00**	1.00	1.00
Initial Bse:	0	0	0	1	0	7	26	331	0	0	89	3
User Adj:	1.00	1.00	1.00	1.00	**1.00**	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	**1.00**	1.00	1.00	1.00	1.00	1.00	1.00	1.00	**1.00**
PHF Volume:	0	0	0	1	0	7	26	331	0	0	89	3
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	1	0	7	26	331	*0*	*0*	*89*	**3**
Adjusted Volume Module:												
Grade:	*0%*			*0%*			*0%*			*0%*		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	**1.10**	**1.10**	1.10	1.10	1.10	1.10	**1.10**	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	1	0	8	29	331	0	0	89	3
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	**448**	xxxx	**91**	92	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	583	xxxx	1246	1550	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.98	xxxx	**1.00**	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	570	xxxx	1246	1550	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	6.3	xxxx	2.9	2.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	8	*	A	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*									*
ApproachDel:		0.0			3.3			0.2			*0.0*	

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #18 Cabrillo College Drive/Commercial Access

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	1 0	0	1	0 1	0	0	0	0 1	0
Volume Module:												
Base Vol:	0	0	0	6	0	28	28	198	0	0	147	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	6	0	28	28	198	0	0	147	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	6	0	28	28	198	0	0	147	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	6	0	28	28	198	0	0	147	2
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	7	0	31	31	198	0	0	147	2
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	374	xxxx	148	149	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	643	xxxx	1165	1456	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.98	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	628	xxxx	1165	1456	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	5.8	xxxx	3.2	2.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	B	*	A	A	*	*	•	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	•	•	*	*	*	*
ApproachDel:	0.0			3.6			0.3			0.0		

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #18 Cabrillo College Drive/Commercial Access

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	4	0	15	28	331	0	0	89	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	4	0	15	28	331	0	0	89	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	4	0	15	28	331	0	0	89	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	4	0	15	28	331	0	0	89	4
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	4	0	17	31	331	0	0	89	4
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	450	xxxx	91	93	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	581	xxxx	1245	1548	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.98	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	567	xxxx	1245	1548	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	6.4	xxxx	2.9	2.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	B	*	A	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	0.0			3.7			0.2			0.0		

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Environmental Review Inital Study
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APPLICATION 98-0149

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #18 Cabrillo College Drive/Commercial Access

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		1 0	0 0	1	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	8	0	33	37	198	0	0	147	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	8	0	33	37	198	0	0	147	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	8	0	33	37	198	0	0	147	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	8	0	33	37	198	0	0	147	5
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	9	0	36	41	198	0	0	147	5
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	385	xxxx	150	152	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	634	xxxx	1163	1451	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.97	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	614	xxxx	1163	1451	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	5.9	xxxx	3.2	2.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	B	*	A	A	*	•	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	•	*	*	*
ApproachDel:	0.0			3.7			0.4			0.0		

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APPLICATION 98-0148

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #18 Cabrillo College Drive/Commercial Access

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	4	0	15	28	356	0	0	96	4
Growth Adj:	**1.00**	1.00	1.00	1.00	**1.00**	1.00	1.00	**1.00**	1.00	1.00	1.00	1.00
Initial Bse:	*0*	*0*	0	*4*	***0***	15	*28*	356	0	0	96	4
User Adj:	1.00	1.00	1.00	1.00	**1.00**	**1.00**	1.00	1.00	1.00	1.00	1.00	**1.00**
PHF Adj:	1.00	1.00	1.00	**1.00**	**1.00**	1.00	1.00	**1.00**	**1.00**	1.00	1.00	**1.00**
PHF Volume:	0	0	0	4	0	15	28	356	0	0	96	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	4	0	15	28	356	**0**	0	96	4
Adjusted Volume Module:												
Grade:	0%			0%			***0%***			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	**1.00**	1.10	**1.00**	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	***0***	***0***	0	4	0	17	**31**	356	***0***	0	96	4
Critical Gap Module:												
MoveUp Time:	xxxxx	xxxx	xxxxx	3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:	xxxxx	xxxx	xxxxx	6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	482	xxxx	98	100	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	557	xxxx	1235	1536	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.97	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	543	xxxx	1235	1536	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	6.7	xxxx	**3.0**	2.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	B	*	A	A	*	*	•	*	•
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	•	•
ApproachDel:	0.0			**3.7**			*0.2*			0.0		

Level Of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #18 Cabrillo College Drive/Commercial Access

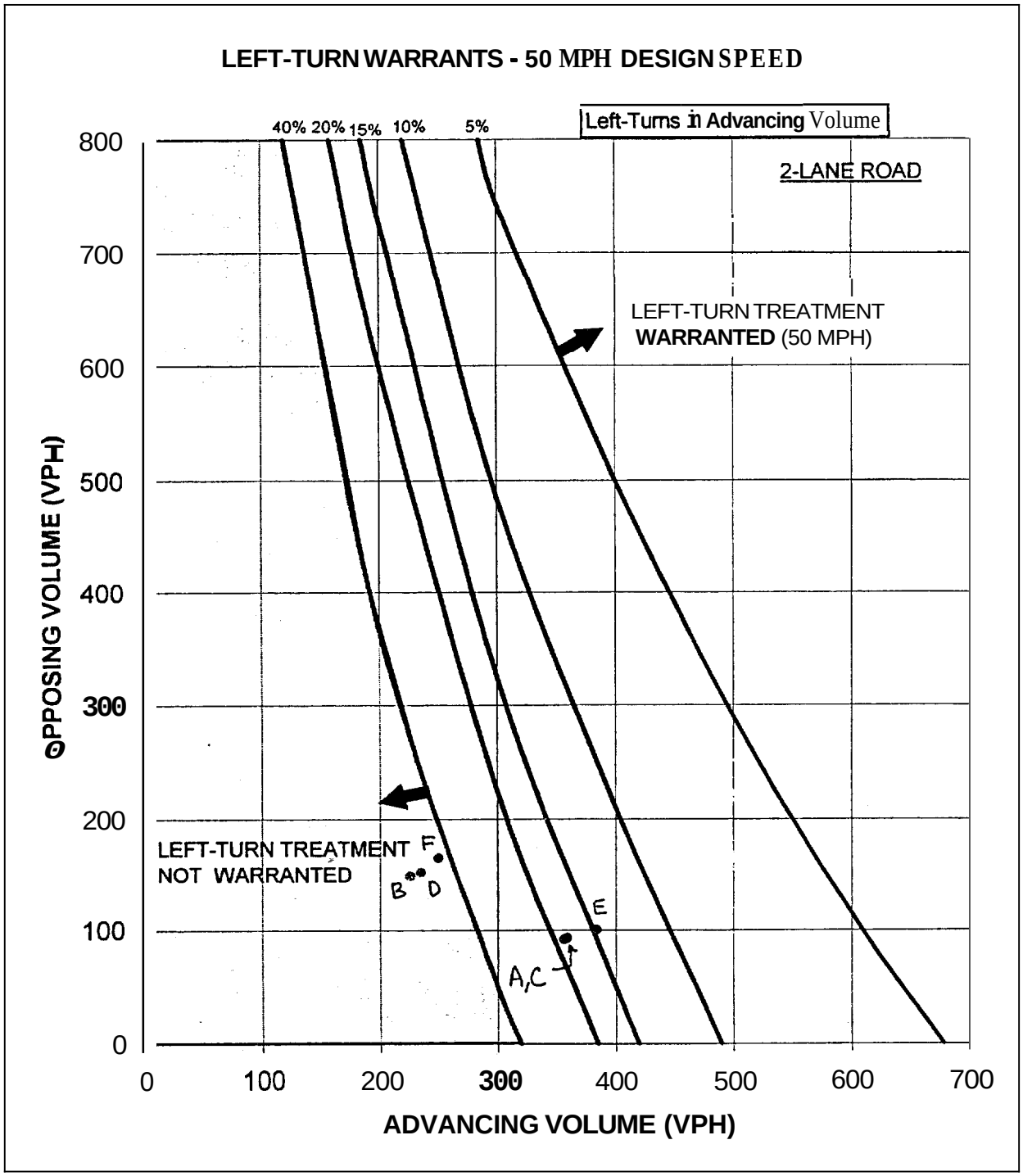
Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	1 0	0	0 1	0 1	0	0 0	0	0	0 1 0
Volume Module:												
Base Vol:	0	0	0	8	0	33	37	213	0	0	160	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	8	0	33	37	213	0	0	160	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	8	0	33	37	213	0	0	160	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	8	0	33	37	213	0	0	160	5
Adjusted Volume Module:												
Grade:	0%			0%			0%			0%		
% Cycle/Cars:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00
Cycl/Car PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Trck/Cmb PCE:	xxxx	xxxx		xxxx	xxxx		xxxx	xxxx		xxxx	xxxx	
Adj Vol.:	0	0	0	9	0	36	41	213	0	0	160	5
Critical Gap Module:												
MoveUp Time:xxxxx	xxxx	xxxxx		3.4	xxxx	2.6	2.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Critical Gp:xxxxx	xxxx	xxxxx		6.5	xxxx	5.5	5.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	413	xxxx	163	165	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	611	xxxx	1145	1430	xxxx	xxxxx	xxxx	xxxx	xxxxx
Adj Cap:	xxxx	xxxx	xxxxx	0.97	xxxx	1.00	1.00	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	591	xxxx	1145	1430	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:xxxxx	xxxx	xxxxx		6.2	xxxx	3.2	2.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	B	*	A	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*			*		*	*		*	*		*
ApproachDel:	0.0			3.8			0.4			0.0		

ATTACHMENT B -

LEFT TURN CHANNELIZATION
WORKSHEET

Cabrillo College Drive/Project Access
Eastbound Approach



Scenario	Advancing	Opposing	% Left-Turn	
A. Existing *AM*	357	92	7%	No
B. Existing PM	226	149	12%	No
C. Ex + Proj AM	359	93	8%	No
D. Ex +Proj PM	235	152	16%	No
E. Cumulative AM	384	100	7%	No
F. Cumulative PM	250	165	15%	No

Source: Transportation Research Board,
"Intersection Channelition Guide".
NCHRP Report 279, November, 1985

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APPLICATION 98-0143

Higgins Associates

A01-147Warrants.xls - Left-Turn 50

HIGGINS ASSOCIATES
CIVIL & TRAFFIC ENGINEERS

1335 First Street, Suite A, Gilroy, CA 95020 • 408 848-3122 • fax 408 848-2202 • e-mail info@kbhiggins.com

August 28, 2001

MEMORANDUM

TO: **Richard** Beale

FROM: Dan Takacs DT

SUHJECT: Atherton Place **Sight** Distance Evaluation

I **have** reviewed the sight distancc that will be **provided** from **the** approach of Bowers Court to **Cabrillo** College Drive in Santa **Cruz** County. Bowers Court **will** be utilized to access the southerly section **of the** Atherton Place subdivision, **which will consist of 19** lots. The intersection **of Cabrillo** College Road/Bowers **Drivc** will be located about 90 fcet to thc south of the existing driveway serving **Imperial Courts. When Rowers** Court **is** constructed, access to Imperial **Courts will be** relocated to Bowers Court and the existing Imperial Courts access provided **to Cabrillo** College **Drive will** be closed.

The posted speed limit on **Cabrillo** College **Drive is 40** miles per **hour** (mph), but vehicle speeds are observed *to* be higher **than the** posted **speed limit. Rowers** Court will intersect Cabrillo College Drive at **a** low point in the **vertical alignment of Cabrillo** College **Drive,** with ***a*** small downgrade approaching from thc south and **an** estimated downgrade of **3%** to **4%** approaching **from** the **uorth.**

Caltrans recommends that a **comer sight** distance **of** 440 feet be provided for **a 40 mph** design speed and that a corner sight distance of ***550*** fcet **be** provided for **a 50** mph design speed. The **sight** distance **bctwcen** future Bowers Court **and** the **approach from the south** extends *to* the curvc **in** Cabrillo College **Drivc located** over 1,000 feet to thc **south** Therefore, the comer **sight** distance **will** meet **the** Caltrans corner sight distance requirement for both 40 mph **and 50 mph** design speeds. Vegetation located on the east side of Cabrillo **College** Drivc, **south** of futurc Bowers Court could potentially obstruct the sight line, however. Therefore, it is recommended **that** the vegetation be **maintained** *in* a **manner** that ensures **a** clear sight line **is** provided to **the** south fiom **the** Bowers Court approach to Cabrillo College Drive.

The sight distance **between** futurc Bowers Court **and** thc approach from thc **north** is about **550** feet **and** extends to the intersection with **Willowbrook** Lane. Therefore, the corner **sight** distance on the approach from thc **north will** exceed Caltrans comer **sight** distance **requirements** for **40 mph and will equal** the corner **sight** distance requirement for 50 **mph.** Vegetation on thc east side **of Cabrillo** College Drive, **north** of future Bowers **Court does** not currently **block** thc sight linc to the **north. As** with the **sight** line to the south. however, it is recommended **that** the vegetation be **maintained in** a **manner that ensures a clear sight linc is provided to** thc **north** from **the Dowers Court approach** to **Cabrillo** Collegc Drive.

Please call me **if** you have any questions regarding **this analysis.**

I:\2001Jobs\A01-147\A01-147 memo.wpd

Environmental Review Inital Study
ATTACHMENT 33 1of1
APPLICATION 98-0148

COUNTY OF SANTA CRUZ

INTER-OFFICE CORRESPONDENCE

DATE: August 3, 2001

TO: Joan Van der Hoeven, Planning Department

FROM: Jack Sohriakoff, Department of Public Works JKS

SUBJECT: ATHERTON PLACE, REVISED PROPOSAL, 33 LOT SUBDIVISION, TRACT 1409, APPLICATION NUMBER 98-0148, APN:037-251-21 AND -22

The Transportation and Road Planning Engineering Section has reviewed the revised plans and traffic report by Higgins Associates dated July 3, 2001, for the above referenced project and makes the following comments:

1. The revised traffic report did not address sight distance at the proposed access location for Bowers Court at Cabrillo College Drive. This information is required to be submitted prior to acceptance of the traffic report.
   The traffic analysis to date has determined that there would be no significant traffic related'impacts on the surrounding street network associated with the proposed project.
   The remainder lot was not evaluated for potential traffic related impacts associated with future development. This issue needs to be discussed with the environmental review staff to determine if this information is necessary to proceed with environmental review.
2. The proposed new roadways do not meet current design criteria standards for local streets. It is recommended that the new roadways be designed and built to County design criteria standards, with no exceptions.
3. The project now proposes to access Cabrillo College Drive which is a County maintained roadway. and has a functional classification as a collector street. Cabrillo College has recently realigned the portion of Cabrillo College Drive immediately south of Soquel Drive. The improvements included sidewalks and bike lanes. The rest of Cabrillo College Drive does not have roadside improvements or bike lanes. It is recommended that the project be required to conduct a plan line study of Cabrillo College Drive from Park Avenue to the recently constructed segment.

Environmental Review Inital Study
ATTACHMENT 34
APPLICATION 98-0148

The plan line is recommended to be approved by the Board of Supervisors prior to the first public hearing for the subdivision. This will allow the application to proceed prior to plan line approval. The plan line should include two twelve foot travel lanes, turn lanes where necessary, five foot bike lanes, and one sidewalk on the north side. Additional direction for the plan line study will be discussed with the Engineering Review Group and the consulting engineer.

4. The project is recommended to be conditioned to provide offsite improvements along Cabrillo College Drive across the frontage of the adjacent commercial property to the west to connect with existing improvements at the corner of Willowbrook Lane. Additional offsite improvements may be recommended depending on the Board of Supervisors approved plan line.
   Previously recommended improvements to provide adequate sight distance at the intersections of Soquel Drive/Atherton Drive and Cabrillo College Drive/Willowbrook Lane still apply. The frontage improvements along Soquel Drive are also required and must extend to match the recent curb, gutter, and sidewalks constructed along the frontage of Cabrillo College.
5. The project is located within the Soquel Transportation Improvement Area (TIA) and is subject to TIA fees. The current TIA fee is $4000 per new lot. The anticipated TIA fees are therefore estimated at $132,000 (33 lots x $4000/lot = $132,000). The plan line study is eligible for TIA fee credit. Any additional transportation related offsite improvements required as a condition of approval along Cabrillo College Drive or Soquel Drive may be eligible for TIA fee credit.
   The previous recommendations to earmark specific TIA fee amounts for a future traffic signal at Soquel Drive/Willowbrook Lane and a left turn lane at Cabrillo College Drive/Willowbrook Lane is no longer recommended since the cumulative traffic related impacts associated with the proposed development are reduced compared to the previous project. The TIA fees may be better utilized for other near-term projects and it would be beneficial to have those funds available rather than already earmarked for a particular project.

Environmental Review Inital Study
ATTACHMENT 34 2of3
APPLICATION 98-0148

6. The Bowers Court access road is proposed to be located on an adjacent parcel not currently owned by the project applicant. Sufficient information is required to be submitted verifying the applicant is actively pursuing access rights over this private property. If the project applicant cannot successfully obtain the rights to access the proposed project as indicated on the existing site plans, the County may have to pursue condemnation to obtain access rights. This issue needs to be discussed with County Counsel in further detail.
7. The adjacent commercial property must be shown on the plans indicating existing and future parking and circulation issues that need to be addressed. The adjacent commercial property currently has an application being reviewed by the County for a proposed commercial structure. The proposed subdivision plans must include this proposed project in the future parking and circulation layout in order to identify potential impacts of the proposed access road to the existing and proposed commercial development.
8. The currently proposed access road is shown as a 24 foot paved roadway and does not meet the 56 foot wide right-of-way requirement. The project plans must indicate where the 56 foot right-of-way would be located when identifying potential impacts to the adjacent commercial property.

Please contact me or Greg Martin, Civil Engineer, at 454-2160 if you have any questions.

JRS :abc

Copy to: Paia Levne, Planning Department

ATHEA.wpd

Environmental Review Inital Study
ATTACHMENT 34 3of3
APPLICATION 93-0143

SANTA CRUZ COUNTY SANITATION DISTRICT

INTER-OFFICE CORRESPONDENCE

DATE: August 31,2001

TO: Planning Department, ATTENTION: JOAN VAN DER HOEVEN

FROM: Santa Cruz County Sanitation District

SUBJECT: SEWER AVAILABILITY AND DISTRICT'S CONDITIONS OF SERVICE FOR THE FOLLOWING PROPOSED DEVELOPMENT:

APN: 37-251-21 & -22 APPLICATION NO.: 98-0148

PARCEL ADDRESS: NO SITUS ADDRESS

PROJECT DESCRIPTION: 33 TOWN HOUSE UNITS

Sewer service is available for the subject development upon completion of the following conditions. This notice is effective for one year fiom 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 fiom 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.

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.

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 fiom the District.

Department of Public Works and District approval shall be obtained for an engineered sewer improvement plan, showing on-site and off-site sewers needed to provide service to each lot or unit proposed, before sewer connection permits can be issued. The improvement plan shall conform to the County's "Design Criteria" and shall also show any roads and easements. Existing and proposed easements shall be shown on any required Final Map. If a Final Map is not required, proof of recordation of existing or proposed easement is required.

The applicant may be required to form a homeowners' association with ownership and maintenance responsibilities for all on-site sewers for this project; reference to same shall be included on the Final Map and in the Association's CC&Rs which shall be recorded. Provide copy of said CC&Rs to District prior to the filing of the final map.

Environmental Review Inital Study
ATTACHMENT 35 1 of 3
APPLICATION 98-0148

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.

Other:

1. Please add County General Notes to your plans.
2. Refer to the Santa Cruz County "Design Criteria" for your engineering plans.
3. Locate the Sanitary Sewer Main at the Centerline of the Road.
4. Please provide a Sanitary Sewer profile for Atherton Drive.
5. Show all pipes crossing the Sanitary Sewer Main in both Plan and Profile.
6. The Sanitary Sewer at the end of Bowman Court is too shallow.

Other: No downstream capacity problem or other issue is **known** at this time. However, downstream sewer requirements will again be studied at time of Planning Permit review, at which time the District reserves the right to add or modify downstream sewer requirements.

Conrad Yumang
Sanitation Engineering

CAY:rb/359

Environmental Review Inital Study
ATTACHMENT 35 2 of 2
APPLICATION 93-0143

CENTRAL FIRE PROTECTION DISTRICT
of Santa Cruz County
Fire Prevention Division

930 17th Avenue, Santa Cruz, CA 95062
phone (831) 479-6843 fax (831) 479-6847

Date: July 17, 2001
To: ATHERTON PLACE DEVELOPMENT, LLC
Applicant: Same
From: Eric Sitzenstatter
Subject: 98-0148 (Second Review)
Address: ??? Atherton Place, Aptos
APN: 037-251-21 & -22
OCC: 2535
Permit: 010240

. We have reviewed plans for the above subject project. THE FOLLOWING ARE DISTRICT REQUIREMENTS:

Please note: "Bowman Court" is an established street in the Sea Crest Subdivision (off Hilltop). Please rename street, as per Fire Marshal.

The plans shall comply with California Building and Fire Codes (1998) and District Amendment.

. The FIRE FLOW requirement for the subject property is 1000 gallons.

Three new public fire hydrants, connected to the existing 10" water main, are required on Atherton Drive (see Civil Sheets 3 & 4).

A new 10" public water main shall connect from Atherton Drive at Baseline Drive through the access road and Bowers Court to the existing 10" public water main in Cabrillo College Drive, with a connection to the 6" public water main in Imperial Courts Tract *857* (see Civil Sheet 4).

The buildings shall be protected by an approved automatic sprinkler system complying with the LATEST edition of NFPA 13D currently adopted in Chapter 35 of the California Building Code.

NOTE: New/upgraded hydrants, water storage tanks, and/or upgraded roadways shall be installed PRIOR to and during time of construction (CFC 901.3).

****

When plans are submitted for multiple lots in a tract, and several standard Floor Plans are depicted, include Fire District Notes on the small scale Site Plan. For each lot, submit only sheets with the following information; Site Plan (small scale, highlight lot, with District notes), Floor Plan, Elevation (roof covering and spark arrestor notes), Electrical Plan (if smoke detectors are shown on the Architectural Floor Plan this sheet is not required). Again, we must receive, VIA the COUNTY, SEPARATE submittals (appropriate site plans and sheets) FOR EACH APN!!

Please have the DESIGNER add appropriate NOTES and DETAILS showing the information listed below to plans that will be submitted for permit:

Please note: "Bowman **Court" is** an established street in the Sea Crest Subdivision **(off Hilltop).** Please rename street, as per Fire Marshal.

NOTE on the plans that these plans are in compliance with California Building and Fire Codes (1998) and District Amendment.

NOTE on the plans the OCCUPANCY CLASSIFICATION, BUILDING CONSTRUCTION TYPE-FIRE RATING and either SPRINKLERED cr NON-SPRINKLERED as determined by the building official and outlined in Chapters 3 through *6 of* the 1998 California Building Code (e.g., R-3, Type V-N, Non-Sprinklered).

The FIRE FLOW requirement for the subject property is 1000 gallons. NOTE on the plans the REQUIRED and AVAILABLE FIRE FLOW. The AVAILABLE FIRE FLOW information can be obtained from the water company.

SHOW on the plans three new public fire hydrants, connected to the existing 10" water main, are required on Atherton Drive (see Civil Sheets 3 & 4).

A new 10" public water main shall connect from Atherton Drive at Baseline Drive through the access road and Bowers Court to the existing 10" public water main in Cabrillo College Drive, with a connection to the 6" public water main in Imperial Courts Tract 857 (see Civil Sheet 4).

NOTE: New/upgraded hydrants, water storage tanks, and/or upgraded roadways shall be installed PRIOR to and during time of construction (CFC 901.3).

SHOW on the plans DETAILS of compliance with the District Access Requirements outlined on the enclosed handout.

NOTE on the plans that the building shall be protected by an approved automatic sprinkler system complying with the edition of NFPA 13D currently adopted in Chapter 35 of the California Building Code.

> NOTE that the designer/installer shall submit three (3) sets of plans and calculations for the underground and overhead Residential Automatic Sprinkler System to this agency for approval. Installation shall follow our guide sheet.

Show on the plans where smoke detectors are to be installed according to the following locations and approved by this agency as a minimum requirement:

- One detector adjacent to each sleeping area (hall, foyer, balcony, or etc).
- One detector in each sleeping room.
- One at the top of each stairway of 24" rise or greater and in an accessible location by a ladder.
- There must be at least one smoke detector on each floor level regardless of area usage.
- There must be a minimum of one smoke detector in every basement area.

NOTE on the plans where address numbers will be posted and maintained. Numbers shall be a minimum of FOUR (4) inches in height and of a color contrasting to their background.

NOTE on the plans the installation of an approved spark arrestor on the top of the chimney. Wire mesh not to exceed ½ inch.

NOTE on the plans that the roof coverings to be no less than Class "C" rated roof.

NOTE on the plans that a 30-foot clearance will be maintained with non-combustible vegetation around all structures.

Submit a check in the amount of $50.00 for this particular plan check, made payable to Central Fire Protection District. A $35.00 Late Fee may be added to your plan check fees if payment is not received within 30 days of the date of this Discretionary Letter. INVOICE MAILED TO APPLICANT. Please contact the Fire Prevention Secretary at (831) 479-6843 for total fees due for your project.

If you should have any questions or comments please page me at (415) 699-3634, or e-mail me at edsfpe@sitz.net.

Environmental Review lnital **Study**

ATTACHMENT 36 2 of 7
APPLICATION 93-0143

CC: File & County

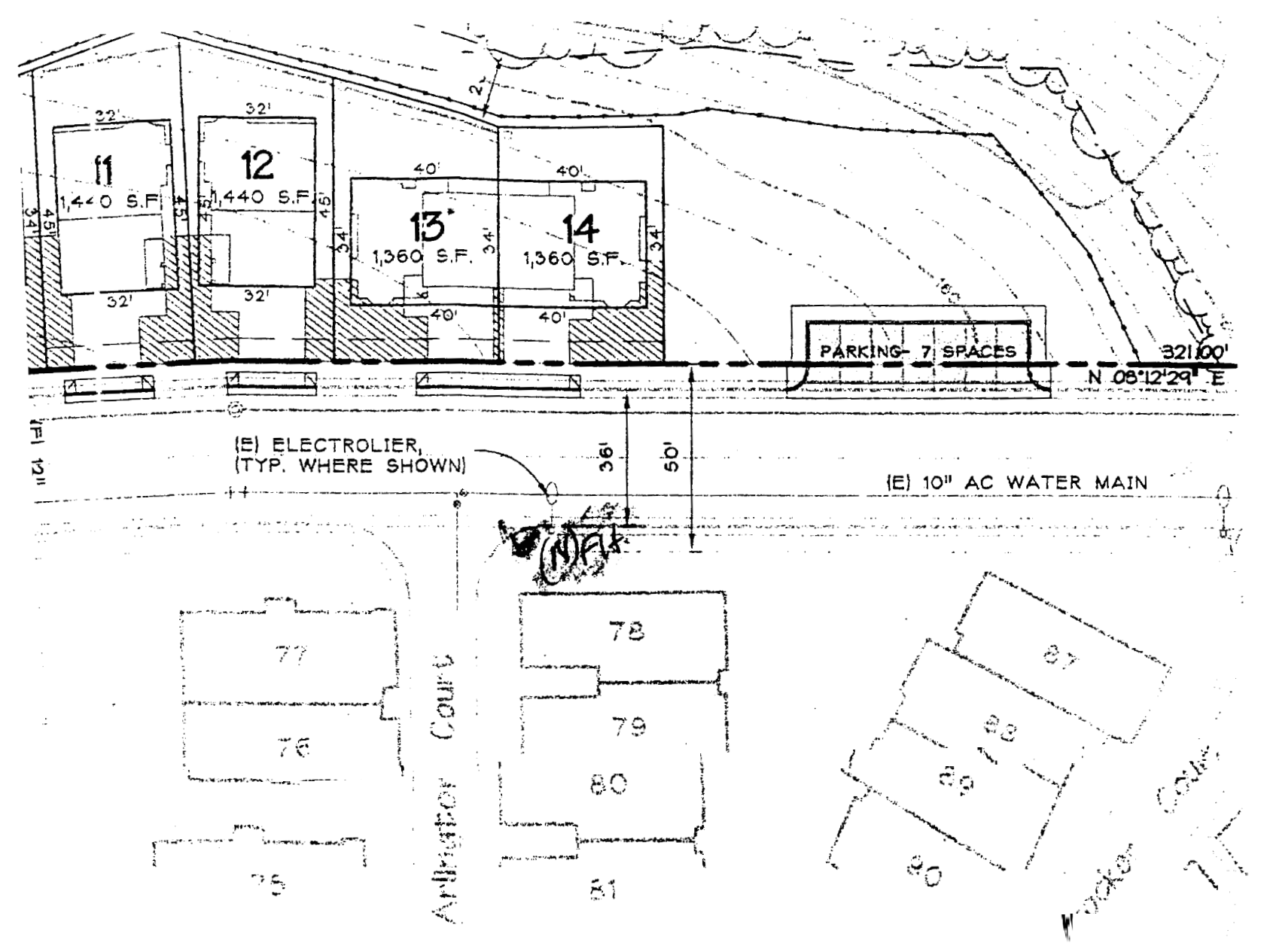
Note: **As** a condition of submittal of these plans, the submitter, designer and installer certify that these plans and details comply with applicable Specifications, Standards, Codes and Ordinances, agree that they are solely responsible for compliance with applicable Specifications, Standards, Codes and Ordinances, and further agree to correct any deficiencies noted by this review, subsequent review, inspection or other source, and, to hold harmless and without prejudice, the reviewer and reviewing agency.

Any order of the Fire Chief shall be appealable to the Fire Code Board of Appeals as established by any party beneficially interested, except for order affecting acts or conditions which, in the opinion of the Fire Chief, pose an immediate threat *to* life, property, or the environment as a result of panic, fire, explosion or release.

Any beneficially interested party has the right to appeal the order served by the Fire Chief by filing a written "NOTICE OF APPEAL" with the office of the Fire Chief within ten days after service of such written order. The notice shall state the order appealed from, the identity and mailing address of the appellant, and the specific grounds upon which the appeal is taken.

2535-40

Environmental Review Inital Study
ATTACHMENT 36 3 of 7
APPLICATION 93-0148

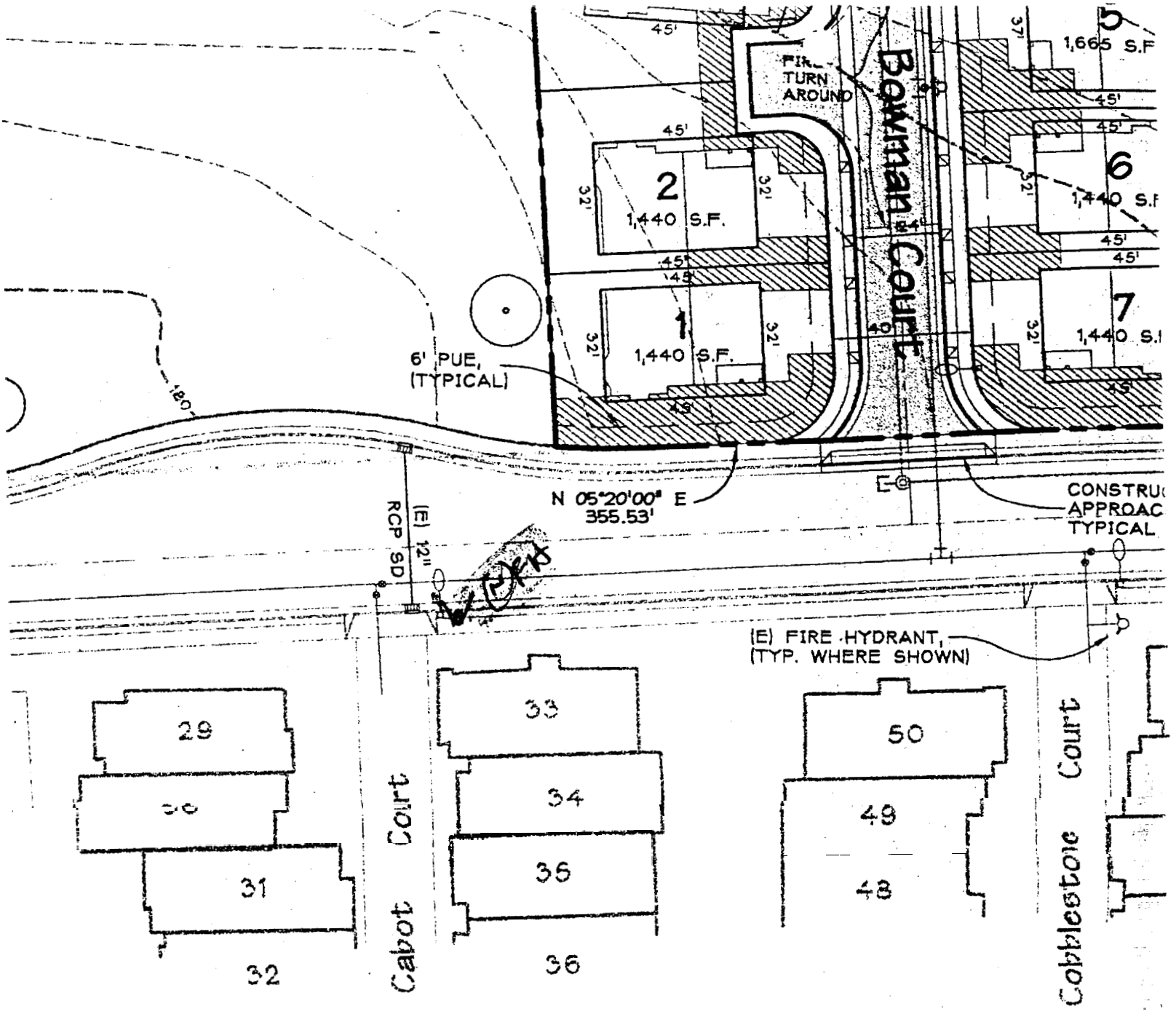


Notes:

"Lots 9, 13, 18, 27, and 33 *to* be affordable.

See sheets #5 and #6 for preliminary street improvements and sheets #7 #8 for preliminary *site* grading

Environmental Review Inital Study
ATTACHMENT 36 4 of 7
APPLICATION 98-0148

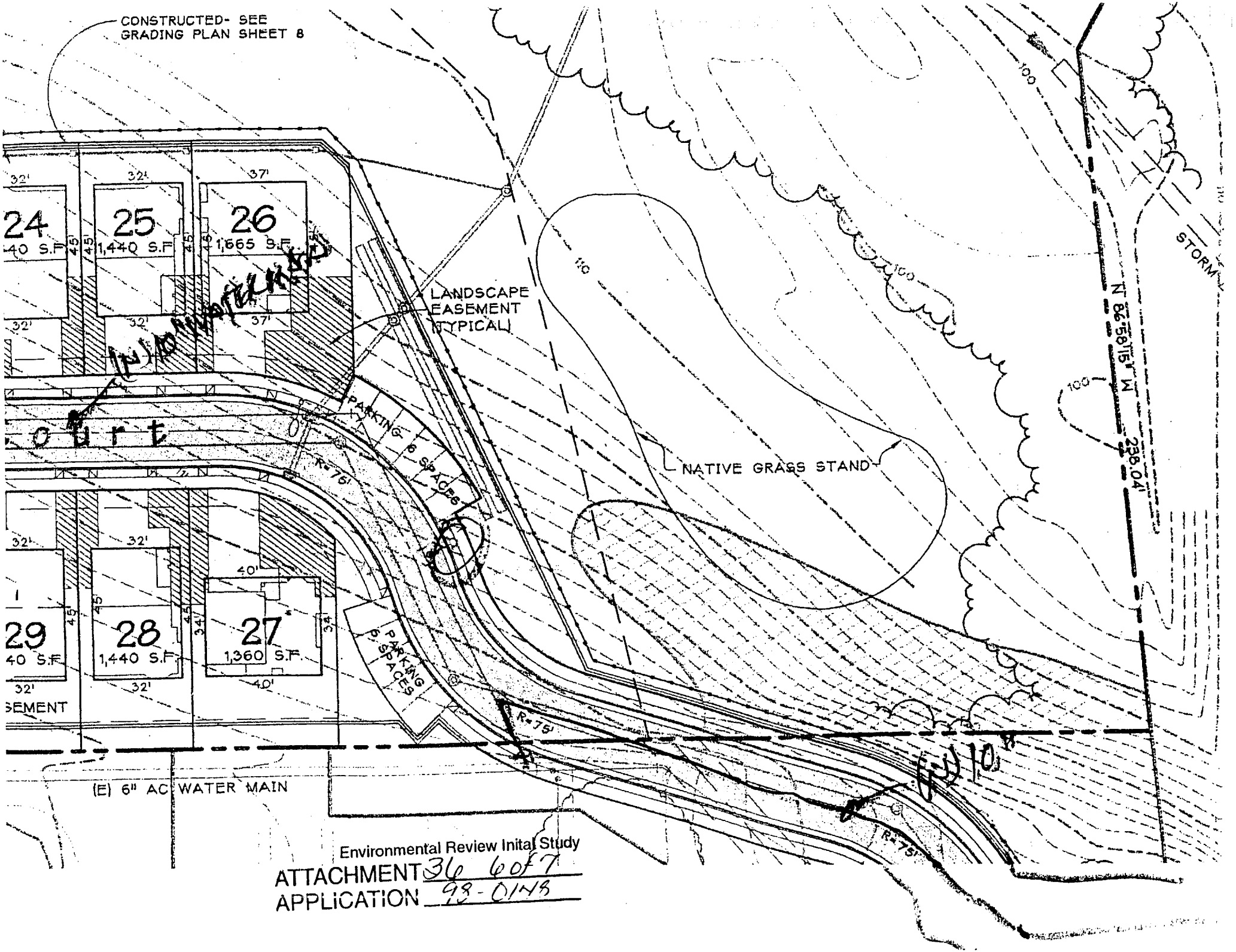


Tract No. 846
WILLOWBROOK VILLAGE
69 M 30

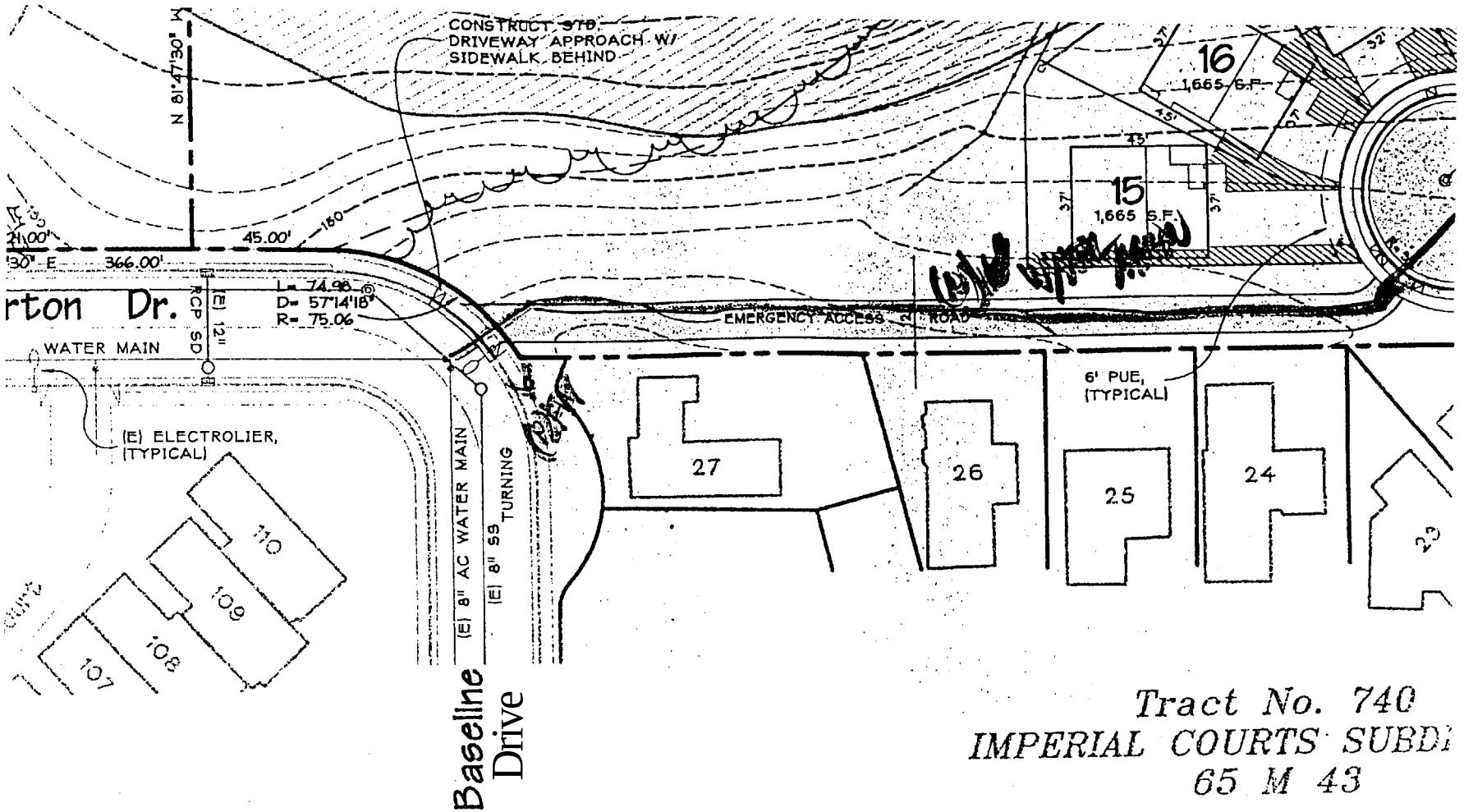
,North Section - Tentative.M

SCALE: 1" = 40'

Environmental Review Inital Study
ATTACHMENT 36 5 of 7
PLICATION 93-0173



Environmental Review Inital Study
ATTACHMENT 36 60F7
APPLICATION 98-0178

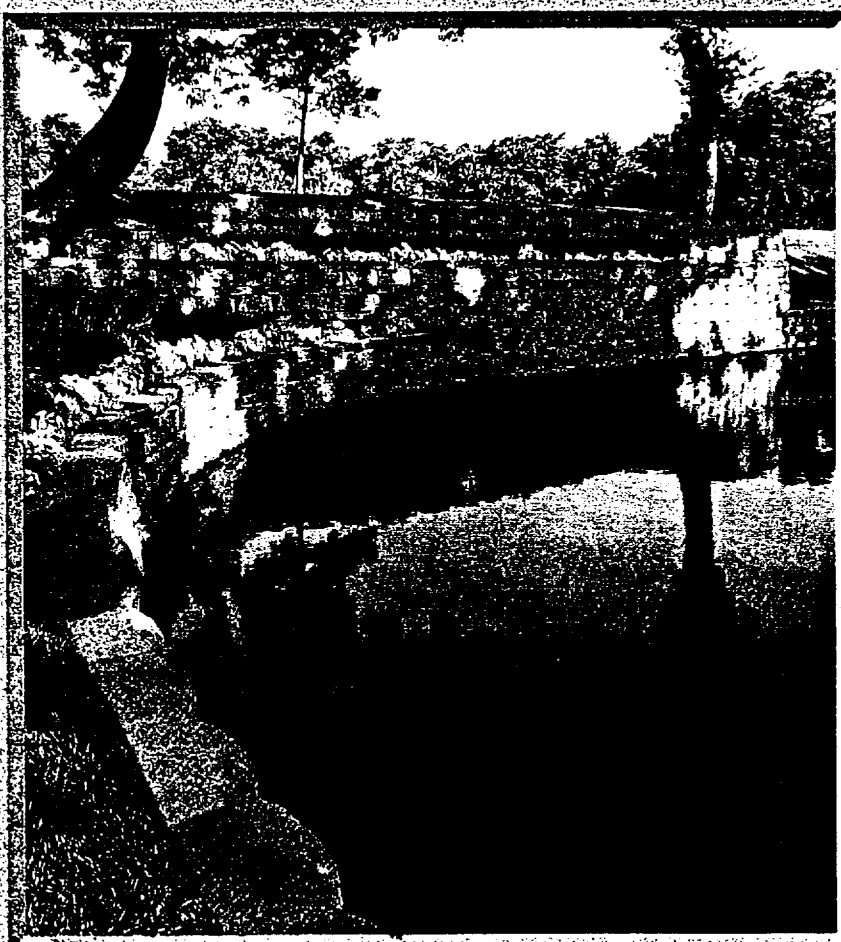


Tract No. 740
IMPERIAL COURTS SUBD
65 M 43

Environmental Review Inital Study
ATTACHMENT 36 7of7
APPLICATION 98-0148

A116
02276/KEY
BuyLine 2802

KEYSTONE



RETAINING WALL SYSTEMS

Environmental Review Initial Study
ATTACHMENT 37 1 of 2
APPLICATION 98-0143

KEYSTONE.
Designed for inner strength and outer beauty.

With KEYSTONE, distinctive looks start at ground level. Graceful curves. Classic lines. Shadows aid textures Geometric patterns No matter what the application, KEYSTONE Retaining Wall Systems is the preferred choice among architects, engineers. developers and contractors.

You'll discover that the real beauty of KEYSTONE is its inner strength. KEYSTONE's patented interlocking design gives your walls rock-solid stability and performance. Its strong concrete modules and fiberglass pins create maintenance-free walls.

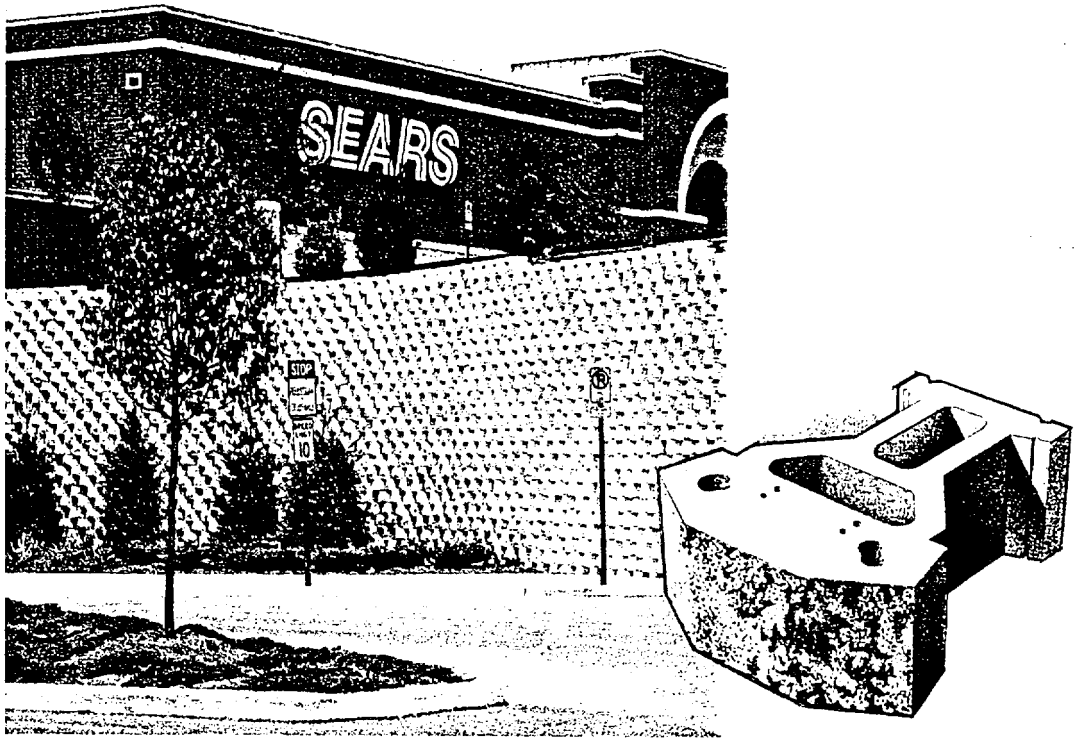
KEYSTONE protects the environment by using non-corrosive. environmentally safe materials.

Installing a KEYSTONE Retaining Wall System is fast and easy Not to mention the economic benefits and cost-effective advantages of KEYSTONE

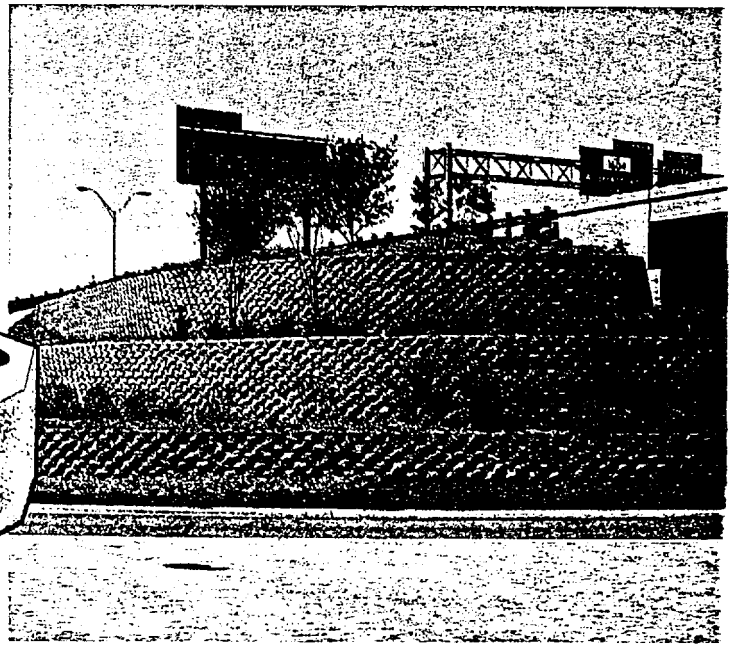
Add up the benefits. The beauty of natural stone, the durability of granite. easy installation.. it's all yours with KEYSTONE.

KEYSTONE Retaining Wall Systems. The choice for:
- Civil engineering
- Architecture
- Landscaping
- Commercial
- Governmental
- Residential

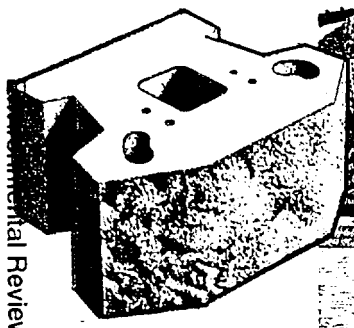
General Information
- Compressive strength ... 3,000 psi minimum
- Absorption rate ..... 8% maximum
- Composition ..... High 1-strength.high-density, zero-slump concrete



Standard Unit
- Weight* ..... 95 lbs. (42.75 kg)
- Size* (HxWxD) ..... 8"x18"x21¼" (.2032 x .4572 x .5461 m)
- Exposed face area ..... 1 sq. ft. – 8"x18" (.093 sq. m – .2032 x .4572 m)



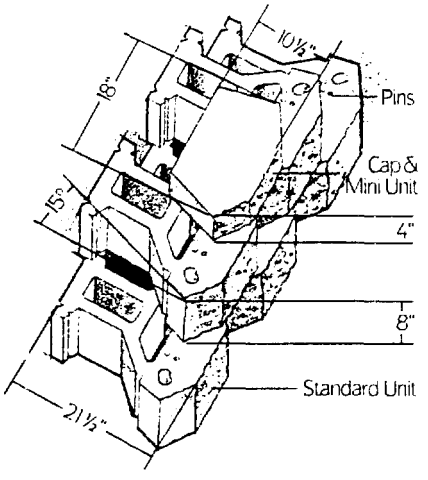
Optional straight face pattern



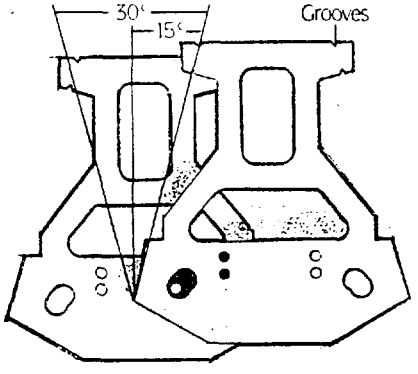
International Compac Unit
- Weight* ..... 85 lbs. (38.45kg)
- Size* (HxWxD) ..... 8"x18"x12¼" (.2032 x .4572 x .3112 m)
- Exposed face area ..... 1 sq. ft. – 8"x18" (.093 sq. m – .2032 x 4572 m)

Environmental Review Inital Study
APPLICATION 97-0148 ATTACHMENT 3 2 of 3

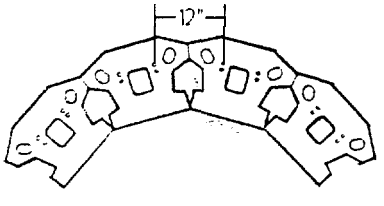
Design criteria



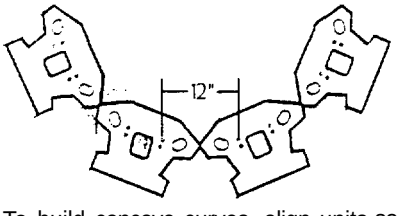
KEYSTONE's patented interlocking system creates a strong. durable retaining wall.



To build extremely tight convex curves. simply remove the extended tail pieces at the grooves. This returns the block shape to its 15° sides.



For convex curves. use near vertical setback. Adjacent units pins should be 12" O.C.



To build concave curves, align units so that pins of adjoining units are 12" O.C. with the near vertical setback procedure.

Concept

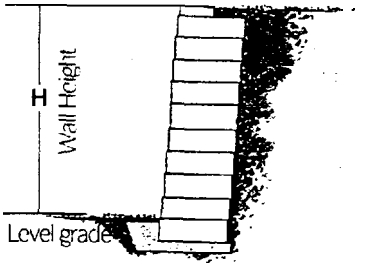
Gravity wall systems have been used since the time of the pyramids and rubble stone walls Gravity and friction resistance [based on material shape) resist lateral earth pressure. which may cause sliding and overturning failure.

KEYSTONE Retaining Wall Systems also resist lateral pressure with their weight and deep embedment shape. KEYSTONE units are connected with pins (not mortar] for a structurally interlocked network. The units also allow drainage to prevent hydrostatic loads.

Non-critical and critical walls

For low. non-critical applications, the KEYSTONE Retaining Wall is effective for gravity wall structures to the following heights,

No surcharge/level grade



Maximum wall heights for non-critical walls (without soil reinforcement)

- Standard units..... 6'
- Compac units..... .3'
- Mini units ..... 3'
- Standard and mini combination..... 5'
  (use 4" shims at tails of Standards)
- Compac and mini combination.....3'

Assumed parameters for non-critical walls:

- Base soil. minimum 2,500 psf bearing capacity (sandy gravel).
- Retained soil: approximately 32° friction angle (sandy gravel).
- Surcharge: no additional surcharge (slopes. structures. roadways, etc.].
- Drainage: site run-off diverted. water table fluctuation or embankment drainage properly considered.
- Geometry: level backfill and one inch set back position.

For taller or more critical walls, combine KEYSTONE wall units with soil reinforcement. With this combination, you can build walls over 40' high.

Critical structures include one or more of the following:

- Sloping backfill (steeper than 1 to 4)
- Surcharge loads
- High groundwater table
- Multiple tiers
- Wall built on slope
- Low soil shear strength (less than 25° friction angle)

See *geogrid criteria* on page 7 for further information on critical walls

Applications involving water

KEYSTONE is extremely effective for ponds, creeks. lakes. rivers and run-off channels It is important to evaluate water level, flow velocity. backfill soil type and foundation soils. KEYSTONE recommends that free-draining crushed rock be used within the core and reinforced fill areas. With the benefit of this freedraining system, the main concern is foundation soil, bearing capacity and wall base protection. KEYSTONE recommends that a qualified hydrological engineer evaluate wave action and scouring effects. In addition. critical applications may require erosion-resistant footing design and riprap protection. See your KEYSTONE representative for further details. A water effects video tape is available upon request.

Curves

To incorporate curves into your KEYSTONE Retaining Wall, use the near vertical setback position This allows you to build near vertical walls and curves with minimal gapping or overlapping of individual KEYSTONE units. If you have a one-pin location system, contact your KEYSTONE representative for guidelines.

Creative options for distinctive looks

- For the dramatic look of shadows and textures, combine KEYSTONE units of different thicknesses (for example. sizes 8"- 4"- 8").
- To create interesting geometric patterns. combine KEYSTONE colors.
- For unique variations. combine face textures such as rockface and corduroy, or angular and straight face.

Special applications

- Guard rails, highway barriers. fences, etc. (Vertical steel posts. wood or concrete may be integrated with the KEYSTONE System.]
- 90" corners (inside and outside)
- Sound barriers [double wall with gravel core fill)
- Steps (using KEYSTONE units as tread/riser)
- Water applications
- Coping details
- Landscape lighting integration

Environmental Consulting Services **20430H Town Center Lane Cupertino CA 95014**
Phone: (408) 257-1045 FAX: 408 257 7235

July 10, 2001

Mr. Richard Beale
Richard Beale Land Use Planning Inc.
100 Doyle Street – Suite E
Santa Cruz, CA **95062**

RE: Revised Noise Environment and Design Recommendations for
Modified Atherton Place Residential Development, Santa Cruz County

Dear Mr. Beale,

I have reviewed the acoustical aspects of the revised design for the subject project relative to Santa Cruz County and 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} design noise levels, a description of architectural details relevant to noise protection performance, and general recommendations for compliance with County noise planning criteria [1] and California CEQA, Appendix G, Section XI - Noise.

PROJECT DESCRIPTION

The revised Atherton Place project includes approximately **33** single-family units designed in two sections, 14 units accessed from Atherton Drive and **19** units on the southern part of the site accessed only from Cabrillo College Drive. The new plan has eliminated approximately **25** units previously located near Soquel Drive. This report evaluates the complete build-out scenario for the revised 33 unit project.

SUMMARY OF FINDINGS

The primary source of noise on the north end of the revised project is sporadic traffic on Atherton Drive. On the south end of the site the primary noise source **is** traffic on **US** Route **I** freeway. Typical vehicle passby noise levels are 55-65 dBA at **50** feet. Trucks, motorcycles, and poorly muffled vehicles produce peak levels **5** to **I5** dBA higher on passby. Aircraft overflights create infrequent noise incidents of ***55*** to 60 dBA. There are no other significant noise sources in the area.

Based on site noise monitoring and a preliminary site plan for the revised Atherton Place development, project noise levels would be highest at the two residential units nearest to US Route 1 freeway in the south section of the project. Expected traffic noise levels on the project site for the year 2005 are estimated based upon existing noise levels and projected future freeway traffic volumes. Traffic volume increases on **US** Route 1 are estimated at no more than **2%** per year, which would be a total ADT increase of **12%** or less in 2005. Based upon noise measurements, trafic projection data, and noise modeling of key project sites. maximum noise levels would be 66 dBA Ldn for the two units closest to **US** Route 1 at the south end. Noise levels at all other project units would be considerably lower, 60 dBA or less. The Design Noise Level is the maximum noise level the structures must mitigate to provide a satisfactory interior environment, which for this project would **be *66*** dBA Ldn.

To meet Santa Cruz County criteria and California CEQA standards for residential buildings, the following requirement must be met:

- A long-term interior noise level not exceeding 45 L_{dn} due to exterior sources must be provided for each unit, which requires a minimum total building shell noise transmission loss of at least 21 dB.
- Exterior livable areas should be provided for each unit to a noise level less than 60 dBA L_{dn}.

NOISE MONITORING AND DESIGN NOISE LEVEL ANALYSIS

Field noise measurements on site were made during the mid-morning period of February 3, 1999, with a Metrosonics dB-601 Community Noise Analyzer, calibrated with a B & K Model 4230 Sound Level Calibrator. The measurement locations were chosen to represent the planned residential properties closest to Soquel Drive in the north section of the site under the original site plan, and the planned residential properties closest to US Route 1 at the south end of the site.

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 typical daily traffic distributions, with standard weighted penalties for the nighttime hours.

EXHIBIT 1

EXISTING NOISE LEVELS (dBA)

Atherton Place Site – Santa Cruz County

Location	L_{90}	L_{50}	L_{eq}	L_1	L_{dn}
1. North area overlooking Soquel Drive	**60**	**62**	**64**	**66**	**65**
2. Properties closest to US Route 1	52	62	65	71	65

The Design Noise Level is the outdoor noise level anticipated in the year 2005 for the residential units experiencing the highest noise exposure — the maximum noise level that the building structure must mitigate. In this project the two residences nearest US Route 1 would be exposed to the Design Noise Level (DNL), which is computed based on field measurements, future traffic projections [2], and the National Cooperative Highway Research Board traffic noise model [3]. Procedures used in field noise measurement and for traffic noise modeling are described in the Appendix, Page A-1.

No significant changes in freeway configurations are anticipated between now and the year *2005*. Expected traffic noise levels on the project site for the year 2005 have been estimated based on projected future traffic volumes. Because of distance to the road (over 500 feet) and terrain shielding, units in the north section of the project are not significantly affected by Soquel Avenue traffic. Traffic increases on US Route 1 volume are estimated at no more than 2% per year, which would be a total ADT increase of 12% or less, and increase noise levels less than one dB. Therefore the two units closest to US Route 1 at the south end of the project would have a maximum L_{dn} noise level of 66 dBA.

Since the distance from the nearest project units to US Route 1 is over 350 feet, the upper floor noise level would be the same as the ground floor. Hence, the estimated worst-case noise levels for any of the Atherton Place residences, the architectural Design Noise Level for the project, would be 66 dBA or less.

SANTA CRUZ COUNTY STANDARDS

Santa Cruz County requires that new housing developments provide an interior L_{dn} noise level of **45** dBA or less due to exterior noise sources and an outdoor livable space of 60 L_{dn} dBA or less. This report describes the required design criteria to meet the interior **45** dBA L_{dn} and outdoor 60 dBA L_{dn} standards.

Indoor Noise Standard. As described in the previous section, the worst-case project noise environment for architectural design purposes is ***66*** dBA for the units adjacent to US Route 1. Therefore, to achieve an interior L_{dn} of **45** dBA, a minimum noise reduction of **21** dB must be provided by the combined elements of the building shell. The transmission loss of architectural building elements is designated by Sound Transmission Class (STC) ratings for wall elements, which is a method of estimating the inherent ability to attenuate noise transmission [4].

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 2 1-22 STC. Typical dual-layer thermal pane windows are rated at **24-28** 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 basic wall structure.

Outdoor Noise Standard. Only the two units closest to **US** 1 would not meet the outdoor livable space requirement. For these units the outdoor decks should be enclosed to provide an outdoor livable space with a noise level less than 60 dB Ldn. The decks should be enclosed on three sides by a 7-foot wall and connected to the house on the fourth side. To provide openness and a view of the surroundings from the decks, the enclosures can be constructed completely of ½" Plexiglas or ¼" safety glass, or alternatively the enclosure could be constructed of wood up to approximately a 3-foot height and glass or Plexiglas above that.

RECOMMENDATIONS

Following are recommendations for meeting the criteria for good residential noise insulation design.

1. WINDOWS. Windows must have an STC rating of at least **21** dB. Standard openable double-glazed thermal windows, with two 1/8" lights separated by a **1/4" to 3/8"** air space and good weather seals typically have a rating of **28-29** STC. These windows are clearly acceptable, and give a little extra protection **from** intermittent outdoor noise incidents.

2. EXTERIOR DOORS. Outside doors must meet an STC rating of 21. Solid wood doors or paneled doors (1 **3/47** with good weather seals provide a **23-25** dB of noise reduction, and would be acceptable.

3. VENTILATION. Mitigation of traffic noise is based upon windows that can be closed in order to provide the required noise protection. **All** units must have a heating/ventilation system that provides a habitable interior environment with the windows closed, regardless of outside temperature. This does not mean that the windows must be kept closed at all times. The requirement is only that the units are designed with **the** ability to meet the interior noise level of 45 dBA Ldn and maintain a comfortable interior. ***So*** the requirement is the same **for** this project as for any other location or project in Santa Cruz — windows, at least those facing major traffic sources, must be kept closed to allow an acceptable interior noise level. Residents always have the option to open the windows, with the associated higher noise level.

   The location and noise levels produced by the ventilation units must not themselves cause a noise problem for any of the other residential units associated with the project.

4. 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 walls and 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

REFERENCES

1. Santa Cruz County General Plan, May **1994.**

2. Project traffic analysis and CalTrans data, Keith Higgins Associates, Gilroy, updated 3/13/01.

3. ***Highway Noise - A Design Guidefur Highway Engineers,*** National Cooperative Highway Research Program Report I **17,** Highway Research Board, National Academy of Sciences. Washington, D.C., 197I (model enhanced and field validated by ECS).

4. DuPree, Russell B., ***Catalog of STC and IIC Ratingsfor*** *Wall and Floor/Ceiling Assemblies,* California Dept. of Health Services, Office of Noise Control, Berkeley, **CA,** Fcb. 1980.

ATTACHMENT 33 4 of 4
APPLICATION 98-0143

Biotic Resources Group
Biotic Assessments • Resource Management • Permitting

July 12, 2001

Richard Beale
Richard Beale Land Use Planning
100 Doyle, Suite E
Santa Cruz, CA 95062

RE: **Atherton** Place **Development: Review of Revised Site Plan**

Dear Rich.

The Biotic Resources **Group,** with Dana **Bland &** Associates, have reviewed the **revised** site **plan** for the Atherton **Place** development. This **plan** deletes **a** portion of the northern **area** from the development, reconfigures unit types accessing Atherton **Drive,** deletes two *units* **and** replaces these areas **with an** open space park overview (with **an** additional **7 parking** places) **and** creates **a** primary **access** onto **Cabrillo** College Drive.

A review **was** conducted to determine whether the **revised site plan would** result in any changes to the previous biological **report** prepared for the project. The results of **this review** are described herein.

Analysis of Revised Site Plan

In general, the **revised site** plan **does nor** result in any significant changes to the previous biological report. **Although** lots will be removed from **the** northern area, additional parking **spaces** are created for the proposed park/overview. Pre-construction **surveys** for special ***status*** wildlife species *are* still recommended. **These surveys** are for loggerhead shrike, yellow **warbler and** raptors.

The redesigned development in **the southern** portion of *the* **site will** increase *the* serback to the riparian corridor; this **is** a beneficial impact. **With** the revised **plan, no grading will** occur in the **50-foot** riparian setback **area.** Construction fencing **is** still recommended **along *the*** outside **edge** of **grading** to **preclude** inadvertent impacts to the **riparian** setback area **and** the **riparian** corridor.

The new access **road** to **Cabrillo** College Drive **will** be a **minimum** of 20 feet from one stand of **native grasses** that occurs in **the** open **grassland** (colony **#1, as** depicted on Figure 2b of the Athenon **Place** Development Biological Asscssmcnt, Biotic **Resources Group, June** 1999). The **location** of **this** grass colony **and the** new roadway **should** be ***staked*** in the field prior to site construction. The **new** access **road** will occur **outside the 50-foot** riparian **setback area.** This **woodland** occurs on ***the*** **slope adjacent** to **Cabrillo** College Drive.

Post Office Box 14 • Santa Cruz, California 95063 • (831) 476-4801 • Fax (811) 476-8038

No other biological resource issues have been identified at this time. Please give me a call if you have any questions on this review.

Sincerely,

Kathleen Lyons

Kathleen Lyons
Principal/Plant Ecologist

CC: Ms. Charlene Atack

Environmental Review Inital Study
ATTACHMENT 39 2 of 2
APPLICATION 98-0148

COUNTY OF SANTA CRUZ
DISCRETIONARY APPLICATION COMMENTS

Project Planner: Joan Van Der Hoeven
Application No.: 98-0148
APN: 037-251-21

Date: September 10, 2001
Time: 07:40:14
Page: 1

Environmental Planning Completeness Comments

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

1) This site needs a biotic survey conducted to evaluate for the presence of the endangered tarplant (Holocarpha macrophylla) and Gairdner's Yampah (Pendicularis dudleyi). The results of this survey will determine what, if any, additional requirements are needed.

2) Have a wetlands delineation performed in the southern half of the proposed development. If the low lying area below the proposed home sites is determined to be a wetland, then a setbackof 30-feet, plus a 10-foot buffer, will be required between the edge of the wetland and any development.

3) This project needs to have a geotechnical study conducted. In the report the geotechnical engineer should issues including, but, not limited to site conditions, soil types, grading, foundation, retaining walls, drainage designs, and pavement R values. The report should also address the slope stabilitybehind the proposed lots and evaluate the berm thatretains the pond for long term stability.

4) The grading plans propose to place fill behind lots 19, 20, and 21. The placement of fill in the riparian setback is not permitted. The plans will need to be revise to exclude fill in this area. Note that structures, including retaining walls must have an additional 10-foot buffer beyond the riparian setback.

Ewironmental Planning Miscellaneous Comments

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

1) No future development may occur within the proposed riparian setback area.

2) All recommendations of the geotechnical report must be followed.

Housing Completeness Comments

========== REVIEW ON JULY 20, 2001 BY SUZANNE N ISE ==========
NO COMMENT

Housing Miscellaneous Comments

Looks like a good project. Meets inclusionary requirements. Only comment is please do not choose nearly identical street names (Bowman/Bower) like so many subdivisions do. It will forever confuse future residents, guests, real estate agents, cab drivers, school kids, etc. How about some memorable street names for once? ==========
REVIEW ON JULY 20, 2001 BY SUZANNE N ISE ==========

Drw Drainage Completeness Comments

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

Environmental Review Inital Study
ATTACHMENT 40 1 of 4
APPLICATION 98-0148

========== REVIEW ON JULY 20, 2001 BY ALYSON B TOM ==========
The following comments are in response to the submittal dated 7/10/01.

1) The project site is located in a groundwater recharge zone. The revised plans propose detention rather than retention of the added site runoff. Please submit information addressing the feasibility of retaining the added project runoff on site. Detention will be allowed only if retention is deemed infeasible.

2) The current plans show runoff from the fronts of lots 1 and 7 through 14 being directed to Atherton Drive. Please either demonstrate, by providing additional survey information, that this plan is not proposing diversion or redesign so runoff follows existing drainage patterns.

3) Clarify on the plans how and where the roof runoff for each of the proposed buildings will be directed.

4) Please show on the plans the locations of the proposed silt and grease traps (Stormceptors etc.). A recorded maintenance agreement for the silt and grease traps is required.

5) Please clarify how runoff from lots 2, 3, 6, 7, and 27-33 will be controlled and directed. Runoff should not be allowed to flow uncontrolled from one lot to another.

6) Drainage easements are required in areas of common drainage improvements. Please update tentative map accordingly.

7) Please add a note on the plans to include stenciling "No Dumping Flows to Bay" on the curbs adjacent to all proposed storm drain inlets.

8) Please provide details for the retaining wall drainage and swale details on the plans.

9) Please indicate which lots require drains in the driveways and provide a detail for the drains.

10) Please describe how and where the proposed 18" culvert at the end of Bowers Court will outlet or tie into an existing storm drain system.

Comments 1, 2 and 10 should be addressed prior to Environmental Coordinator meeting. Comments 3 through 9 must be addressed prior to recording the final subdivision map.
========== UPDATED ON AUGUST 31, 2001 BY ALYSON B TOM ==========
The following comments are in response to plans dated August 15, 2001 by Ifland Engineers. The following should be addressed prior to E.C. meeting.

1) Previous comment 1 from July 20 still needs to be addressed.

2) Per correspondence with Glen Ifland on August 31, 2001, plan sheet 7 will be revised to show all site runoff going to Porter Gulch. The note stating runoff will go to Atherton Drive will be removed from the sheet.

3) The 18" culvert proposed under Bowers Court at Cabrillo College Drive is to ac-

comodate runoff that is currently draining along a ditch adjact to Cabrillo College Drive. Details for the outlet and calculations demonstrating that the 18" culvert will be adequate to handle the runoff should be submitted. If it is acceptable to the planner, this information can be submitted after the E.C. meeting.

4) Previous comments 3-9 should be addressed prior to recording thesubdivision map.
========= UPDATED ON SEPTEMBER 6, 2001 BY ALYSON B TOM =========
Submittal by Ifland Engineer's dated September 5, 2001 addresses comments 2 and 3 from August 31, 2001. The following items are still needed.

1) Please submit information addressing the feasibility of retaining the added run-off on site. Detention will be allowed only if retention is deemed infeasible.

2) Comments 3-9 from Juy 20, 2001 can be addressed prior to recording the map. Please also include details for the storm drain outlets,

3) A plan review letter from the geotechnical engineer stating that the drainage plan will not cause any erosion problems will be required prior to recording the subdivision map. ========= UPDATED ON SEPTEMBER 6, 2001 BY ALYSON B TOM =========
I have received the geotechnical review letter stating retention is not feasible on this site. Item 1 from above is resolved.

Applicant is responsible for obtaining all necessary permits and easements for off-site work including, but not necessarily limited to the proposed dissipator for the storm drain from Northbrook court and the road and culvert work adjacent to Cabrillo College Drive. This should be completed prior to recording the map.

Dpw Drainage Miscellaneous Comments

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

========= REVIEW ON JULY 20, 2001 BY ALYSON B TOM =========
Please see completeness comments.

Dpw Driveway/Encroachment Completeness Comments

No comment, project involves a subdivision or MLD.
========= UPDATED ON AUGUST 7, 2001 BY RUTH L ZADESKY =========
No comment, project involves a subdivision or MLD.

Dpw Driveway/Encroachment Miscellaneous Comments

No comment.
========= UPDATED ON AUGUST 7, 2001 BY RUTH L ZADESKY =========
No comment.

Dpw Road Engineering Completeness Comments

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

NO COMMENT

Dpw Road Engineering Miscellaneous Comments

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

These comments are to clarify previous comments. 1) Transportation Improvement Area (TIA) fees will be required for the project based upon 58 dwelling units at a rate of $4000 per unit to be split evenly between the transportation improvement fee and the roadside improvement fee. The estimated TIA fee is $232,000 (58 units x $4000 per unit= $232,000). A portion of the TIA fee is to be set aside for a future signal at Soquel Drive/Willowbrook. The amount of this portion is estimated at 15% of a new traffic signal (approx. $150,000), or $22,500. In addition, a portion of the TIA fee is to be set aside for a future left turn lane on Cabrillo College Drive at Willowbrook. The portion is estimated at 15% of the project (approx. $200,000), or $30,000. 2) The applicant will be required to improve the sight distance at the intersection of Cabrillo College Drive at Willowbrook per the traffic study recommendations. The cost of this improvement will be borne by the applicant. 3) The Department of Public Works will monitor the need for a separate right-turn lane on northbound Willowbrook at Soquel Drive and will initiate the striping with County forces. 4) The applicant is required to improve the sight distance at the intersection of Atherton at Soquel Dr Vehicles exiting Atherton must turn right onto Soquel Drive due to a raised median in Soquel Drive. Soquel Drive curves slightly south when looking west from Atherton. In addition, Atherton was constructed through a cut embankment which restricts sight distance to the west. An appropriate improvement must be constructed at this location in order to insure proper sight distance is maintained. This may require the removal of brush, or perhaps a retaining wall. **5)** The access roads are recommended to meet County design criteria standards. If an exception is granted to build the roads as proposed, the County policy is to require a driveway approach to a County maintained roadway. The proposed roads will not be County maintained, and will not have curb returns. **6)** The intersection of Atherton and Baseline do not currently have multi-way stops. The proposed access road at this intersection does not meet County design criteria standards, and must be designed **as** a driveway approach which will not require a multi-way stop at this location. If the roadway is to be built as a street with curb returns, the intersection needs to be analyzed to verify if multi-way stops are warranted. Please contact me if you have any additional questions or comments regarding the above issues.

Ifland Engineers, Inc.
Civil Engineering & Structural Design
1100 Water Street
Santa Cruz, CA 95062
831.426.5313 Fax 831.426.1763
w.iflandengineers.com

MEMORANDUM

TO: Rich Beale - Via Fax 425-1565

FROM: Glen Ifland

RE: Atherton Place
Memo of Pala dated 8/24/01

PROJECT #: 97278

DATE: August 27,2001

In response to some of the items in Pala's memo, we offer the followlng:

1. The plans reviewed by Alyson Tom per her memo dated 7/20/01 were the plans dated 7/10/01. These plans have since been revised on 8/15/01 per the County Review, The plans clearly address Items 2 and 10. See Item 2 on sheet 7 showing driveway drainage of lots 8 thru 14 draining beck from Atherton Drive and item 10 on sheet 8 where 18" pipe discharges into the natural channel and then into the 72" box culvert under Highway 1.

I do not understand the comment about the plans still showing the post-development runoff exceeding the pre-development runoff. On sheet 2 of the Tentative Map it shows the Pre and Post runoff volumes which are standard requirements. Then under the calculations it states: "Storm drain detention required per SO-5 - 400 cubic feet per acre (400)(1450) = 5.800 cubic feet". Sheets 7 and 8 call out the detention volumes which then reduces the runoff to pre-development rates.

Drainage is not routed through the keystone wall. All storm drainage is collected into the storm drainpipe system and is piped under ground to the natural channel. This is shown on sheet 8. The pipe passes under the retaining wall.

2. Addressed by Thacher and Thompson.

3. Addressed by others.

4. The grading cross-sections shown on sheet 5 are referenced by "Note: Sections refer to South Section. See Sheet 8 for specific plan location." On sheet 8, the location of the sections are shown and then there is a note: "Note: See Sheet 5 for street cross-sections".

\\Ifland\DOCS\1997\97278\CORRESP\BealR062701.doc

Environmental Review Inital Study
ATTACHMENT 41 1 of 1
APPLICATION 98-0148

MWH
MONTGOMERY WATSON HARZA

August 14,2001

Richard Beale
Land Use Planning, Inc.
100 Doyle Street
Suite E
Santa Cruz, **CA** 95062

Re: Grading Plan Review
A.P.N. 037-251-21,22
Atherton Place, Aptos, California
*MWH **Project** No.: 19174-CA*

Dear Mr. Beale:

Per your request, we have performed a review of the project preliminary grading plans for the proposed Atherton Place Subdivision located in Aptos, California. The purpose of our review was to confirm that the plans were prepared in conformance with the recommendations presented in our report titled, "Geotechnical Investigation, Twin Lakes Residential Development, Aptos, California," dated July 25, 1997.

We reviewed the geotechnical aspects of the following project plans:

- Sheets 3, 4, 5, 7 and 8; dated July 10, 2001, by Ifland Engineers.

Based on our review, it is our opinion that the project plans were prepared in general conformance with the geotechnical recommendations presented in our report. In addition, we have the following comments.

Fill placement on a slope steeper than 6:1 (h:v), as detailed on the cross sections A-A, B-B, and C-C, Sheet 5, should be constructed in accordance with Figure **3** of the Geotechnical Investigation Report, including proper benching of the native soil. **A** minimum of 10 feet of lateral cover should be provided for retaining wall foundations adjacent to downhill slope faces.

Storm water recharge into the ground should not be performed due to the proposed topography and sandy nature of the soils. Slope instability, increased susceptibility to

Environmental Review Initial Study
ATTACHMENT 43 - 1of2
APPLICATION 05-0442

14 Spreckies Lane
Suite 205
Salinas, California
93505

Tel: 831 455 8180
Fax 831 455 8181

liquefaction, soft subgrade conditions or erosion gullies may result. **All** surface and subsurface water should be collected and directed away from foundations and slopes to suitable discharge facilities.

Our services have been limited to the review of the geotechnical aspects of the documents listed above, and have been provided in accordance with generally accepted geotechnical engineering principles and practices. Should you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,

MWH Energy & Infrastructure, Inc.

William C. Rinker

William C. Rinker, P.E.
Project Manager

WCR
Copies: **Addressee** (1)

Grd pln rev 8-14-01

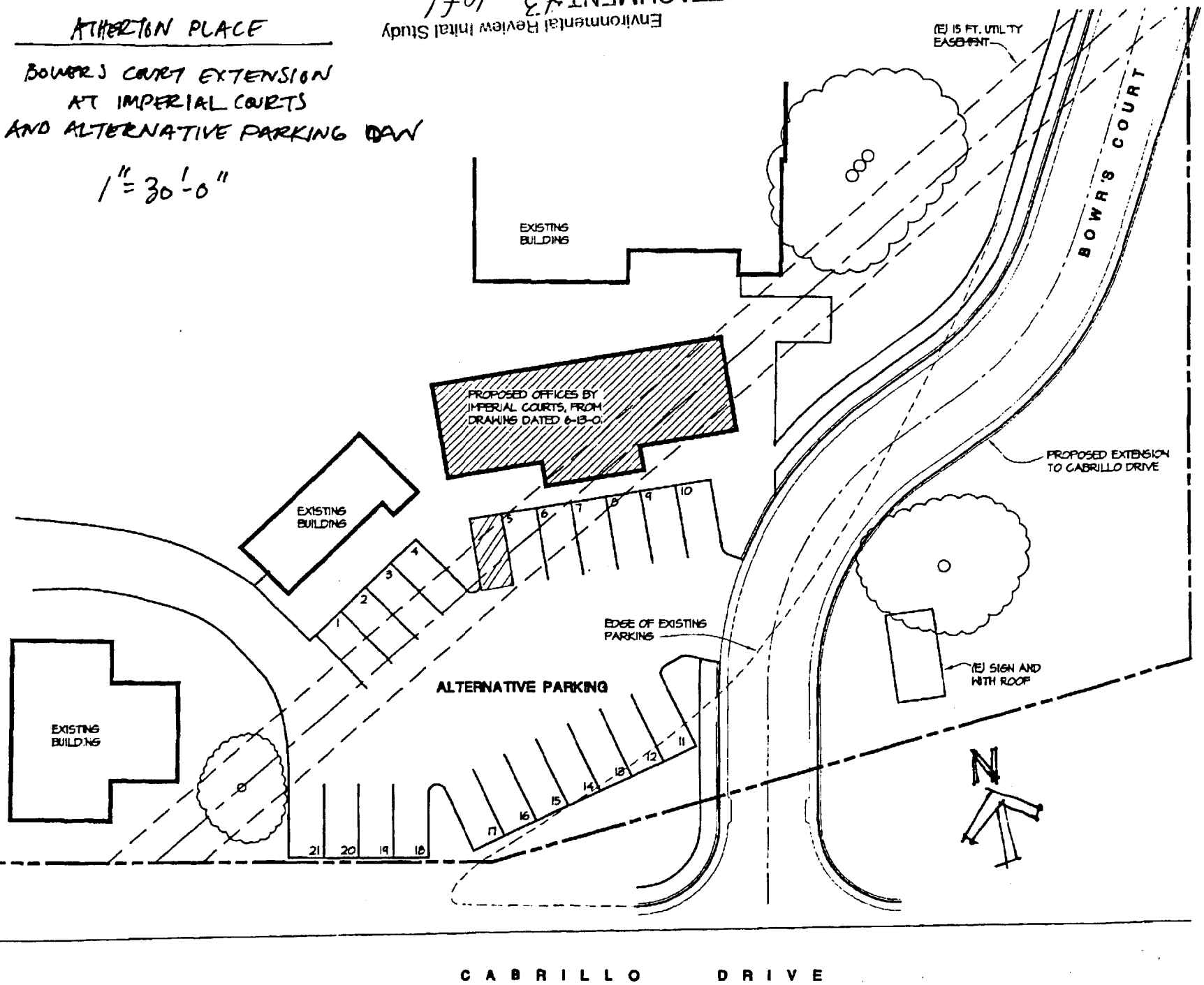
Environmental Review Inital Study
ATTACHMENT 43 2 of 2
APPLICATION 93-0148

ATTACHMENT #3 10F1
APPLICATION 98-0143
Environmental Review Inital Study

ATHERTON PLACE

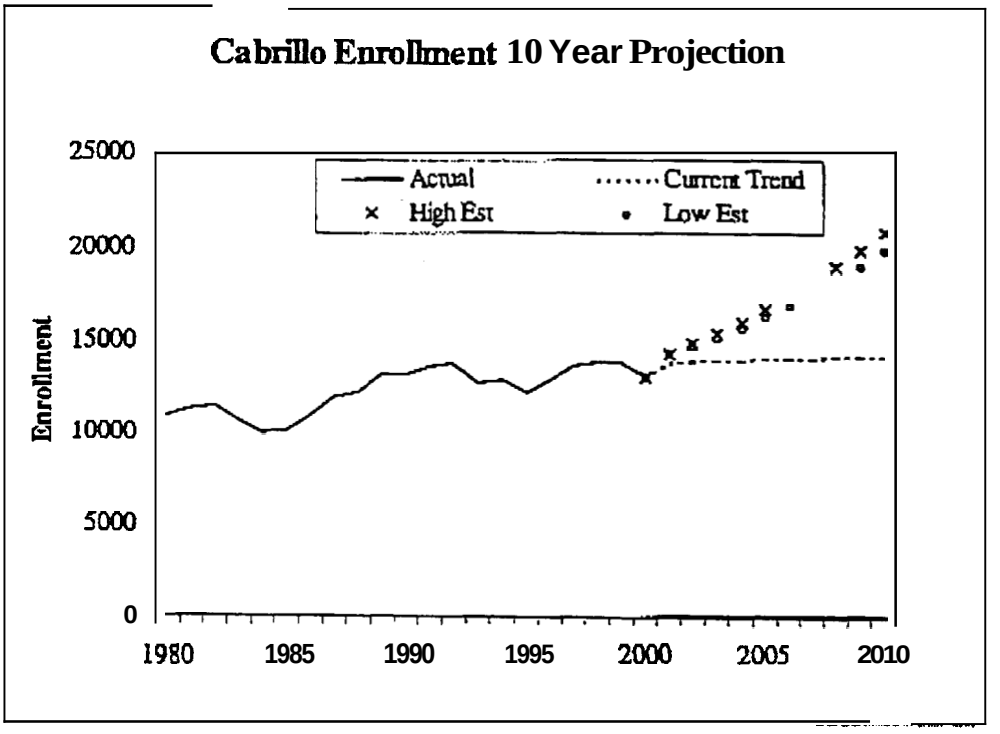
BOWER'S COURT EXTENSION
AT IMPERIAL COURTS
AND ALTERNATIVE PARKING PLAN

1" = 30'-0"



J:\Active\Bowers & Bowman\Atherton Place\Drawings\County Submittal 2\Imperial Courts Parking 2.dwg, 08/23/01 02:27:27 PM, Ch

Aug 23 01 01:41p

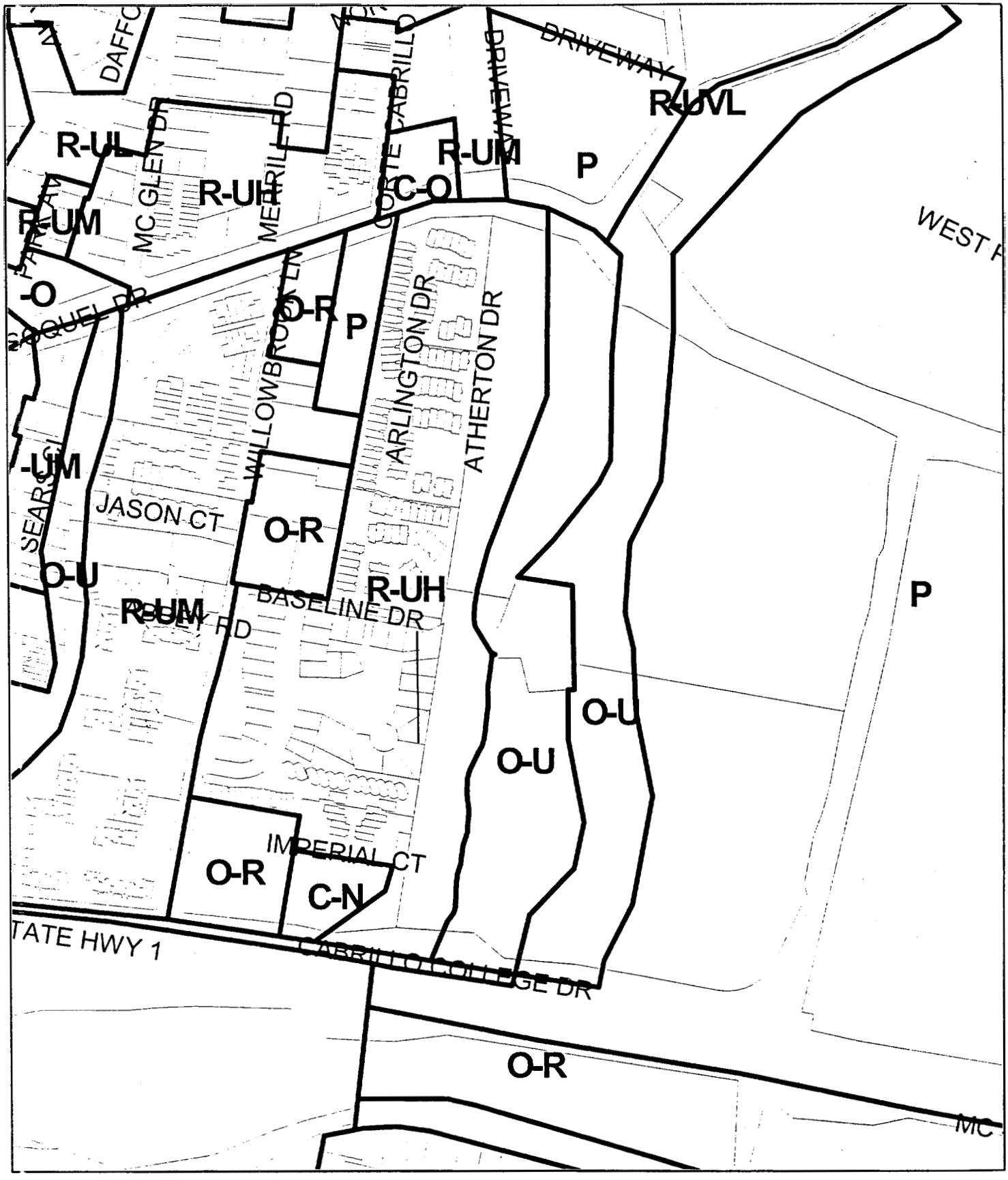


Year	Actual	Current Trend	High Estimate	Low Estimate
1990	13,027			
1991	13,500			
1992	13,696			
1993	12,592			
1994	12,762			
1995	12,132			
1996	12,768			
1997	13,598			
1998	13,767			
1999	13,718			
2000	13,010			
2001		13,786	14,228	14,148
2002		13,842	14,766	14,601
2003		13,891	15,341	15,086
2004		13,935	15,957	15,608
2005		13,973	16,618	16,170
2006		14,007	17,329	16,778
2007		14,037	18,095	17,436
2008		14,063	18,922	18,155
2009		14,086	19,817	18,928
2010		14,106	20,788	19,776

Projection Assumptions

The current trend is an extrapolation of rhc line of best fit. This would bc a "best guess" of future enrollment if no changes occurred in factors influencing enrollment. The high and low estimates are based upon expectations of increnscd enrollment at the Watsonville Center coupled with population growth and demand increnscs as projected by the California Postsecondary Education Commission, which wcrc partly based upon California Department of Finance and U.S. Census Bureau data.

Environmental Review Inital Study
ATTACHMENT 44 1 of 1
APPLICATION 98-0148



Area Surrounding 037-251-21,22
General Pian Landuse Desianations

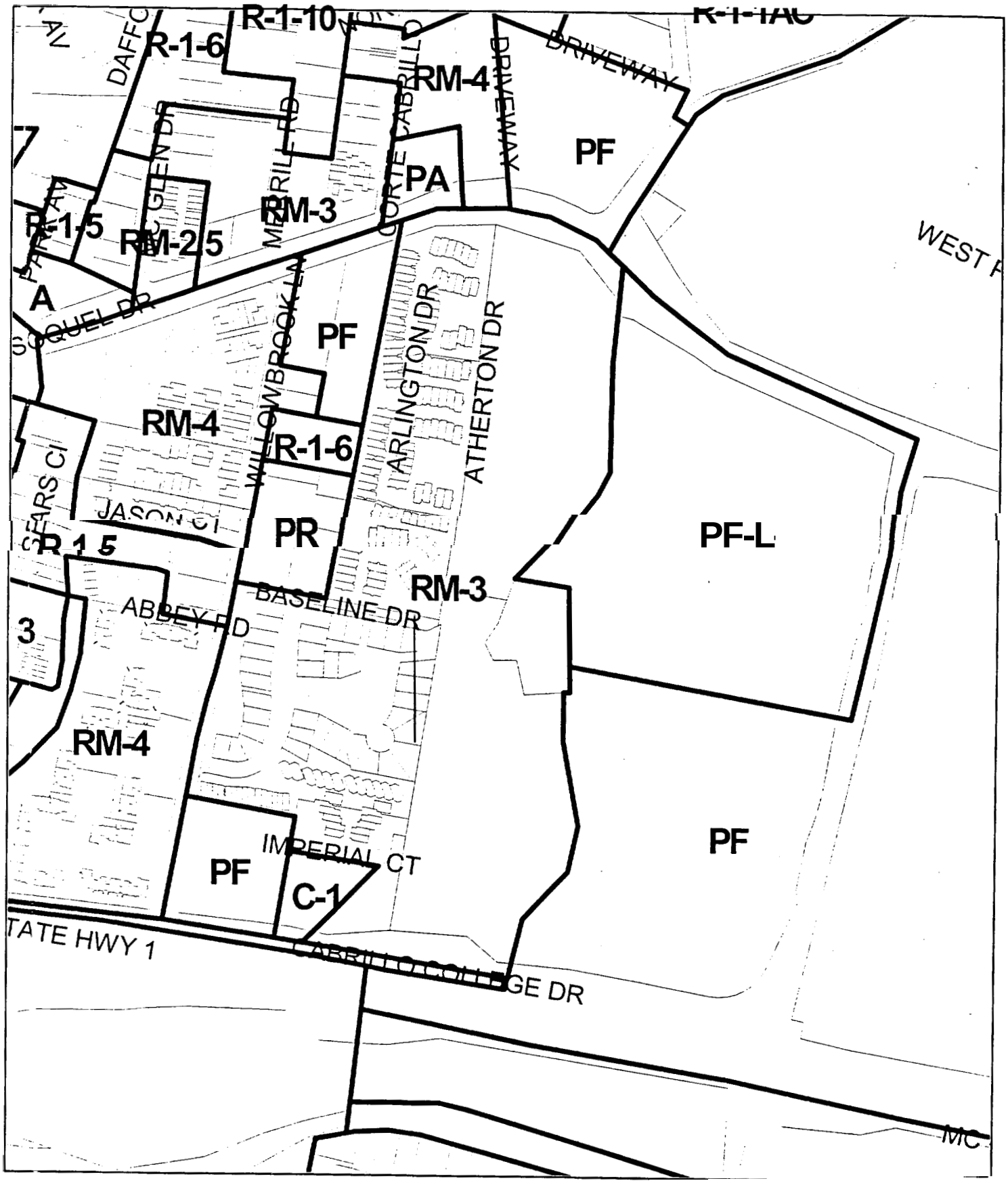
N

200 0 200 400 Feet

Environmental Review Initial Study

037-01b Prepared by the Santa Cruz County GIS Staff

ATTACHMENT 45 1 of 2
APPLICATION 93-0148



Area Surrounding 037-251-21,22
Zoning Designations

N

Environmental Review Inital Study

200 0 200 400 Feet

051-01a Prepared by the Santa Cruz County GIS Staff

ATTACHMENT 45 2 of 2

APPLICATION 93-0143

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, SUITE 310, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123
ALVIN D. JAMES, DIRECTOR

BOARD OF SUPERVISORS AGENDA: AUGUST 21,2001

August 7,2001

APPROVED AND FILED
BOARD OF SUPERVISORS
DATE: 8/21/01
COUNTY OF SANTA CRUZ
SUSAN A. MAURIELLO
CLERK OF THE BOARD
BY _____ DEPUTY

Board of Supervisors
County of Santa Cruz
701 Ocean Street
Santa Cruz, CA 95060

SUBJECT: Continued public hearing to consider an Appeal of the Planning Commission's Denial of Application No. 98-0148 (Atherton Place)
APN: 037-251-21, 22
Owner: Atherton Place Development LLC
Applicant: Richard Beale Land Use Planning, Inc.

Members of the Board:

On May 8,2001, your Board held a public hearing to consider an appeal of the Planning Commission's denial of Application No. 98-0148, Atherton Place. Following public testimony and discussion by your Board, the matter was continued to June 5, at the applicant's request.

At your June 5, 2001 hearing, your Board indicated that you would continue the hearing to August 28, 2001, at 7:30 p.m. to allow the developer additional time to revise the project and have it reviewed by the Environmental Coordinator. Revised plans and other materials were not received by the Planning Department until July 18, and reviewing departments and agencies are now in the process of formulating comments on the proposal.

Your Board also asked County Counsel to advise whether the County could condition approval of the Atherton Place project on the use of an access across property owned by a third party. County Counsel advises that the State Subdivision Map Act in Government Code Section 66462.5 expressly authorizes a County to condition a subdivision on the provision of offsite improvements on land owned by third parties, and to require the subdivider to bear all costs of the acquisition of the necessary easement or other property interest for the off-site improvements, including, if necessary, all costs involved in an eminent domain action. The County Code expressly provides for such off-site improvement agreements for subdivisions in Section 14.01.513 and for other development projects in Section 18.10.240(d). The County has

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previously utilized such agreements for the acquisition and use of right-of-ways for development projects.

The project is now scheduled for review by the Environmental Coordinator on Monday, August 27, 2001. Pending successful environmental review, with mitigation of environmental impacts associated with the project and additional public comment, the Planning Department will reschedule the project for review by your Board at a future date.

It is, therefore, recommended that your Board:

1. Cancel the public hearing scheduled for your August 28,2001 agenda and direct the Clerk of the Board to notice the public of the cancellation;
2. Continue the public hearing to an evening meeting at the earliest possible date following completion of the environmental review process; and
3. Direct the Planning Department and the Clerk of the Board to notice the public of the new public hearing date.

Sincerely,

Alvin James

Alvin D. James
Planning Director

RECOMMENDED:

SUSAN A. MAURIELLO
County Administrative Officer

Attachments:

1. Minute Order for Agenda Item No. 67, dated June 5,2001

cc: Atherton Place Development LC, 2980 Stevens Creek Blvd., San Jose, CA 95128
Richard Beale Land Use Planning, Inc., 100 Doyle St., Santa Cruz, CA 95062
Charlene Atack, Bosso, Williams, et al, 133 Mission St., Suite 280, Santa Cruz, CA 95060
Wendy Richardson, 6362 Baseline Drive, Aptos, CA 95003
Ken Hart, Environmental Coordinator

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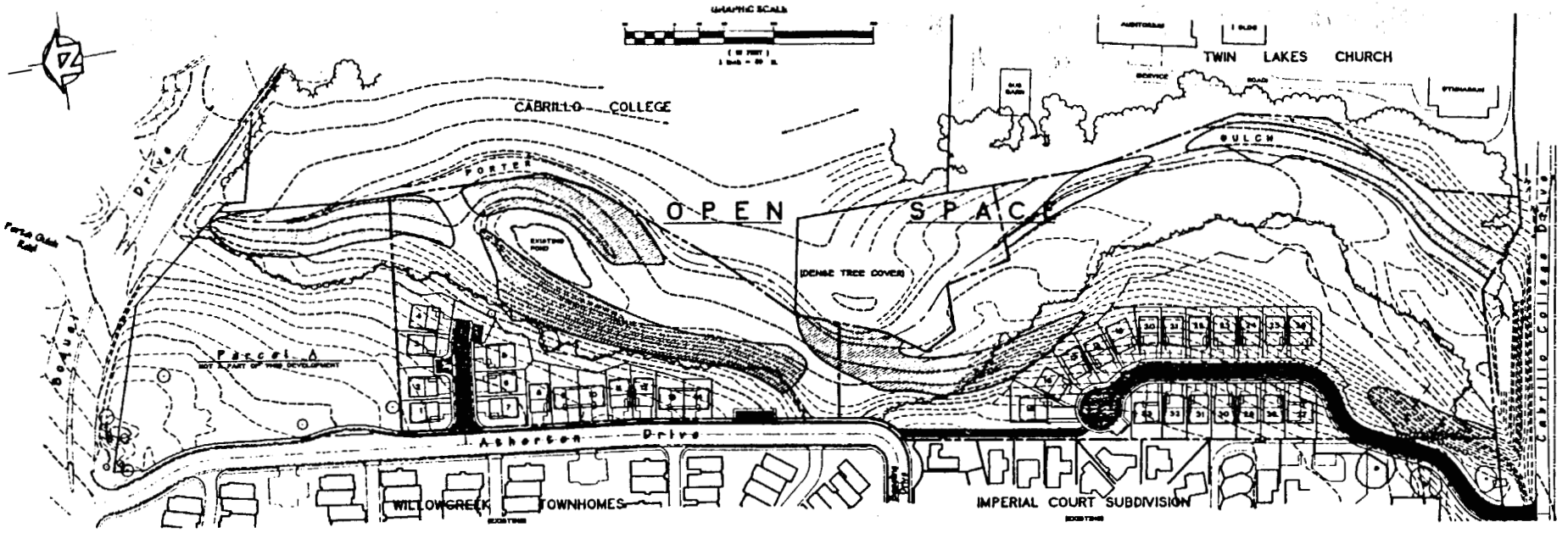


Project Site

SCALE: 1" = 60'

Statement of Improvements to be Installed

1. Full street improvements and utilities along all proposed streets.
2. Sanitary sewer main extension along the existing, or northerly section of Atherton Drive.
3. Sanitary sewer main extension along the westerly property line from the southerly section of the proposed subdivision to the existing sewer pipeline in Cabrillo College Drive.
4. Storm drain detention system in the north section.
5. Any damaged curb, gutter and/or sidewalk that currently exists along the easterly side of Atherton Drive shall be repaired as a part of this project.
6. Sight distance at the southwesterly corner of Soquel Drive and Atherton Drive to be improved to the extent possible within the existing right-of-way.
7. Sight distance at Willowbrook Drive and Cabrillo College Drive to be improved to 440 feet each way.

RM-3 Zone District Site & Structural Dimensions

MINIMUM LOT AREA PER DWELLING	=	3,000 Sq. Ft. (RESTRICTED COMMON AREA)
FRONT SETBACK	=	18 feet - (20 feet at garage)
SIDE SETBACK	=	5 feet each side
REAR SETBACK	=	10 feet
CORNER LOTS	=	Side - 5 feet (interior) / 15 feet (street side)
LOT COVERAGE	=	40% maximum
BUILDING HEIGHTS	=	28 feet
LOT WIDTH	=	35 feet minimum
LOT FRONTAGE	=	35 feet minimum

EACH LOT BUILDING ENVELOPE TO BE BASED ON THESE DIMENSIONS

Construction Phasing

PHASE I- LOTS 1 THRU 14	= 14 UNITS
PHASE II- LOTS 15 THRU 33	= 19 UNITS
TOTAL	= 33 UNITS

Unit Density, (Excluding Parcel A)

TOTAL AREA OF DEVELOPABLE LAND	= 288,748 SQ. FT.
LESS AREA WITHIN STREETS	= 34,111 SQ. FT.
NET DEVELOPABLE LAND	= 323,637 SQ. FT.
LAND PER UNIT; (33)	= 6,777 SQ. FT.

Open Space Parcel

BALANCE OF LAND NOT DEVELOPABLE	= 8.637 ACRES (371,671 SQ. FT.)

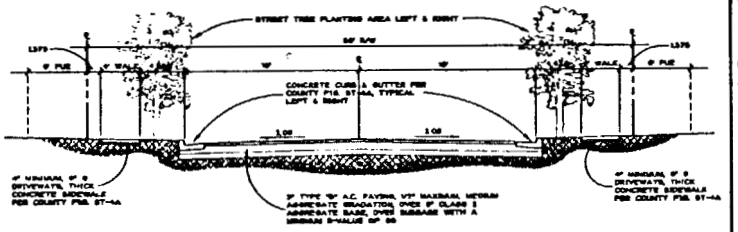
Storm Drainage Calculations

TOTAL SITE AREA	=	14.500 acres
PRE-DEVELOPMENT CONDITION	=	Grassland, dense tree cover and riparian corridor
RAINFALL INTENSITY	=	(P60 (soplema) - 1.4 inches/hr.
RAINFALL INTENSITY	=	10 year storm - 10 min. T.C. = 2.2 inches per hour
COEFFICIENT OF RUN-OFF	=	0.25

PRE-DEVELOPMENT STORM RUN-OFF
Q10 = (0.25)(2.2)(14.50) = 7.98 cubic feet per second
Q100 = (7.98)(1.48) = 11.88 cubic feet per second

POST-DEVELOPMENT STORM RUN-OFF
Q10 = (0.25)(2.2)(6.54) + (0.50)(2.2)(5.86) = 11.35 cubic feet per second
Q100 = (11.35)(1.48) = 16.76 cubic feet per second

STORM DRAIN DETENTION REQUIRED PER 60-8 = 400 cubic feet per acre (400)(14.50) = 5,800 cubic feet



Typical Street Section

SCALE: 1/4" = 1'

PER COUNTY STANDARDS

SEE MODIFIED SECTIONS ON SHEET 3

Project Site - Typical Street Sections
Atherton Place
6260 Soquel Drive, Aptos, California
Tract No. 1409
A.P.N. 037-181-21 & 22
Mand ENGINEERS, INC.
1100 WATER STREET, SANTA CRUZ, CA 95062, TEL (831) 426-5313, FAX (831) 426-1763
CIVIL ENGINEERING • LAND SURVEYING • STRUCTURAL DESIGN
SHEET 2 OF 8 SHEETS

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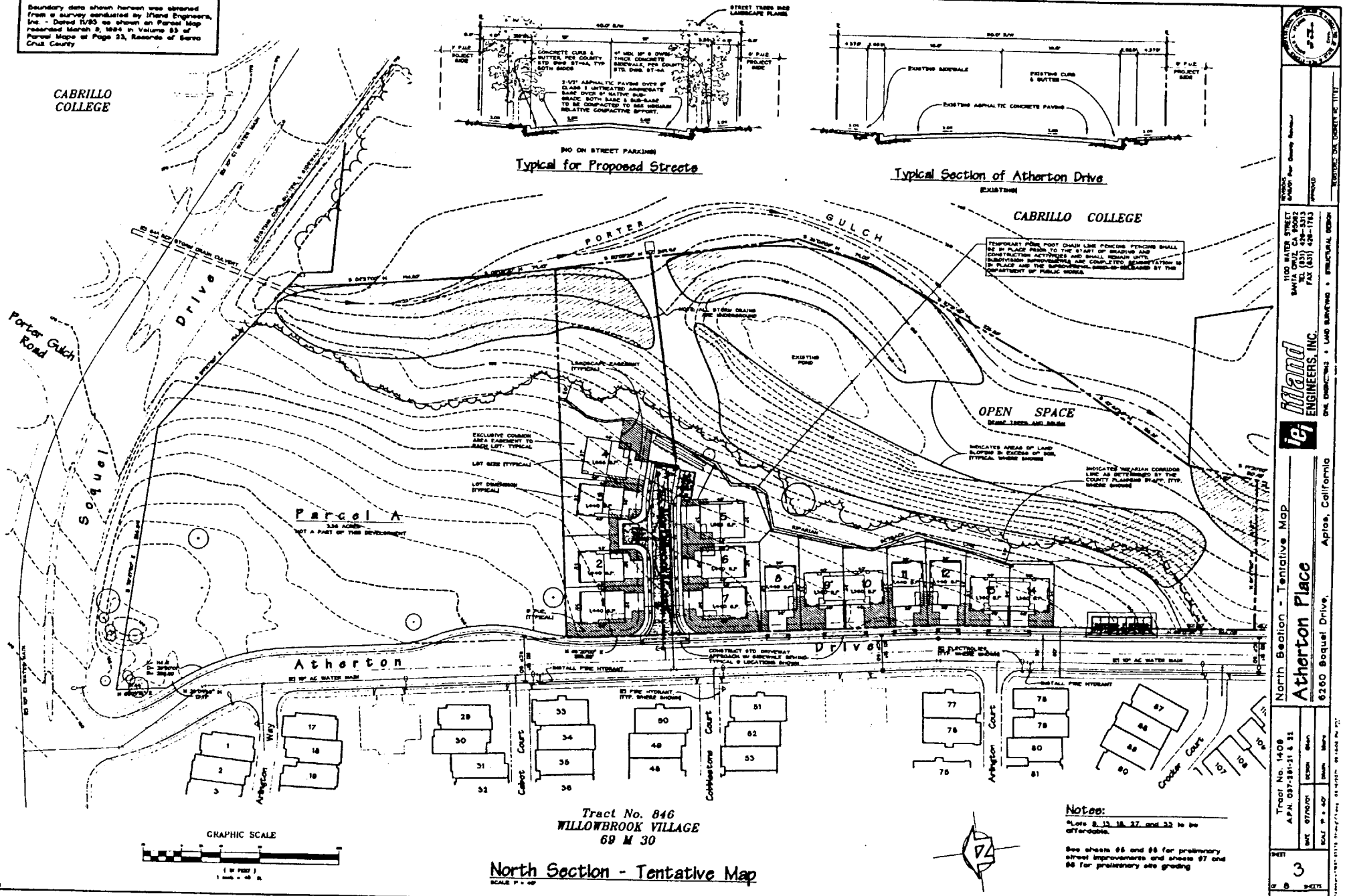
APPLICATION 98-0143



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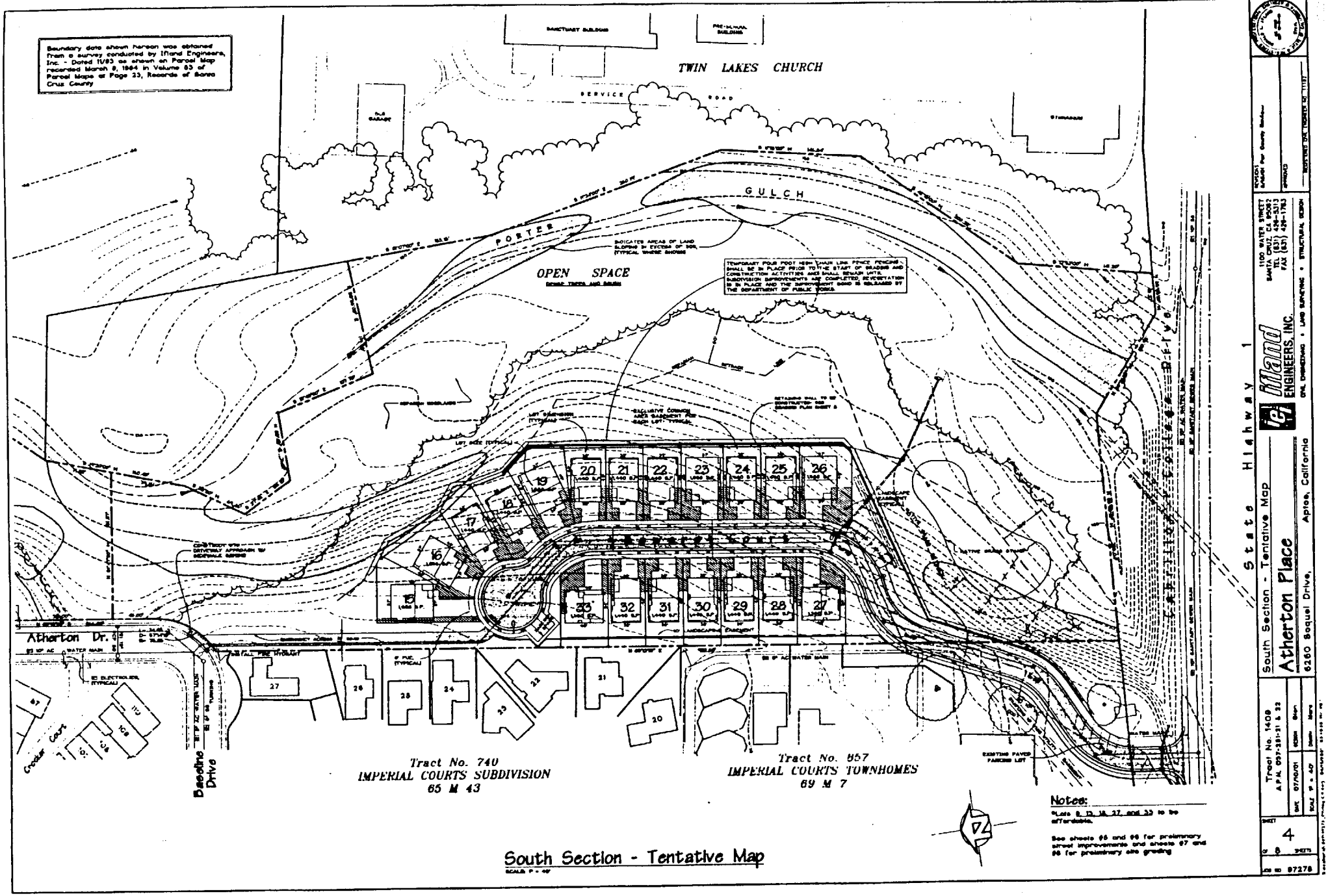

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ATHERTON PEACE
APTOS, CALIFORNIA

GRASSLAND MAINTENANCE AND MOWING PLAN

GOALS AND APPROACH

Implementation of the Grassland Maintenance and Mowing Plan will preserve, and encourage the spread, of native grasses within the southern portion of the project area. This will be accomplished by the following actions:

- Preservation of undisturbed grasslands along the slopes of the southern development area.
- Management of the grassland to benefit native plant species.
- Installation of permanent protective fencing around the upper portion of the grassland to prohibit unauthorized access to the area.
- Implementation of a program to control the spread of invasive, non-native plant species within the grassland as shown on Figure A-1 (attached).

The successful implementation of these measures, conducted prior to and concurrent with the residential development and occupancy, will meet the project goal of the protection and management of the native grassland

IMPLEMENTATION TECHNIQUES AND PROCEDURES

Permanent Protective Fencing

The upper edge of the grassland (including the adjacent riparian woodland) will be permanently fenced to prevent unauthorized access into the area.

Permanent fencing (e.g., wooden post and welded wire fence, or equivalent) will be installed along the edge of the southern development area, a minimum of 20 feet upslope of the native grass stands. A 10-foot wide maintenance access *area*, with gate, will be established in one location to allow for equipment (e.g., a mower) to access the grassland. The fencing shall be erected prior to the start of site development activities. The condition and integrity of the fencing will be periodically checked and maintained in perpetuity by the Homeowner's Association.

The Homeowner's Association will place interpretive signs in prominent locations on the protective fencing to educate area residents and visitors on the presence of the preserved area, use restrictions of the areas and the protected status of the sensitive habitats (i.e., native grasslands and adjacent riparian woodland).

Native Grassland Management

The implementation of a management regime that favors native grassland plant species will be used to manage and rehabilitate the preserved grassland areas, such that, over time, the area will display a higher percentage of native species. This will be accomplished by seasonally mowing the grassland.

Mowing of the preserved grasslands will be conducted a minimum of three times a year by the Homeowner's Association. Mowing will occur in the spring, late summer and fall of each year. In the spring, mowing will occur before annual weeds produce viable seed (i.e., typically March). In the summer, mowing will occur after the native grasses has released their seed (i.e., typically June). In the fall, the grassland will be mowed to reduce the amount of cover by annual non-native species. At each mowing, the grassland will be mowed 4-6" high. Cut materials will be removed from the site during Years 1 and 2. The removal of the cut materials will minimize the addition of annual non-native grass seeds into the soil seed bank and remove thatch and other organic debris. The mowing may also stimulate perennial native grass tillering and promote perennial grass seedling establishment. The fall mowing is expected to enhance perennial grass re-growth and provide light and space for emerging seedlings.

To assist the perennial grasses in spreading their seeds, cut material from these species will be left on site. A memorandum of understanding regarding the mowing regime will be established with the Central Fire Department.

Control **of Invasive,** Non-Native Plant **Species**

Invasive, non-native plant species will be removed from the grassland to reduce the levels of infestation. The developer will remove non-native plant species in the early spring months prior to and/or concurrent with the first phase of site development work. Thereafter, populations of invasive non-native plant species will be controlled by the Homeowner's Association through the seasonal mowing program and hand removal by crews each spring season, as necessary.

IMPLEMENTATION SCHEDULE

Seasonal mowing of the grassland will begin in the summer 2000, following approval of the Tentative Map.

The grasslands will be mowed annually, a minimum of three times during the year. During the first 3 years, mowing will be conducted under the direction of a qualified biologist. The biologist will identify the appropriate timing of the mowing (i.e., early mowing prior to flowering of non-native grasses, a second mowing after seed set by native grass species, etc.).

ELEMENTS OF THE PLAN

The primary goal of the plan is to maintain and enhance the native grassland resources on the site. This will be accomplished through the following plan elements:

1. Document the success of the grassland management program and recommend remedial actions if needed. A 3-Year monitoring program will be implemented. Monitoring will insure that the managed areas will be likely to proceed toward the long-term goal of preserving and enhancing the site's native grassland resources. The baseline condition of the grassland is 90-100% non-native grass and forb plant species, except for the stands of native grasses as depicted on Figure A-I. Invasive non-native plant species, such as French broom, cotoneaster, pampas grass, periwinkle or ivy, constitutes less than 5% of the plant cover within the grassland. The native grass stands have the following baseline conditions:

   Stand 1: 50-60% cover of purple needlegrass, remainder is non-native grasses and forbs.
   Stand 2: 10-20% cover of purple needlegrass, remainder is non-native grasses and forbs.

Stand 3: 60% cover of wild rye, remainder is non-native grasses and forbs.
Stand 4: 60% cover of California oatgrass, remainder is non-native grasses and forbs.

2. Monitoring will be performed by a qualified biologist (approved by the County Planning Department) hired by the Homeowners Association. Monitoring will be conducted concurrently with maintenance activities as described above.

3. During the 3-Year monitoring period, the grassland shall show a trend of decreasing amounts of non-native plant species, such as rattlesnake grass and wild oat. The existing native grass stands shall exhibit, at a minimum, a distribution and percent cover similar to that identified in 1999.

4. The proposed grassland mowing regime and/or future grazing program is expected to increase, over time, the amount ofsuitable habitat for native plant species. If declines in populations of native species appear due to the mowing or grazing regime, the practices will be altered, as applicable.

5. Invasive non-native plant species shall show a trend of decreasing cover by *Year* 3, with a maximum of 5% cover by Year 3.

6. Monitoring of the grassland by the Homeowner's Association will consist of a minimum of two (2) periodic reconnaissancelevel surveys per year for a period of 3 years.

REMEDIAL ACTIONS AND CONTINGENCY MEASURES

Remedial actions will be taken if, during the 3-Year monitoring period, habitat management efforts do not meet the established success criteria, or site conditions change substantially from the proposed plan. Remedial actions may include alterations to mowing regime and emergency actions.

REPORTING

Yearly monitoring reports will be prepared in January following each of the monitoring years (beginning in January 2001). The reports will document the results of the monitoring and maintenance activities. Monitoring will document in writing the findings ofthe year's maintenance, highlight problems and successes, dates of maintenance, who performed the monitoring, and other appropriate information.

The report will recommend remedial actions to be undertaken if the project is not meeting stated performance criteria. Reports shall be submitted to the County by January 31 following each monitoring year as listed below:

2000.	Year 1	Report due January 31,2001
2001.	*Year* 2	Report due January 31,2002
2002.	Year 3	Report due January 31,2003

COST OF IMPLEMENTING AND MONITORING

The Homeowners Association will be responsible for committing funds to implement the grassland management program. A yearly cost estimate, beginning in Year 2000, is provided in Table 1. The estimate excludes the capital costs for the fencing and signs, as the project applicant will install these concurrent with site development. The cost estimate includes year-end reports. The costs are in 2000 labor and direct expense rates. The applicant is responsible for beginning invasive plant species removal. This plan will be included in the HOA.

HOMEOWNER'S ASSOCIATION DOCUMENTATION

In order to clearly convey the requirements of the Grassland Maintenance and Mowing Plan to future property owners, the Homeowner's Association documentation shall specifically state the Homeowner's Association's responsibility for the following:

a. Implementation of the grassland maintenance and mowing plan;
b. Control of invasive, non-native plant species;
c. Maintenance of the biotic reserve fence;
d. Installation and maintenance of interpretive signs; and,
e. On-going employment of a County-approved biologist to implement the monitoring program and to prepare remedial actions as necessary.

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APPLICATION 98-0143

Table 1. Cost Estimate for Yearly Implementation of the Grassland Management Program, Atherton Place Project, Aptos, CA

Task	Yearly Costs
Seasonal Mowing (3 times)	$800
Hand Removal of Invasive Plant Species	800
Site Maintenance	500
Site Monitoring and Reporting	500
County Review of Annual Report	290
Contingency (20%)	578
TOTAL	**$3,468**

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Environmental Review Inital Study
ATTACHMENT 4B 6 of 6
APPLICATION 98-0148

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

JOB 97278 Atherton Place
CALCULATED BY GHI
SHEET 1 OF 3
DATE 9/5/01 REVISED

STORM DRAINAGE AT PROPOSED.BOWERS COURT AND CABRILLO COLLEGE DRIVE

The proposal *is* to install an 18" culvert under the proposed street to replace an existing ditch that now conveys the collected run-off and discharge into Porter Gulch.

Drainage Area = 2.10 acres
The area **is** mostly covered with impervious surfaces.
Coefficient of run-off = 0.80
Rainfall intensity for 25 year storm = **2.4** inches per hour.

Q_{25} = (0.80)(2.4)(2.10) = 4.03 c.f.s.

18" H.D.P.E pipe @ 1.0% slope **has** a flow capacity of 11.38 c.f.s.

The 18" culvert is more than adequate

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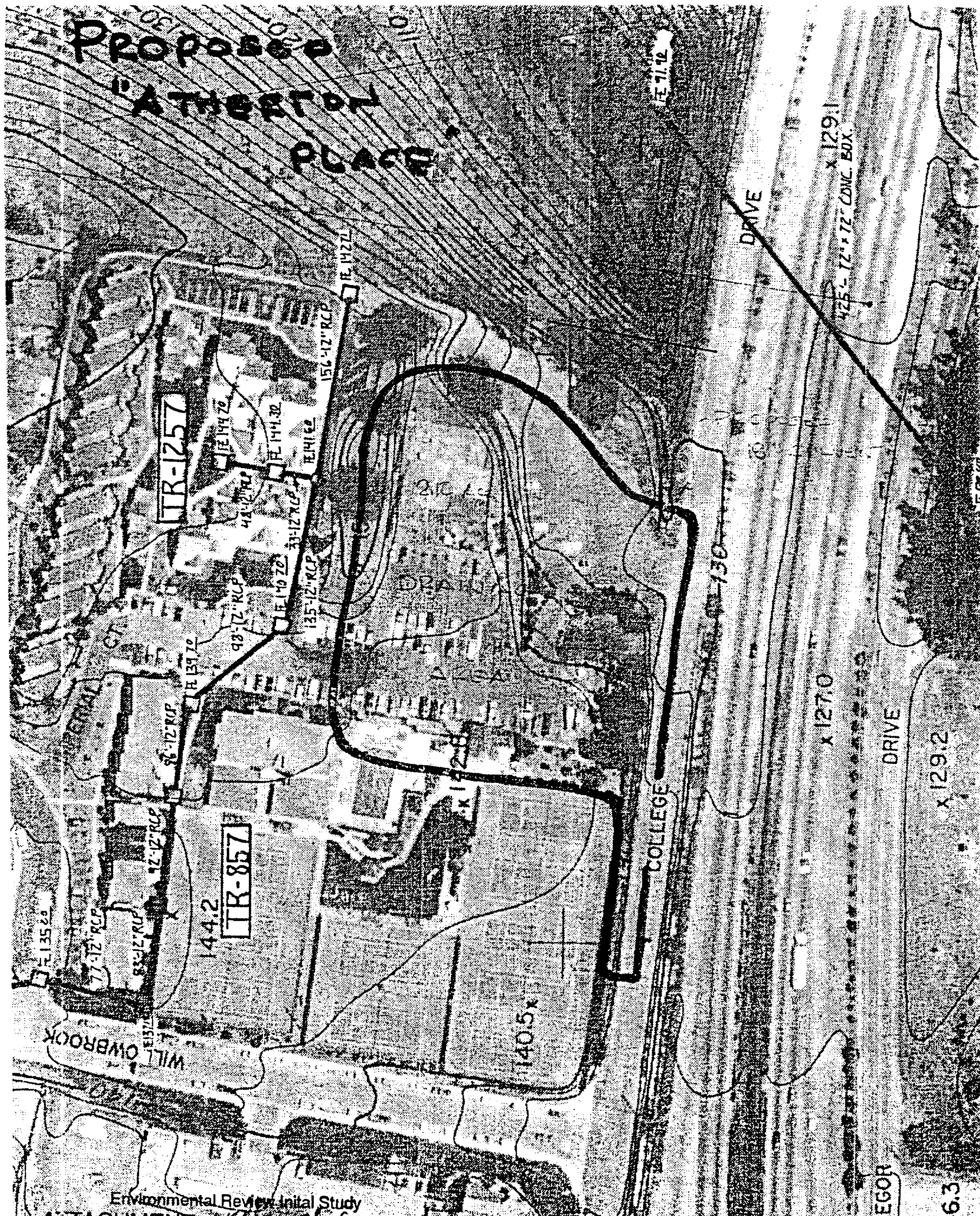
APPLICATION 98-0143



Environmental Review Inital Study
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APPLICATION 98-0143

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APPLICATION 93-0148

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TABLE 4

CIRCULAR PIPE FLOW CAPACITY
Full Flow (cubic feet per second)

Mannings "n"= 0 012

Dia. (in.)	*Conv. Factor	% Slope (feet per 100 feet) 0.02	0 03	0 10	0 20	0 35	0.50	0.75	1.00	1.25	1.50	1.75	2.0	2.5	5.0	10.0	20.0
									(c.f.s)								
3	0.957	0.014	0.021	0.030	0.043	0.057	0.068	0.083	0.096	0.107	0.12	0.13	0.14	0.15	0.21	0.30	0.43
4	2.062	0.029	0.046	0.065	0.092	0.122	0.146	0.179	0.206	0.231	0.25	0.27	0.29	0.33	0.46	0.65	0.92
5	3.738	0.053	0.084	0.118	0.167	0.221	0.264	0.324	0.374	0.418	0.46	0.49	0.53	0.59	0.84	1.18	1.67
6	6.079	0.086	0.136	0.192	0.272	0.360	0.430	0.526	0.608	0.680	0.74	0.80	0.86	0.96	1.36	1.92	2.72
8	13.091	0.185	0.293	0.414	0.585	0.774	0.926	1.134	1.309	1.464	1.60	1.73	1.85	2.07	2.93	4.14	5.85
10	23.74	0.34	0.53	0.75	1.06	1.40	1.68	2.06	2.37	2.65	2.91	3.14	3.36	3.75	5.31	7.51	10.61
12	38.60	0.55	0.86	1.22	1.73	2.28	2.73	3.34	3.86	4.32	4.73	5.11	5.46	6.10	8.63	12.21	17.26
15	69.98	0.99	1.56	2.21	3.13	4.14	4.95	6.06	7.00	7.82	8.57	9.26	9.90	11.06	15.65	22.13	31.30
18	113.80	1.61	2.54	3.60	5.09	6.73	8.05	9.86	11.38	12.72	13.94	15.05	16.09	17.99	25.45	35.99	50.89
21	171.65	2.43	3.84	5.43	7.68	10.16	12.14	14.87	17.17	19.19	21.02	22.71	24.28	27.14	38.38	54.28	76.77
24	245.08	3.47	5.48	7.75	10.96	14.50	17.33	21.22	24.51	27.40	30.02	32.42	34.66	38.75	54.80	77.50	109.60
27	335.51	4.74	7.50	10.61	15.00	19.85	23.72	29.06	33.55	37.51	41.09	44.38	47.45	53.06	75.0	106.1	150.0
30	444.35	6.28	9.94	14.05	19.87	26.29	31.42	38.48	44.44	49.6	54.42	58.78	62.84	70.26	99.4	140.5	198.7
36	722.57	10.22	16.16	22.85	32.31	42.75	51.09	62.58	72.26	80.7	88.50	95.59	102.19	114.25	161.6	228.5	323.1
42	1089.9	15.41	24.37	34.47	48.74	64.5	77.1	94.4	109.0	121.9	133.5	144.2	154.1	172.3	243.7	344.7	487.4
48	1556.1	22.01	34.80	49.21	69.59	92.1	110.0	134.8	155.6	174.0	190.6	205.9	220.1	246.0	348.0	492.1	695.9

* Conveyance Factor = (1 48 × R2/3 × A / n

County of Santa Cruz

PLANNING DEPARTMENT

701 OCEAN STREET, SUITE 400, SANTA CRUZ, CA 95060-4073
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123
ALVIN D. JAMES, DIRECTOR

⌘ 2nd Routing ⌘

PROJECT COMMENT SHEET

DATE: 8-24-01

___ Accessibility	___ **DEPT. OF PUBLIC WORKS**
___ Code Compliance ___	___ Drainage District
___ Environmental Planning___	___ Driveway Encroachment
___ Fire District _____	___ Road Engineering / Transportation
___ Housing	___ Sanitation
___ Long Range / Advanced Planning	___ Surveyor
___ Project Review	___ Environmental Health
X Other RACHEL LATHER	___ RDA
___ Other _____	___ Other _____
___ Other _____	___ Other _____

FROM: DEVELOPMENT REVIEW DIVISION

PROJECT PLANNER: JOAN VAN DER HOEVEN
SUBJECT APN: 037-251-21, 22
APPLICATION NUMBER: 98-0148
SEE ATTACHED FOR PROJECT DESCRIPTION

Joan, 9/7 Inet
*OK per ✓ w/ Pai
ZRYL

THE ATTACHED APPLICATION FOR A DEVELOPMENT PERMIT, LAND DIVISION PERMIT OR GENERAL PLAN AMENDMENT HAS BEEN RECEIVED BY THE PLANNING DEPARTMENT.

Rachel Lather
Senior Civil Eng

PLEASE SUBMIT YOUR COMMENTS TO THE PROJECT PLANNER VIA THE DISCRETIONARY APPLICATION COMMENTS/REVIEW FUNCTION IN A.L.U.S.

PLEASE COMPLETE BY: ASAP- PAIA IS PROVIDING INITIAL STUDY ASSISTANCE FOR ATHERTON. THANKS.

Environmental Review Inital Study
ATTACHMENT 50 1 of 1
APPLICATION 98-0148