County of Santa Cruz

PLANNING DEPARTMENT

701 OCEAN STREET, SUITE 400, SANTA CRUZ, CA 95060
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TOM BURNS, DIRECTOR

County of Santa Cruz
Planning Commission
701 Ocean Street
Santa Cruz, CA

Date: March 10,2004
Agenda Item: 10
Time: 900a.m.

SUBJECT Review of the Condition Compliance and the Mitigation Monitoring Program For Phase One of the Mount Hermon Master Plan; Permit 98-0046.
APN 066-021-01, et al
Applicant: Mount Hermon Association

Members of the Commission:

On May 1,2001, the Board of Supervisors approved an update to the Mount Hermon Conference Center, which included a Specific Plan, a Site Master Plan and a Development Permit. **A** Condition of that approval (Condition III **A)** required the applicant to perform specific items prior to moving into Phase II of the project (see Exhibit A), which include the following:

1. Provide evidence of the implementation of the Mt. Hermon Water Conservation Plan (Exhibit B). Included in the submittal is information noting the reduction of domestic water use of over *7.5* acre-feet for *two* consecutive years.
2. Submit a comprehensive Biotic Management Plan as described in Condition IX to County Planning for review and approval.
3. To minimize the parking on area roadways, designate an area for overflow parking.
4. Conduct an historical analysis of the Zayante Railroad Depot.
5. Prepare a road maintenance plan.
6. Rename the new ministry building.
7. Withdraw the third well permit request.
8. Review the adequacy of the wastewater pump size and increase the leach field area if needed.

This matter is before your Commission because Condition XII B of the Condition of Approval requires a ''Public hearing review of the Condition Compliance and Mitigation Monitoring to County Planning Staff for review" (see Exhibit C). That report and supporting documentation has been submitted to the County indicating that all of the stipulated items have been implemented/ completed in compliance with the Conditions of Approval (Exhibit D).

It is therefore RECOMMENDED that your Commission Accept and File this report.

Sincerely,

Don Bussey
Project Manager

Cathy Graves
Principal Planner

Exhibits:

A. Excerpts from the Conditions of Approval for 98-0046.
B. Copy of the Mt. Hermon Water Conservation Plan.
C. Excerpts from the Conditions of Approval for 98-0046.
D. Compliance Report submitted by Mt. Hermon.

the stream channel and banks and appropriate erosion control techniques *to* protect the instream environment. *(Mitigation 4.8-1)*

E. Construction of the miniature golf course (see Sheet A-3.0 of Exhibit A) shall preserve all multi-trunked native trees and shall not encroach on or under the canopy of the adjoining riparian corridor. Regardless of the amount of grading or land clearing proposed, plans for the course shall be submitted to County Planning for review and approval prior to any site disturbance. The plans shall show how all multi-trunked trees will be protected during and after construction from land disturbance, irrigation and root compaction. Techniques to address these requirements shall be designed by a certified arborist or licensed landscape architect.

III. **REQUJREMENTS** PRIOR TO GRADING OR CONSTRUCTION OF PHASE 1 FACILITIES

Prior to issuance of any Building Permit or Grading Permit for any approved facility in Master Plan development phase 1, the applicant/owner shall:

A. Implement the Mt. Hermon Water Conservation Plan (Exhibit B)

B. Submit a comprehensive Biotic Mitigation Plan as described in condition IX to County Planning for review and approval.

C. To prevent substantial parking on area roadways, which would constrain circulation, MHA shall provide an overflow parking area for use during peak attendance periods prior to constructing any additional facilities. In addition to proposed parking lots, this area shall have space for a minimum of 40 vehicles. At minimum, this overflow area shall be 12,000 square feet. The area shall be maintained as an open grassy area. MHA shall identify a site for this overflow parking which is relatively flat and requires little or no removal of existing vegetation. *(Mitigation 4.2-1)*

D. To avoid potential impacts to historic resources, MHA shall hire a qualified historian or historic archaeologist *to* conduct additional research on the historic sawmill and the Zayante Railroad Depot. The goals of this research shall be to formally record the sites and to develop an archaeological testing program for the sites prior *to* further development that may impact them. This program should test for buried historic resources such *as* ceramics and other artifacts likely *to* be located at this site. The report resulting from this research shall be submitted *to* County Planning for review and approval. *(Mitigation 4.9-2)*

E. As a result of the technical report described in Condition VI.C.4 below, MHA shall submit a plan for maintenance of road cuts and road shoulders susceptible to landsliding or debris flow for all roadways on MHA property

EXHIBIT A

for which MHA has primary maintenance responsibility. This plan shall include details regarding financing of maintenance activities as well as responsibility for completing maintenance activities. *(Mitigation4.6-5)*

F. Rename the new Ministry Building the "Newton Memorial Building" as required by County Historic Commission approval 96-0820. The name shall be posted at an appropriate exterior location at the main entrance of the building.

G. Withdraw the permit application which proposes a third conventional water well to serve MHA by submitting a letter of application withdrawal to both County Planning and County Environmental Health Services.

IV. REQUIREMENTS PRIOR TO CONSTRUCTION OF PHASE II FACILITIES TO BE CONNECTED TO WASTEWATER TREATMENT PLANT

Prior to the issuance of Building Permits for the replacement buildings for the New Black Cabin and Redwood Camp, the owner/applicant shall obtain the required approvals from the agencies specified in conditions below. At minimum, plans submitted to obtain RWQCB approval shall include that specified in conditions IV.B and IV.C below.

A. Submit written documentation to County Planning for review and acceptance which shows the measurable objectives *of* the Water Conservation Plan (Exhibit B) have been met, including reducing domestic water use by 7.5 acre feet/year as compared to year 1999 use levels for at least two consecutive years.

B. A review of pump size by a qualified engineer to prevent accidents involving wastewater. This review shall determine pump sizing for future flow rates and replacement sizes for pumps if necessary each time a new facility is connected to sanitary sewer. The engineer shall specify appropriate type and size of pipe for stream crossings. *(Mitigation4.5-1)*

C. Increase size to leach field to prevent surface contamination from increased discharges into the community leach field. This plan shall be prepared by a qualified engineer to accommodate the increased treated wastewater flow rate prior to connecting any additional facilities to sanitary sewer. Subsequent Environmental Review may be required if it is determined that potential impacts may be generated by the removal of forest habitat for the expansion of the leach field. *(Mitigation4.5-2)*

D. The owner/applicant shall provide written notice to both County Planning and County Environmental Health Services when an application is made to the TWQCB to modify discharge requirements or to modify the size or function of the wastewater treatment plant or its community leach field.

EXHIBIT A

E. Submit a progress report to County Planning staff describing how permit conditions applicable to Phase I have been complied with and summarizing efforts to work with area water purveyors to reduce the existing aquifer overdraft within the Pasatiempo subunit of the Santa Margarita/Lompico groundwater basin. The progress/condition compliance report shall be reviewed and approved by the Planning Commission as specified in condition XII.B and C below.

V. REQUIREMENTS PRIOR TO GRADING OR CONSTRUCTION OF PHASE III FACILITIES

Prior to issuance of any Building Permit or Grading Permit for any approved facility in Master Plan development Phase III, the applicant/owner shall:

A. Obtain any required approvals from the National Marine Fisheries Service regarding use of spring water for diversion (pertaining to protection of steelhead trout, coho salmon and their habitat) and submit copies of written approvals to County Planning.

B. Submit construction and engineering design plans for the spring diversion and piping to existing storage tanks (referred to as Water Supply Alternative #7 in the staff report/EIR Addendum) to County Planning, County Environmental Health Services and the State Department of Health Services for construction related permits.

C. Complete construction of the water supply infrastructure described in condition V.B above in accordance with construction related permits from County Planning and the State Department of Health Services and submit records from two consecutive years that show a reduction of at least an additional 3.2 acre feet/year in water use beyond that achieved by the water conservation plan.

D. Obtain a well permit from the County Environmental Health Service for the new injection and recovery well. This well shall be designed for surface water injection into the Lompico Aquifer and recovery of stored groundwater so it can be used as prototype device to explore innovative methods to reduce regional aquifer overdraft with other water purveyors in the area.

E. In the case of Village Center, which is included as Phase III construction, the following requirement shall also apply:

Prior to the submittal of any Building Permits to alter or demolish the Forest Hall structure, the Historic Resources Commission (HRC) shall review an application by the Mt. Hermon Association (MHA) for the

EXHIBIT A

WATER MANAGEMENT AND CONSERVATION PLAN FOR THE MOUNT HERMON COMMUNITY, CAMPS AND CONFERENCE CENTER

August 28,2000

Prepared by:

Mount Hermon Association
Mount Hermon, **CA** 95041
831-335-4466

EXHIBIT B

INTRODUCTION

This report presents a Water Management and Conservation Plan (Plan) for the Mount Hermon Community, Camps and Conference Center. The Plan outlines management programs, recommends potential cost-effective water conservation measures, and proposes educational information and water saving incentives for Mount Hermon guests and residents.

Background

The Mount Hermon Association submitted a Master Plan Update for its Camps and Conference Center in June of 1999. It was determined by the Initial Study that a focused EIR would be required, Based on that Initial Study and Notice of Preparation, areas of concern were to include: hydrology, water quality, and natural resources. The Draft Environmental Impact Report (DEIR), completed in December 1999, indicated a potential significant impact in the area of water use and consumption (section 4.10-2). Therefore, mitigation was necessary to reduce the impact to a less than significant level.

The purpose of the following Plan is to outline a realistic program to assure implementation of cost-effective water conservation practices by the Mount Hermon Association and homeowners. The Plan objective is to reduce water use by at least 10% or 7.5 ac-ft, as recommended under: *Alternative #4, Water Conservation and Reduction in Project Water Demand,* in the Draft Environmental Impact Report (DEIR) pages 6-8 & 6-9, prepared for the County of Santa Cruz, by Denise Duffy & Associates.

Site Information

Founded in 1906, Mount Hermon is a non-profit Christian Conference Center surrounded by privately owned cabins located in the coastal mountains near the south end of the San Lorenzo Valley and west of State Highway 17. The site covers 440 acres and is depicted on the Felton USGS quad map. A redwood and Douglas fir forest complex characterizes the vegetation in this area.

Water supply

Groundwater is the current water supply for all Mount Hermon residents, Camps and Conference Centers. Water is pumped from the Lompico Aquifer using two extraction wells that feed a million-gallon storage tank. Both wells are metered and flow data recorded daily for monitoring and reporting purposes.

Plan Coordination and Reporting

The water conservation measures and management programs identified in this Plan will be implemented by the Mount Hermon Association, Inc, and coordinated and overseen by Mount Hermon water management staff. Dale Pollock will be the designated Water Conservation Coordinator.

An annual report will be prepared summarizing water production and water use data, the status of groundwater levels, and water conservation implementation efforts. Conservation results and water use will be compared with the previous year(s) and adjacent communities.

EXHIBIT B

PLAN RECOMMENDATIONS

Mount Hermon Camps and Conference Center

1. Water Management. An estimated system wide audit on water use will be performed for all Mount Hermon Camps and Conference Center Facilities. A water meter installation program will be proposed to allow ongoing monitoring of the major water use facilities to determine future opportunities for improved water management and conservation. Where it is determined to be cost-effective, meters will be installed at facilities not currently metered for better system water use monitoring.

   Implementation – Following County adoption of the Master Plan Update, a water use audit of existing facilities will be performed for all Mount Hermon Camps and Conference Center facilities by the Mount Hermon Buildings & Grounds Department. A water meter installation program will be proposed to improve ongoing monitoring of the major water use facilities. Recommendations will be made to include in the next two annual budgets (2001 and 2002) funds to implement a meter purchasing and installation program. The goal is to have funding available for the Mount Hermon Buildings and Grounds Department to begin initiating this program starting January 2002 and continuing until all major water use facilities at the main Conference Center, Redwood Camp, and Ponderosa Lodge are metered (estimated time of completion is 2 years). Once all Association owned facilities are metered, Mount Hermon Staff will conduct a water audit to quantify distribution system losses. Ongoing measurement of these meters will document water use and provide the ability to monitor water use from year to year.

   Summary:
   1. Measure the supply
   2. Measure all metered use
   3. Calculate water losses
   4. Analyze audit results
   5. Initiate corrective measures to reduce losses.

2. Leak Detection. Following the installation of water meters, the Mount Hermon piping distribution system will undergo an extensive leak detection and repair program as outlined in the AWWA M36, *Manual of Water Supply Practices.* Ongoing notification will be provided to Mount Hermon staff, guests, and residents, informing them that obvious surface leaks should be reported immediately. Leak detection and repair will be given high priority.

   Implementation – Excessive water use identified in the water audit will provide the basis for leak detection surveys. A leak detection survey of the distribution system will be conducted to identify leak sounds and pinpoint the exact location of hidden underground leaks. The project will begin in January 2002 with estimated completion in one year. Mount Hermon staff, using a sonic listening device, will conduct an initial listening survey to locate possible leaks in main lines and service connections. The second step

EXHIBIT B

will be re-listening to locations were earlier sounds were heard. Once the leaks are pinpointed, the location will be marked for further investigation and repair. The third step will be to check system distribution valves and meter boxes for visual leaks. As an ongoing program, residents will be notified annually encouraging them to conserve water and asking them to check toilets, faucets, sprinklers, and hose bibs for leaks and have them repaired if needed.

The Maintenance Supervisor will oversee the leak detection survey and will maintain a repair log so that leak type and location can be documented for future reference.

Predicted Water Savings = 1.66 ***AFY*** **(1%** of total average gallons pumped)

3. Water Fixture Inventory/Replacement Program. All Association owned facilities (i.e., hotel rooms, kitchen facilities, guest cabins, and staff houses) would be surveyed for the presence/absence of low flow toilets, showerheads and faucets. Any non-compliance hardware will be replaced with approved low flow fixtures. All Mount Hermon units were retrofitted, a condition of the 1991 MH2 well permit, but many units purchased in the last few years may still be equipped with high-flow devices.

   Implementation – This conservation measure will begin January 2002, but will take approximately 2-4 years to complete due to budget constraints. Mount Hermon staff will verify the total number ofhigh-flow devices still in use and prepare a schedule and budget for their replacement. Predicted water savings are based on ULF toilet replacement study sponsored by California Urban Water Conservation Council, September 1996.

   Predicted Water Savings = 0.67 AFY (based on replacement of approximately 20 toilets per year at 29.9 gpd/toilet, along with various showerheads and faucets)

4. Landscape Management. Introduce water saving practices in current irrigated landscape program. All future landscape designs shall encourage the use of drought resistance trees, shrubs, perennials, and ground cover. Existing and future landscaped areas will implement where cost effective, the installation of drip irrigation or minimal low flow sprinklers with timers. Irrigation will be scheduled during the evening or early morning hours to minimize losses due to evaporation. **All** future and existing garden hoses will be fitted with automatic shutoff nozzles.

   Implementation – Landscape irrigation management planning and design will be put into action beginning in January 2001 and continued indefinitely. Water savings are based on similar results achieved by applying low water use landscaping to an irrigated landscape area of 1.37 acres *(Analyses of Urban Water Conservation Best Management Practices, September 1996).* Mount Hermon imgates approximately 1.6 acres of lawn and planter beds.

   Predicted Water Savings = 0.37 AFY

EXHIBIT B

5. No water will be used to clean Conference Center driveways, walkways or parking lots. Powered leaf blowers will be used to clear all aforementioned areas, and occasional high pressure/low water washing as needed. Association vehicles will be washed on a reasonable, as needed basis, and all building/window cleaning will be done with washing buckets and squeegees.

Implementation – January 2001.

Predicted Wuter Savings = Minimal

6. Guest Water Conservation Awareness Program. Placards or stickers outlining water conservation tips, and towel replacement procedures (i.e., leave towels on the floor to be laundered, hang towels that will be reused) will be posted in all hotel and cabin units. Additional information will be made available to the guests during check-in or at meal times to further educate them about our need to conserve water. Ice water normally served during meal times will only be made available upon request.

Implementation – This measure was initiated during the summer of 2000 and will continue indefinitely.

Predicted Water Savings = Minimal

Mount Hermon **Residents**

1. Tiered Water Rate Structure. Implement a tiered water rate structure for all service connections. The proposed structure would be as follows:

Base Rate	$24/quarter	(all customers)	
Water Usage			
Tier 1	0-30 units	= $1.15/unit	
Tier 2	31-loounits	= $1.50/unit	
Tier 3	101 - 150	= $2.25/unit	
Tier 4	151 + units	= $2.75/unit	(1 unit = 100 cf)

Water usage records will be examined each billing cycle for higher than normal water usage, which may indicate possible leaks or consumer wasting. Tier 3&4 typically represents the top 20% of the residents with highest water use. These customers will be subjected to the highest water rate, encouraging them to step-up conservation or initiate water conservation measures.

Implementation – Prior to implementing the new rate structure, a residential information program will be required. It is proposed the updated tiered rate structure will begin April 1,2002. Residential meter boxes will be read at the end of March and September each year. Each six-month period will be compared with the previous year's readings for monitoring purposes, and to track water conservation progress. The number of Tier **3&4** customers, as well as the water measurement frequency, will be monitored so that tighter

EXHIBIT B

restraints (is., higher rates, and additional educational materials) may be applied if water use fails to decline or continues to increase.

Predicted Water Savings = 0.8 AFY (based on an estimated *5%* reduction in use with a change to the tiered water rates)

2. Low Flow Incentive Retrofit Program. The DEIR, Alternative Water Supply #4, suggested that the potential for future water conservation lies with Mount Hermon Residents. The report data indicated that during the drought period of 1987-1992, conservation measures by The Conference Center produced a drop in water use by over 50%, while residential use remained almost constant. Further more, 1997 water use by the Conference Center is still below its 1987 use, while Home Owner use has increased from their 1987 levels.

The following program will he implemented with a 3-5 year goal of reducing residential water use by 7.5 *AFY.*

Retrofit Program Quantitative Analysis:
Studies preformed by the California Department of Water Resources (DWR) indicate that 70% of residential water is used in three (3) areas of the home: 1.Landscape (30%), 2.Toilet (20%), and 3.Faucets & Showers (20%). Applying these percentages to 78.75 AF (6-year average water use, see Table-1) reveals estimated water use in each area above at 23.6 AF for landscape, and 15.75 AF for both toilet and shower/faucet use.

Additional DWR information indicates that residential water use can be reduced by at least 46% when high-flow water devices are retrofitted with low-flow replacements. Applying a 46% reduction to the volumes above indicates a possible total water savings of 25.35 AF. This means that in order to achieve a 7.5 AF reduction in residential water use, Mount Hermon needs a minimum of 30% or 135 homeowners to fully participate in a retrofit and conservation program.

Table-1
Water Use bv MH-Homeowners

Year	Total Usage (gals)	(Acre-ft)
1994	24,392,085	74.86
1995	23,993,577	73.63
1996	24,217,834	74.32
1997	28,737,134	88.19
1998	25,621,214	78.63
1999	26,994,076	82.84
Avg.	25,659,320	78.75

The Association will encourage customers to retrofit all existing high volume water fixtures with low flow replacements. An incentive program will be established with the help of an EPA report on *Customer Incentives For Water Conservation,* (EPA 230-R-001) and will function as follows:

EXHIBIT B

Customers will receive a credit on their bill if they replace existing high volume fixtures with approved low flow devices (i.e., toilets must be 1.6 gal flush capacity, and 2.5 gpm showerheads). The credit will be 50% of the cost of the new fixtures, not to exceed $100.

Implementation – Starting April 1, 2002 Mount Hermon water customers will be notified about the Association's sponsored low-flow replacement program. Each household will receive a coupon that will then be returned to the billing office—along with a copy of the receipt(s) for the purchase of all low-flow water saving devices. A customer database will keep track of the customers who have participated in the program and those that have not. This will give Mount Hermon the ability to track the number of participants. A comparison with the annual water use will allow a determination of the effectiveness of the retrofit program and hopefully provide the basis for justifying an extension of the program or incorporation of additional incentives.

Predicted Water Savings = **7.5** AFY

3. Provide Education Materials. Water conservation brochures, fliers, and bulletins will be sent to Mount Hermon residents on a regular basis to inform and encourage them about the need to conserve water in this area. When available, new information on water conservation Best Management Practices and how they can be implemented around the home will be provided.

   Implementation – Educational information and water saving tips will be included in the October 1, 2001 billing. Customers are more likely to respond to water saving incentives after they have received their water bill for the April through September billing period. After each mailing, water use will be compared to previous periods to determine the effectiveness of the conservation materials.

   Predicted Water Savings = Minimal

Plan Summary

All water conservation measures will be implemented before any Phase I water using development begins. Estimated time for completing the Plan objectives is 3-5 years. The items are listed in order of priority.

- Water Audit, Meter Installation, Flow Analysis, and Leak Detection program
- Tiered Water Rate Structure for Mount Hermon residents
- Landscape Management, including eliminating water use for cleaning driveways, walkways, or parking lots.
- Water Fixture Inventory/Replacement for all Mount Hermon facilities in conjunction with Low-Flow retrofit incentive program for Mount Hermon residents.
- Provide Water Conservation Education Materials to Mount Hermon residents

Total Predicted Water Savings = **11 AFY**

EXHIBIT B

CONCLUSION

With prudent implementation of the proposed water conservation measures identified in the Plan above, the Mount Hermon Association is confident the water conservation goals and objectives, outlined in the DEIR for the Mount Hermon Association Christian Conference Center Master Plan, will be satisfied.

Mount Hermon acknowledges that the above Plan will need to be approved by Santa Cruz County before the Master Plan Use Permit is issued, and will be initiated before any Phase I water using development begins. Furthermore, the Mount Hermon Association Board of Directors must also adopt the Plan prior to its implementation.

EXHIBIT B

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 which incorporates the provisions of this condition, or this development approval shall become null and void.

XII MITIGATION MONITORING AND REPORTING PROGRAM

A The mitigation measures listed in Exhibit C of this permit 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 in Exhibit C. 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.

B There shall be a public hearing review of condition compliance and mitigation monitoring by the Planning Commission prior to commencement of phase 2 and again prior to phase 3 after MHA has submitted a progress report on condition compliance and mitigation monitoring to County Planning staff for review. Particular attention shall be provided to water supply efforts and compliance with condition V.F above in preparing and reviewing this report. Staff shall place the report on the regular agenda of the Planning Commission within *2* months of receipt of the report from MHA. Development authorized by phases 2 and 3 of this permit shall not occur until the Planning Commission has approved the monitoring reports for the previous phase and certified all applicable conditions have been met in terms of meeting the intent of mitigation measures and other

EXHIBIT

permit conditions, The report shall use Exhibit C as a guide to prepare the report so it is easy to discern the monitoring results of each individual permit condition that is derived from an EIR mitigation measure. The monitoring of other permit conditions shall also be provided in these reports in a format identical or similar to that provided for by Exhibit C for mitigation measures.

C. The review of condition compliance by the Planning Commission described in condition XII.B shall utilize the performance standards specified below in certifying that each permit condition is met.

1 Condition III.A (Implementation of Water Conservation Plan)
This condition shall be determined to be met when MHA submits written evidence of:

- Completion of the water audit and installation of all needed water meters;
- The pipe repairs that have occurred under the a leak detection program and inspection of at least 50% of potentially leaking pipes;
  Completion of the survey for the installation *of* low flow fixtures in all MHA facilities and installation of some fixtures with the locations, types and quantities of fixtures documented;
- Those techniques used to conserve water in landscape management;
  Copies of mailers explaining the new tiered water rate structure and water conservation educational materials to residential customers; and
  Copies of mailers advertising the low flow toilet and shower head retrofit program and a listing of addresses of customers where retrofiting has occurred.

2. Condition IV.A (Meeting Objectives of the Water Conservation Plan)
This condition shall be determined to be met when MHA submits a report that quantifies the reduction of water use in each category of the water conservation plan and that the total volume of the reductions equals or exceeds 7.5 acre feet/year as compared to 1999 levels for 2 or more consecutive years. Easily interpreted and verifiable water use figures for the year 1999 shall be included in this report.

3. Conditions IV.E and V.F (Work with Water Purveyors to Reduce the Aquifer Overdraft)
This condition shall be determined to be met when MHA submits written evidence of letters and meetings conducted with San Lorenzo Valley Water District and other applicable water purveyors conducted to discuss techniques to reduce the overdraft and the results of these mailings and meetings.

EXHIBIT C

February 4,2004

Mr. Don Bussey
Project Manager
Santa Cruz County Planning
701 Ocean Street, Rm. 400
Santa Cruz, CA 95060

Subject: Report of Condition Compliance, Mount Hermon Master Plan
Development Permit 98-0046

Dear Don

Please find enclosed the compliance report for all Phase I conditions of approval. Also included is a compliance report for Condition IV-A.

If you have any questions, please contact me **(831)** 430-1204.

Sincerely.

Dale Pollock

Dale Pollock
Technical Resources Manager

Enclosures: Phase I Compliance Report
Condition IV-A Report

Compliance Report for Phase I Conditions of Approval

CONDITION III:
REQUIREMENTS PRIOR TO GRADING OR CONSTRUCTION OF PHASE I FACILITIES.

A. Implement the Mount Hermon Water Conservation Plan. (This condition shall be determined to be met when MHA submits written evidence **of:**

- Completion of water audit and installation of all water meters. (See attachment A1)
- The pipe repairs that have occurred under the leak detection program and inspection of at least 50% potentially leaking pipes. (See attachment A2)
- Completion of the survey for the installation of low flow fixtures in all MHA facilities, and installation of some fixtures with the location, types and quantities of fixtures documented. (See attachment A3)
- Those techniques used to conserve water in landscape management. (See attachment **A4)**
- Copies of mailers explaining the new tiered rate structure and water conservation educational materials to residential customers. (See attachment A5)
- Copies of mailers advertising the low flow toilet and showerhead retrofit program and a listing of addresses of customers where retrofitting has occurred. (See attachment A6)

B. Submit a comprehensive Biotic Mitigation Plan as described in condition IX to County Planning for review and approval. (See attachment B)

C. MHA is to provide **an** overflow parking area fore use during peak attendance periods prior to constructing any additional facilities. This area will have space for a minimum of 40 vehicles. (See attachment C)

D. To avoid potential impacts to historical resources, MHA shall hire a qualified historic archaeologist to conduct additional research on the historic sawmill and Zayante Railroad Depot. (See attachment D)

E. MHA shall submit a plan for road maintenance of road cuts and road shoulders susceptible to land sliding or debris flow for all roadways which MHA has primary maintenance responsibilities. (See attachment E)

F. Rename the new Ministry Center the "Newton Memorial Building" as required by County Historic Commission approval 96-0820. (See attachment F)

G. Withdraw the permit application which proposes a third conventional water well to serve MHA by submitting a letter of withdrawal to both County Planning, and Environmental Health services. (See attachment G)

EXHIBIT D

Water Meter Installati

ATTACHMENT A1

CABINS	Address	APN (Parcel) # 66-	Water Meter Installed
Acacia	10 Mound Ave	134-3	☑
Acorn	11 Mound Ave	133-29	☑
Beechwood	32 Lake Side	133-13	☑
Blackberry	13 Parkway	102-21	☑
Camilia	7 Park View	123-10	☑
Cedar	17 Mound Ave	133-25	☑
Chestnut	5 Forest Rd	132-11	☑
Dogwood	12 Parkway	123-10	☑
Elm	9a Forest Rd	134-10	☑
LL-En-Roc	8 Parkway	121-10	☑
Founders	9 Mound Ave	133-30	☑
Hawthorne	8 **Park** View	121-2	☑
Heather, upper	25 Forest Rd	181-8	☑
Hickory	17 Conference Dr	131-6	☑
Holly	2 Park View	121-8	☑
Huckleberry	18 Mound Ave	135-1	☑
Juniper	64 Conference Dr	102-30	☑
Knot-4-Sale	14 Lakeside	133-4	☑
Lilac, lower	6 Park Way	121-11	☑
Lilac, upper	6 Park Way	121-11	☑
Parkway 1	9 Park Way	122-19	☑
Parkway 3	9 Park Way	122-19	☑
Parkway 4	9 Park Way	122-19	☑
Rosewood, lower	4 Park View	121-6	☑
Rosewood, upper	4 Park View	121-6	☑
Rustic Dell	40 Conference Dr	102-23	☑
Spruce	19 Mound Ave	133-25	☑
Sycamore	66 Conference Dr	102-13	☑
Tan Oak	Park View	123-10	☑
Toyon	6 Lake Lane	133-1,2	☑
Walnut	21 Forest Rd	181-11	☑

EXHIBIT D

Mount Hermon Owned Housing

	Address	Tenant	Building Name	APN (Parcel) #: 66-	Water Meter Installed
28	Azalea Ave	Kientzler, Sandy		151-17	☑
11	Conference Dr	Pereira, Jill		131-9	☑
13	Conference Dr	Hall, Clark		131-8	☑
15	Conference Dr	White, Steve		131-7	☑
42	Conference Dr	Peterson, Dave	Lower Myrtelwood	102-33	☑
42	Conference Dr	Stillwell, Steve	Upper Myrtelwood	102-33	☑
47	Conference Dr	Calle, Brian	Willow	112-6	☑
47	Conference Dr	Muth, Julie	Lower Willow	112-6	☑
48	Conference Dr	Veloz,Kuco	Mulberry	102-25	☑
48	Conference Dr	Bueler, Jennifer	Lower Mulberry	102-25	☑
57	Conference Dr	Paulsen, Chris	Cottonwood	112-1	☑
64	Conference Dr	Montesano, Dannel	Lower Juniper	102-30	☑
6496	E. Zayante		RWC Depot	081-	☑
6496	E. Zayante	Taylor, Ron	RWC Camp House	081-	☑
11	Forest Rd	Kerber, Brian		134-12,13,14	☑
11	Forest Rd	Hester, Ken	Trek Haus	134-12,13,14	☑
17	Forest Rd	Clements, Chris		191-2	☑
25	Forest Rd	Hipwell, Phil	Heather, Lower	181-8	☑
32	Forest Rd	Osenga, Syd		112-19	☑
34	Forest Rd	Lynn, Leslie	Wildflower	112-38	☑
34	Forest Rd	Kille, Jamie	Wildflower(lower)	112-38	☑
36	Forest Rd	Cope, Jen	Poppy	112-38	☑
42	Forest Rd	Fox, Joey	Wysteria	112-24	☑
48	Forest Rd	Havlick, Tom		112-26	☑
9B	Forest Rd	Balke, Jared		134-10	☑
34	Lake Side	Hoyt, Jerry	Alder	133-39	☑
5	Madrone Ave	Fernald, Bill		151-28	☑
10	Madrone Ave	Mezera, Lad		192-41	☑
2	Manzanita Springs		Cypress	111-24	☑
34	Manzanita Springs	Mezera, PJ		111-20	☑
36	Manzanita Springs	Paulsen, Tim		111-19	☑
6	Mound	Outdoor Ed	Black House	134-1	☑
19	Mound Ave	Miner, Steve	Lower Spruce	133-25	☑
11	Mound Ave (front)	Pollock, Dale		133-29	☑
2	Park View	Hutchison, Rena		121-8	☑
6	Park View		Lower Ketzel		☑
8	Park Way		LL-EN-ROC	121-10	☑
21	Park Way	Montoya	Tamarack	102-32	☑
31	Park Way	Stewert, Shelly			☑
32	Park Way		Hillside A		☑
32	Park Way		Hillside B		☑
32	Park Way		Hillside C	101-26	☑
2	Pine Ave	Boyd, Paul		131-10	☑
24	Pine Ave	Bogardt, Nathan		191-14	☑
80	Pine Ave	Thomsen, Peter		182-27	☑
5	Plaza	Blyston, Dirk		171-14	☑
8	Prospect Ave	Hendricks, Robert		191-6	☑
12	Prospect Ave	Pace, Brian		191-8	☑
16	Prospect Ave		Old Elm Annex	191-10	☑
16	Prospect Ave	Van Cleave, Steph	Old Elm	191-10	☑
18	Prospect Ave	Russel, Bob		191-11	☑
9	Ridge Way	Soerheide, Lester (Dutch)		201-6,7,19	☑
42	Ridge Way	Miller, Paul		192-18	☑
55	Ridge Way	Outdoor Ed	A-Frame	202-20	☑
57	Ridge Way	Halverson, Scott		202-17	☑
79	Ridge Way	Oliver, Rick	Oakview	202-7	☑
89	Ridge Way	Burch, Kelly		202-4	☑
91	Ridge Way		View Point	202-3	☑
81	Ridge Way	Outdoor Ed	Hitch-n-Post	202-6	☑

EXHIBIT D

CRUZ BROTHERS LOCATORS

ATTACHMENT A2

Fax 831-461-1470

P.O. Box 66768

Scotts Valley, CA 95067

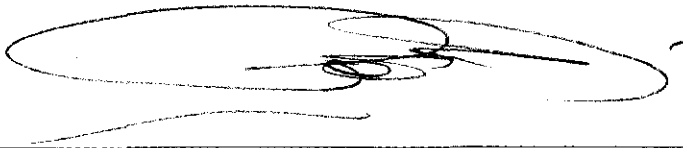
Subject: Report for Leak Survey at Mt. Herman

All valves are identified with numbered tags & or location numbers painted near each valve.

Location #:

1. Redwood & Oak: Valve #49 (audible tone consistent w/domestic use heard twice. Valve **#104** (audible tone was heard twice as well.)
2. Woodwardia & Lilac: Valve #67 No audible tone delected twice. Valve **#68** Very slight tone consistent with leak & or use.
3. Woodwardia: No tone on **1112** inch line.
4. Woodwardia: Audible tone detected (one of **2** lines) consistent with use.
5. No audible tone detected twice.
6. Acacia & Peninsula: Loud tone consistent with domestic use was heard twice (valve 65)
7. One valve buried under asphalt, one valve slight audible tone.
8. Zayante: No tone was detected at either box or hose bib.
9. Multiple valves not shown on map-No tone detected on 3 of 5 valves to valves with tone by painting white with blue.
10. No tone was detected on **5** of **5** valves.
11. Lavel & Park: Major tone consistent with domestic use valve #33 tone, **34** & **75** no tone was heard twice.
12. No tone valve **207** & 205, loud tone at valve **105** not **33** and **34.**
13. Slight tone consistent with leak on Hydr. Riser.
14. Tone on **3** valves consistent with use.
15. Grandview: Intermit tone was heard on fire hydrant.
16. No tone detected twice on all valves (valve **87)**
17. Forest: **A** major tone but not valve **101.**
18. Forest & Plaza: A-No tone, B-loud tone, C-couldn't find.
19. Manzanita & Pine: A-Major tone, B & C-Consistent with use.
20. Forest & Prospect: No tone detected at all valves twice (valve **#212** & 2?
21. Redwood & Springs: No tone in area **22** with exception to multiplevalve # 66 around pump house.
22. Pine to Laurel: No tone detected.
23. Ferndell Springs: A,B, & D-No tone detected, C-Major tone heard.
24. Large Water Tank: Touched on line at location **A** (major tone consistent with use heard.
25. A) No tone B)Hydra M/T

Detail B) No tone detected Valve numbers include **214, 215, 212, 213** Access to all valves was not gained but a sounding was performed on or near water line. If there are any questions reguarding this report please call Robert Kellerman at **408-203-5824.**

X  Robert Kellerman (locator)

CRUZ Brothers Locators

Water System Leak Repairs

Location	Date	Comments	
Forest RD Below # 10 Manzanita	7/17/2001	Repaired leak on 1-1/2 inch water line	
Parkway Below Rustic Dell	7/26/2001	Repaired dime size leak on 1-1/2 inch water line	
Redwood Camp	11/18/2002	Repaired 1/4" hole in 1-1/2 water line in front of Dining Room	
56 Pine Ave	2/5/2002	Broken nipple at meter valve	(Repaired)
31 Highland	2/18/2002	Cracked nipple at service meter	(Repaired)
31 Parkway	2/25/2002	Cracked nipple at service meter	(Repaired)
7 Highland	3/20/2002	Cracked nipple at service meter	(Repaired)
32 Grandview	3/29/2002	Leak on 1-1/2 water line	(Repaired)
43 Grandview	5/2/2002	Cracked nipple at service meter	(Repaired)
8 Glen Alpine	7/4/2002	Patched 1" water line	(Repaired)
25 Pine Ave	8/8/2002	Leak found at water service	(Repaired)
Maintenance Shops	9/23/2002	Crack found in 2" PVC line.	(Repaired)

[redacted]

ATTACHMENT A4

Landscape Management:

Introduced water saving practices in current irrigated landscape program.
All future landscape designs shall encourage the use of drought resistance trees, shrubs, perennials, and ground cover.

Existing and future landscaped areas will implement where cost effective, the installation of drip irrigation or minimal low flow sprinklers with timers

Irrigation is scheduled during the evening or early morning hours to minimize losses due to evaporation.
All future and existing garden hoses will be fitted with automatic shutoff nozzles.

EXHIBIT D

ATTACHMENT A3

Toilet Inventory for Low-Flow Replacement

								MANZ		SEQ		EVGR		Woodwardia	
AZALEA LODGE								1	3gal	1	1.6	1	3gal	1	1.6
10	1.6	15	1.6	20	1.6	25	1.6	2	3gal	2	1.6	2	3gal	2	1.6
11	1.6	16	1.6	21	1.6	26	1.6	3	3gal	3	1.6	3	3gal		
12	1.6	17	1.6	22	1.6	27	1.6	4	3gal	4	1.6	4	1.6		
13	1.6	18	1.6	23	1.6	28	1.6	5	1.6	5	1.6	5	1.6		
14	1.6	19	1.6	24	1.6	29	1.6	6	1.6	6	1.6	**6**	1.6		
Total	**7**	(needed)													

LAUREL LODGE																
101	1.6	105	1.6	150	1.6	154	1.6	200	1.6	250	1.6	300	1.6	350	1.6	Public RR - 3gal
102	1.6	106	1.6	151	1.6	155	1.6	201	1.6	251	1.6	301	1.6	351	1.6	
103	1.6	107	1.6	152	1.6	156	1.6	202	1.6	252	1.6	302	1.6	352	1.6	
104	1.6			153	1.6	157	1.6	203	1.6	253	1.6	303	1.6	353	1.6	
Total	**1**	(needed)														

LAKESIDE 500 Bldg	All 1.6 gpf	
LAKESIDE 600 Bldg	All 1.6 gpf	
LAKESIDE 700 Bldg	All 1.6 gpf	
LAKESIDE LNG	men - 3gal	women - 3gal
Adrnin Bldg (APC)	5 - 3gpf	
Total **7** (needed)		

PONDEROSA LODGE													
Everglades		Surfside		Frontier		Ridgeway		Nurse	Guest room		Public upstairs	1.6	
1	1.6	1	1.6	1	1.6	1	1.6	1.6	1	1.6	Public downstairs	1.6	
2	1.6	2	1.6	2	1.6	2	1.6		2	1.6	Kitchen	1.6	
3	1.6	3	1.6	3	1.6	3	1.6		3	1.6			
4	1.6	4	1.6	4	1.6	4	1.6		**4**	1.6			
5	1.6	5	1.6	5	1.6	5	1.6						
6	1.6	6	1.6	6	1.6	6	1.6						
Total	**0** (needed)												

Lilac	Oak -1	Oak-2	Maple	Madrone	Pine	Fir
2-3gal	2-1.6 gpf	2-1.6 gpf	2-1.6 gpf	2-1.6 gpf	8-1.6 gpf	8-1.6 gpf
Total **2** (needed)						

CABINS

	GPF		GPF		GPF		GPF
Acacia	1.6	Elderberry	3	Juniper	3	Rosewood, lower	3
Acorn	3	Elm	1.6	Lilac, lower	3	Rosewood, upper	3
Beechwood	3	Founders	1.6	Lilac, upper	3	Rustic Dell	1.6
Camilia	3	Hawthorne	3	Lupine	1.6	Spruce	3
Cedar	1.6	Heather, upper	1.6	Mulberry	3	Sycamore	1.6
Chestnut	1.6	Hickory	3	Parkway 1	1.6	Tamarack	1.6
Cypress	3	Holly	1.6	Parkway 3	1.6	Tan Oak	1.6
		Huckleberry	3	Parkway **4**	1.6	Toyon	3
Total	16 (needed)					Walnut	1.6

Grand Total = 140 Low-Flow **Toilets Installed**
33 Low-Flow **Toilets to be Installed**

EXHIBIT D

October 31,2001

To: Mount Hermon Water Customers

From: Mount Hermon Association, Inc.

Re: Changes to water rates

Beginning April 1, 2002 a new water rate structure will be implemented, consistent with details that were published in the Environmental Impact Report associated with Mount Hermon's recently approved Use Permit. This new rate structure is designed only to affect customers who consistently use more than the normal amount of water during a given six-month billing cycle. The average Mount Hermon water customer uses approximately **33** units of water in a six-month period (1 unit = 748 gallons).

Water rates for customers in the 1-100 units per billing cycle will **not** increase. Quarterly base fees will also stay the same for all users. Only customers who use 101 units and above will be affected by the new tiered rate structure.

New rates will be as follows:

Base Rate	Incremental Rate Based on Water Usage			
$24/quarter	Tier 1	0-30 units	= $1.15/unit	(same as before)
(All customers)	Tier 2	31-100 units	= $1.50/unit	(same as **before)**
	Tier **3**	101 - 150	= $2.25/unit	
	Tier 4	151 + units	= $2.75/unit	

In order to help you prepare for this new rate structure, we are sharing this information several months in advance. As you may know, we plan to implement an incentive program for replacing high flow fixtures with low flow devices, starting on April 1,2002. If you are planning to make any improvements of this nature before then, be sure to coordinate with Dale Pollock (430-1204) to ensure that you receive appropriate credits.

If you have any question about this forthcoming change to Mount Hermon's water rate structure, please feel free to us a call at 430-1222.

Thank you,

Mount Hermon Association, Inc.

EXHIBIT D

ATTACHMENT A6

April 26,2002

Dear Mount Hermon Homeowner,

As you are aware from our correspondence last October, new water rates went into effect April 1,2002, as follows:

Base Rate	Incremental Rate Based on Water Usage			
$24 / quarter — Improved Lot	Tier 1	0-30 units	= $1.15/unit	(no change)
$18 / quarter — Unimproved Lot	Tier 2	31-100 units	= $1.50 / unit	(nochange)
	Tier 3	101 - 150	= $2.25 / unit	
	Tier 4	151 + units	= $2.75 / unit	

Water rates for customers in the 1-100 units per billing cycle have **not** increased. Quarterly base fees will also stay the same. Only customers who use 101 units and above will be affected by the new tiered rate structure.

One way to keep water use down is to conserve. And, to help you do that, Mount Hermon is offering a one-time rebate of **up** to $100 per household for those who replace their old high-flow toilets with low-flow toilets. **Rebates will be given for toilets purchased between October 1,2001, and April 1,2003 Sales receipts must be received by Mount Hermon Association, Inc., on or before April 30,2003.**

To qualify, simply mail in a copy of your low-flow toilet(s) receipt, along with the completed form below. **A** rebate check will be mailed back to you. The address for this program is: Mount Hermon Water Rebate. P.O.Box 413, Mount Hermon CA, 95041 (Please allow **30** days **for** rebate processing).

Other ways you can conserve water around the house are:

- Use low-flow showerheads and flow constrictors on faucets.
- Always run full loads in your dishwasher and washing machine.
- Water lawn and gardens during the coolest part of the day. and use drip irrigation wherever possible.
- Use plants that are native to the area and are drought resistant, and cover your planters with a layer of mulch or wood chips to reduce evaporation losses.
- Check your water meter while no water is being used. If the meter is running, you have a leak.

For questions about low-flow device qualification, call 430-1204. For billing questions, call 430-1222.

Thank you.

Mount Hermon Association, Inc.

Cut on dotted **line**

NAME: _____ DATE: _____

ADDRESS: _____

DAYTIME PHONE NUMBER: _____

NUMBER OF LOW-FLOW TOLLETS INSTALLED: _____

Please include proof of purchase. Rebates will nut be issued without copy ot receipts.

Mail to: Mount Hermon **Water Rebate, PO Box 413,** Mount Hermon, CA 95041

EXHIBIT D

Low Flow Rebate Report

	Item		Price	Rebate Amount
Barbara McGraw **Box 463** Mount Hermon **CA 95041**				
	16 gpf toilet		$113.00	
		Total:	$113.00	
Ben and Sharon Barber **P.O. Box 432** Mount Hermon **CA** 95041				
	toilet 1.6 gpf		**$58.31**	
		Total:	**$58.31**	
David and Debora Notari Notari **5 Conference** Drive **Felton CA 95018**				
	toilet 1 6 gpf		$129.00	
	toilet 1 6 gpf		$144.00	
		Total:	**$273.00**	
Michael and Jennifer Morrison P.O. **Box 404** Mount Hermon **CA 95041**				
	toilet 1.6gpl (2)		$107.98	
		Total:	**$107.98**	
Mr. and Mrs. **Bryan Hayes** **P.O. Box 75** **MountHennon CA 95041**				
	1.6 **gpf toilet**		**$214.38**	
		Total:	$214.38	
Mr **and** Mrs **David** R **Talbott** PO **Box 535** Mount **Hetmon CA** 95041				
	1.6 gpf toilet		$188.00	
	1.6 gpf toilet		$188.00	
		Total:	$376.00	

	Item		Price	Rebate Amount
Mr. and Mrs. Fred W. Miller PO Box 95 MountHermon CA 95041				
	1.6 gpf toilet		$200.00	
		Total:	s200.00	
Mr. and Mrs. Jack F. Cauwels PO Box 471 MountHermon CA 95041				
	1.6 gpf toilet		$458 *00*	
	1.6gpf toilet		**$458** *00*	
		Total:	$91600	
Mr. and Mrs. James H. Wade 22555 Norwood Drive Hayward CA 94541				
	1.6 gpf toilet		$376.00	
		Total:	*5376.00*	
Mr. and Mrs. Jorge Robinson 22 Grandview Felton CA 95018				
	1.6gpf toilet		$119 99	
		Total:	$1 19.99	
Mr. and Mrs. Les Kanyuk 2242 Grove St Berkeley CA 91704				
	1.6 gpf toilet		$89.00	
		Total:	$89.00	
Mr. and Mrs. Lorin P. Sweers PO Box 714 MountHermon CA 95041				
	toilet 1 6 gpf		$100.00	
		Total:	$100.00	
Mr and Mrs Roper E Williams P O BOX 4x4 Mount Hermon CA 95041				
	1.6 gpf toilet		$350.00	
	1 6 ppf toilet		$350 00	

EXHIBIT D

	Item		Price	Rebate Amount
		Total:	$700.00	
Mr. **and Mrs.** William C. Mears **PO** Box 149 MountHermon CA 95041				
	Toilet 1.6gpf		$96.34	
		Total:	$96.34	
Mr. **C.** Gordon Kyle 5 The Buckeye **Felton** CA 95018				
	1.6 gal toilet		$109.99	
	1.6 gal toilet		5109.99	
		Total:	S219.98	
Mr. Curtis R. Willson 701 Palm Haven Avenue San Jose CA 95125				
	toilet 1.6 gpf		S115.56	
		Total:	$115.56	
Mrs Ethel Chnstensen PO **Box** 473 Mount Hennon CA 95041				
	toilet 1 6 gpf		$69 00	
	toilet 1 6 gpf		$69.00	
		Total:	$138.00	
Mrs Ann Johnson PO Box 114 **Mount** Hcrmon CA 95041				
	1.6 gpf toilet		$130.58	
		Total:	$130.58	
Mrs. Charlene Sawyer 3716 Cordero Drive Santa Barbara CA 93105				
	toilet 1 6 gpf		S100.00	
		Total:	S100.00	
Mrs. Nancy B. Walker 11 Garland Place Menlo Park **CA** 94025				

27

EXHIBIT D

	Item		Price	Rebate Amount
	toilet 1 6 gpf		*$265* 00	
		Total:	*$265* 00	

Robert L. **Miller**
6 Canyon Road
Felton **CA** **95018**

	1.6gpf toilet		$1 12.00
		Total:	$112.00

28

EXHIBIT D

Condition IV-A

Water Reduction Through Conservation

Water Usage	1999 MG	2000 MG	2001 MG	2002 MG	2003 MG	
Jan	4.27	4.83	3.49	3.64	4.99	
Feb	4.69	3.9	3.3	3.93	4.56	
Mar	5.13	4.51	3.89	3.64	4.95	
Apr	5.19	4.64	4.46	3.85	4.66	
May	6.49	6.02	5.28	5.29	5.43	
Jun	7.26	6.16	6.73	6.21	6.59	
Jul	7.91	5.7	6.66	7.98	7.23	
Aug	7.26	7.97	6.99	7.21	7.56	
Sep	6.06	5.27	5.91	6.14	5.65	
Oct	5.52	4.4	5.33	5.52	4.49	
Nov	4.35	3.8	4.4	4.56	3.26	
Dec	4.29	5.2	3.86	5.27	3.89	
Total Gallons	68.42	62.4	60.3	63.24	63.3	
AFY	211	192	186	195	195	(AF)
Target Reduction		*7.5*	*7.5*	*7.5*	7.5	(AF)
Actual Reduction		19	25	16	16	(AF)
Percent Above Target		60%	70%	53%	53%	

EXHIBIT D

MOUNT HERMON

Mr. Don Bussey
Project Manager
Santa Cruz County Planning
701 Ocean Street, Rm. 400
Santa Cruz, CA 95060

February 16,2004

Subject: Report on efforts to work with area water purveyors. Development Permit Condition IV.E.

Dear Don.

Mount Hermon continues to work with area water purveyors towards the goal of reducing existing overdraft in the Pasatiempo sub unit of the Lompico Aquifer. Mount Hermon staff regularly attends meetings of the Santa Margarita Groundwater Advisory Committee, and provides bi-annual water level and usage data to the hydrological consultants serving San Lorenzo and Scotts Valley Water Districts.

If you have any questions, please contact me (831) 430-1204.

Sincerely,

Dale Pollock
Technical Resources Manager

Conference Center • Ponderosa Lodge ▪ Redwood Camp
P.O. Box 413, Mount Hermon. California 95011
Tel: 831-335-1466 Fax: 831-335-9218 Web. http //www.mounthermon.org/

EXHIBIT D

ATTACHMENT B

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, SUITE 410, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDU: (831) 454-2123
ALVIN JAMES, DIRECTOR

May 23,2002

Mr. Dale Pollock
Mount Hermon Assoc.
P.O. Box 413
Mount Hermon, CA 95041

SUBJECT: COMPREHENSIVE BIOTIC MITIGATION PLAN FOR THE MOUNT HERMON CAMPS AND CONFERENCE CENTER

Dear Mr. Pollock,

Ms. Janelle Nolan-Summers requested that I send you a letter confirming that the Santa Cruz County Planning Department has received the final Comprehensive Biotic Mitigation Plan for the Mount Hermon Camps and Conference Center, dated April 29,2002 (Permit 98-0046). The final plan incorporates the Planning Department's requested revisions and satisfies applicable County ordinances and policies. As you are aware, however, some elements of the plan also fall under the jurisdiction of the California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS). Once these agencies have reviewed and endorsed the plan, County Planning will consider it approved and permit condition II.B will be met.

If you have any questions or need anything further, you can contact me at (831) 454-5175

Sincerely,

Claudia Slater

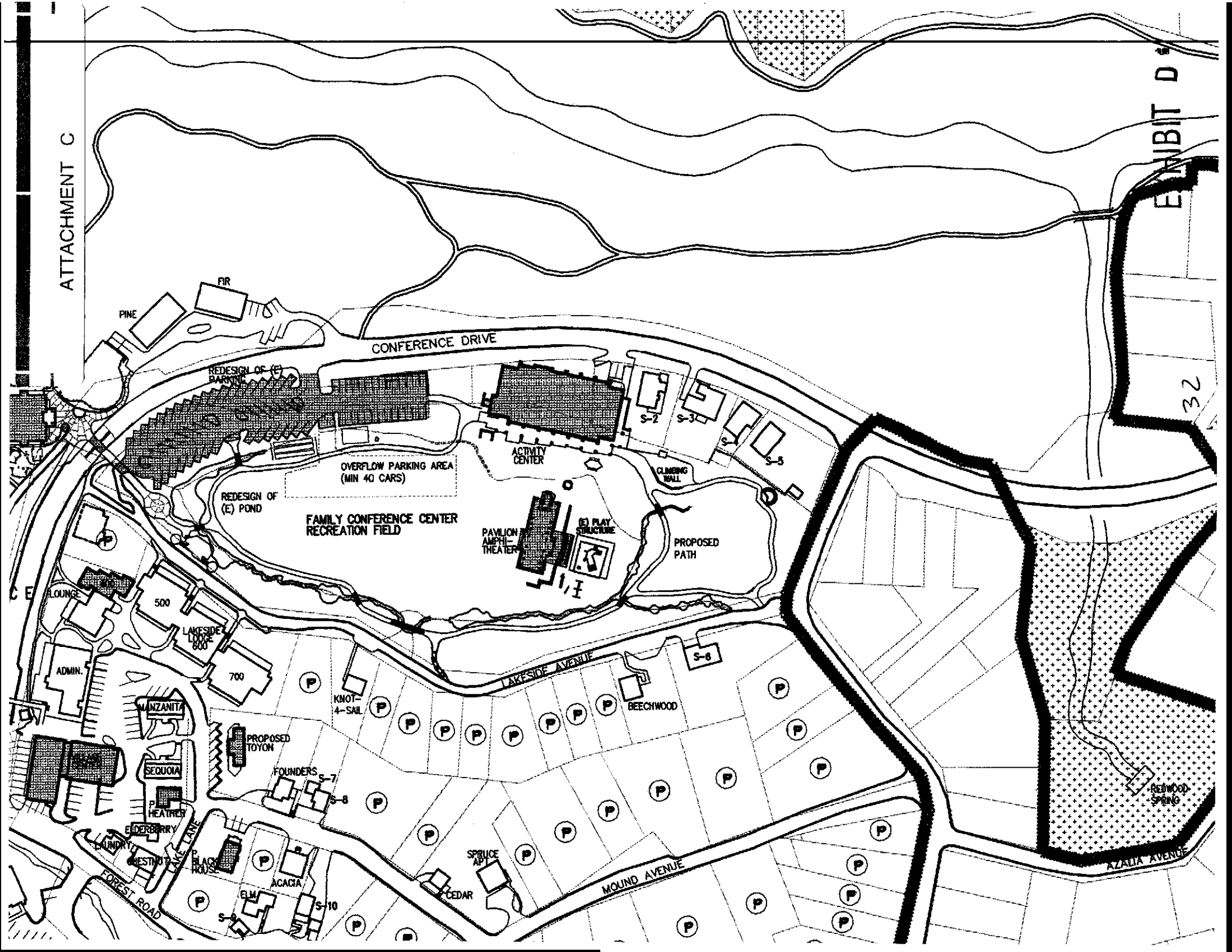
Claudia Slater
Environmental Planner

cc: Janelle Nolan-Summers, ENTRIX
Patricia Anderson, CDFG
Colleen Sculley, USFWS
Don Bussey, County Planning

EXHIBIT D

ATTACHMENT C

EXHIBIT D

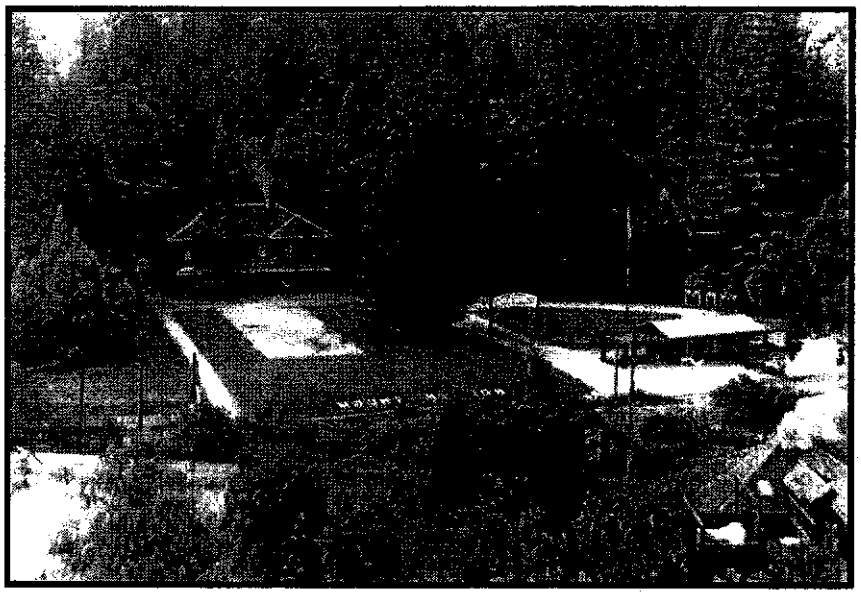


ATTACHMENT D

ARCHAEOLOGICAL ASSESSMENT OF THE SAWMILL AREA AND SOUTHERN PACIFIC RAILROAD DEPOT AT REDWOOD CAMP, MOUNT HERMON, CALIFORNIA.

PREPARED FOR:

THE MOUNT HERMON ASSOCIATION CHRISTIAN CONFERENCE CENTER



ENTRIX, Inc.
590 Ygnacio Valley Rd. Suite 200
Walnut Creek, CA 94596

January 2002

EXHIBIT D

TABLE OF CONTENTS

EXHIBIT D

1.0 Introduction

This is the final report for archaeological work conducted by ENTRIX, Inc. on behalf of the Mount Hermon Association for the purposes of testing the historic sawmill area and updating the form for the Southern Pacific Zayante Railroad depot located at the Mount Hermon Christian Conference Center. The following report presents findings of subsurface auger testing and evaluation conducted between October 17 and October 18, 2001. Testing produced minimal results for significant historic and prehistoric archaeological resources within the sawmill area. An evaluation of the Southern Pacific Railroad depot was also undertaken to update the existing DPR 523 form on file at the Northwest Information Center, Rohnert Park, California.

1.1 Project Chronology and Purpose of Investigation

The Mount Hermon Conference Center property was the subject of a field reconnaissance and archival study by Mary Doane and Trudy Haversat of Archaeological Consulting (1999) that addressed both prehistoric and historic cultural resources. Archaeological Consulting's field reconnaissance report was submitted for inclusion in the DEIR for the Mount Hermon Christian Conference Center Master Plan in December 1999. The Archaeological Consulting report comments on the potential that the project area may contain buried archaeological materials obscured by heavy duff and vegetation or historic land alteration. In preparation for their survey, Archaeological Consulting performed a record search of the files at the Northwest Information Center, Rohnert Park, resulting in no recorded archaeological sites within one kilometer of the project area. The report states that "there was no record of previous survey of the entire project area although a 1972 reconnaissance [survey] appears to have covered the western portion [Redwood Camp area]" (Doane and Haversat 1999:2). In addition, Archaeological Consulting conducted a search of the California Inventory of Historic Resources, California Historical Landmarks, and the National Register of Historic Places. The report also states, "no sites are formally recorded on the project parcel but an area in Redwood Camp was informally noted as the site of a sawmill" (Archaeological Consulting 1999). While Archaeological Consulting's reconnaissance survey did not locate any previously undiscovered archaeological resources, the resulting report stated that "based upon the background research and the surface reconnaissance, we conclude that the project area contains evidence of potentially significant historical cultural resources" (Archaeological Consulting 1999). Two recommendations were made in the reconnaissance report, which was included in the Mount Hermon Christian Conference Center EIR. The recommendations were:

1. An historic properties survey of the older structures within the project area should be conducted by a qualified historical architect.

2. Additional research on the historic sawmill and the Zayante Railroad Depot should be conducted by a qualified historian and/or historic archaeologist with the goals of formally recording the sites and developing an archaeological

testing program for the sites prior to further development which might impact them.

In consideration of these recommendations, ENTRIX conducted manual auger testing as a means of evaluating the presence of archaeological resources and any potential effects to these resources, if present. Along with the testing program, an evaluation of the Southern Pacific depot was also undertaken to assess any previously unidentified resources and update the California Historic Resources Inventory forms.

1.2 Project Area Setting

Redwood Camp is part of the Mount Hermon Conference Center, situated on the north side of the intersection of Graham Hill Road and Conference Drive, located within the unincorporated community of Mount Hermon (Figure 1). The Conference Center is approximately 1 mile southeast of Felton and 2 miles northwest of Scotts Valley, California. The area is part of the San Lorenzo watershed of the Santa Cruz Mountains and is located approximately seven miles north of the City of Santa **Cruz.** The conference center is a Christian Youth camp and adult conference center that includes lodging, offices, conference and recreation facilities.

1.3 Project Area Location

The project area is located in Redwood Camp, within the community of Mount Herman (Figure 2). The entrance to Redwood Camp is on the east side of East Zayante Road. The Southern Pacific train depot still stands and is located along the railroad tracks at the western boundary of Redwood Camp directly south of the entrance gate **A** plaque places the sawmill at a site on the western terrace above the confluence of Zayante and Bean creeks. However, no photographic or historic reference is available for establishing the precise location of the sawmill. The sawmill area is approximately *50* ft. by 40 ft. and is bordered on the north by an animal pen (Photo 1) and on the south and west by trails leading to a footbridge crossing over Zayante creek. The UTM coordinate for the approximate location of the sawmill area is: Zone 10, 583379mE ,4100733 mN.

1.4 Biophysical Setting

The riparian woodland along Zayante Creek adjacent to Redwood Camp consists mainly of big leaf maple *(Acre macrophyllum)*, red alder (*Alnus rubra*), shining willow, arroyo willow, buckeye (*Aesculus californica*), coast live oak, and California bay. Associated species include blue elderberry *(Sambucus mexicana)*, wild cucumber (*Marah fabaceous)*, English ivy, sword fern, thimbleberry, and snowberry. Two large-sized valley oaks (*Quercus lobata*) grow adjacent to the tennis courts at Redwood Camp. The riparian woodland borders and intermixes with the adjacent redwood forest.

EXHIBIT D

2.0 Archaeological Background

The 1999 study by Archaeological Consulting identified no prehistoric archaeological resources within the project area and no previously unrecorded historical resources. The Archaeological Consulting report states that a previous reconnaissance survey of the western portion of the Conference Center had been carried out in 1972. However, no archaeological sites are formally recorded in the project area with the exception **of** the Southern Pacific Railroad depot.

Several historic architecture surveys have been conducted within the Mount Hermon property resulting in local historic register nominations for several of the Conference Center buildings. These surveys identified six historic structures at Mount Hermon which are eligible for protection under the California Environmental Quality Act (CEQA). All of these structures, including the Southern Pacific Railroad depot, have been formally recorded on State of California DPR 523 forms prepared by Edna Kimbro (1988) and are listed on the County of Santa Cruz Survey of Historic Resources.

In 1994, Susan Lehman updated the previously recorded building forms and noted no significant changes. In 1999, she returned to Mount Hermon to conduct a survey for the Mount Hermon Association Master Plan EIR. Lehman reports that the structures "appear to be in good condition and no change was noted from the 1994 update." Ms. Lehman reiterates her 1994 recommendation by stating that the buildings qualify as historic resources for purposes of CEQA (Lehman 1994).

3.0 Ethnographic Background

The project area lies within the region occupied at the time of historic contact by Native Americans known ethnographically from their linguistic family as Costanoan. "Costanoans" from the Spanish "costanos" or coast-dwellers, is a linguistic term used to describe groups speaking related languages, occupying the coast from the Golden Gate to Point Sur and inland to about the crest of the Diablo Range. Modern descendents of the Costanoan now prefer to be known as Ohlone. On the basis of a body of linguistic evidence, it has been suggested that the ancestors of the Ohlone arrived in the San Francisco Bay area about 500 A.D., having moved south and west from the Sacramento-San Joaquin Delta region. Although linguistically linked as a "family", the eight Ohlone languages actually comprised a continuum in which it is probable that only neighboring groups could understand each other, the others being too widely separated to share common vocabularies. Along the ocean shore between Davenport and Aptos in Santa Cruz County, Awasas or Santa Cruz Costanoan was spoken by about 600 people (Levy 1978).

The basic unit of Ohlone society was the "tribelet",a small independent group of usually related families occupying a specific territory and speaking the same language or dialect. Tribelets consisted of one or more permanent villages and several smaller temporary encampments located within a territorial boundary defined by physiographic features. Evidence demonstrates that neighboring tribelets strictly adhered to these boundaries.

Inter-tribelet relationships were socially and economically necessary to supply both marriage partners, goods and services not available locally. Trade and marriage patterns were usually, but not always, dictated by proximity; traditional territorial enemies were usually also defined by proximity (Levy 1978).

Ohlone populations relied on local natural resources for nearly all subsistence needs. Littoral (shoreline) and riparian environments, like those in the San Lorenzo Valley, were the most biologically productive ecosystems familia to the Ohlone. These areas were therefore some of the most highly valued and were the most intensively utilized and occupied in the San Francisco Bay region. As throughout Central California, the acorn was the dietary staple of the Ohlones, but a large number of floral and faunal resources were utilized as well. The Ohlone insured continued survival by managing their environment via direct manipulation. By burning grass and brush lands annually they were able to keep fire danger low while improving foraging areas for deer and rabbits and keeping the land open and clear free from predators. But, most importantly, burning resulted in the improved productivity of seed-bearing annuals, which were so vital to the Ohlone diet (Levy 1978).

Arrival of the Spanish in 1775 had a disastrous impact on the lives of the Ohlone and other Native American inhabitants of California. The Spanish exploration and missionization efforts led to a rapid and major reduction in native California populations. Diseases, declining birth rates, and the effects of the mission system served to largely eradicate aboriginal lifeways. Brought to the missions, these Native American groups were transformed from hunters and gatherers into agricultural laborers (Levy 1978; Garaventa 1983; Shoup and Miliken with Brown 1994). With abandonment of the mission system and the Mexican takeover in the 1840s, numerous ranchos were established. Generally, the Native Californians who remained were then forced, by necessity to work on the ranchos.

4.0 Local History

The most complete history of the Mount Hermon property can be found in ***Rings*** *in the Redwoods, the Story of Mount Hermon* by Kay Gudnason. Following is a brief synopsis of Ms. Gudnason's work.

The Mount Hermon property was formerly known as Rancho Zayante. Part of a Mexican land grant with the Rancho San Augustin (the present Scotts Valley), Rancho Zayante was purchased in 1841 **by** Isaac Graham from Joseph L. Majors. Majors was a key figure in the development of Santa Cruz County, establishing a tannery and the first flour mill in the area: later he became Treasurer of Santa Cruz County. Graham's partner in the purchase, William Ware, sold out to Graham in 1854.

Rancho Zayante, centered on the confluence of Bean and Zayante creeks. was approximately 2,660 acres in size. Graham used the land to raise cattle, grow and process wheat, and as the center of his lumbering operation. He began by building a group of cabins adjacent to the confluence of Bean and Zayante creeks. In this same area, Graham

constructed his gristmill and the lumber mill for which he is principally remembered; both of which were quite successful.

In 1843, Graham sold a large portion of Rancho Zayante and moved **his** operation to the present day town of Felton. Between 1862 and 1901 portions of the rancho changed hands numerous times. Eventually, the property known today as Mount Hermon was united under one owner, Thomas L. Bell, in January 1904.

By the 1890s, the natural resources that carried Santa Cruz County through the second half of the 19th century became exhausted. Subsequently, the economy of the area began to focus on tourism, particularly San Franciscans seeking the tranquility offered by the Santa Cruz Mountains. Railroad lines that were once used for hauling lumber, lime, and sand were now used for transporting visitors to resorts in the area. A Presbyterian group established Mount Hermon in 1905 as a resort for Christian fellowship. The former rancho was an ideal setting due to its location on the Southern Pacific Railroad line and plentiful supply of water. Additional facilities were constructed at Mount Hermon and the camp soon became a destination for urban families wishing to relax and enjoy the beautiful surroundings.

Mount Hermon is significant to the County of Santa Cruz because it is one of the few remaining tourist retreats that once were so prolific in the Santa Cruz Mountains. The County of Santa Cruz Survey of Historic Resources designates Mount Hermon as significant within these categories: Context 1 – Economic development in Santa Cruz County (tourism); Context 2 – Architecture; Context 3 – institutions in Santa **Cruz** County (Lehman 1999).

4.1 Sawmill

Graham's lumber mill was among the first water-powered sawmills in California. The structure is said to have been located "on the west bank of Zayante Creek, near its confluence with Bean Creek" (Gudnason 1972:10). Graham and his partners, Joseph Majors, Frederick Hogel and Peter Lassen, drew up an agreement on September 11, 1841 for the construction of the sawmill. Under **Graham's** influence, Mount Hermon became a hub of the California lumbering industry for the next fifty years. In 1843, Graham moved the Zayante Creek sawmill to the junction of Fall Creek and the San Lorenzo River, which eventually lead to the establishment of the town of Felton. According to a local informant the original mill was demolished in the 1870s and much of the lumber was used to build a nearby fuse factory on the Mount Hermon property (Gudnason 1972:10). A small sign atop a wooden barrel has been erected at the site of the former sawmill, but no photographs or maps exist to aid in re-locating the exact location of the building (Photo 2).

EXHIBIT D

4.2 Train Depot

The earliest available photographs of the Zayante Railroad Station show a simple structure on or near the same site as the present depot. An interview by Gudnason with a local informant gives a description of this structure as small with just a roof and a seat down the middle with open sides. According to the same informant the structure was removed sometime in the early 1920s and replaced with the larger depot, which stands today (Gudnason 1972:173).

The extant depot is wood frame construction with rectangular shingle siding on the upper half and horizontal wood siding below, with multipaned casement and bay windows and wooden doors (Photo 3). The depot was constructed in a two level arrangement, one subsurface level where baggage trucks could unload and an upper level for waiting passengers (Photo 4). The depot has undergone changes since the 1920s with new additions on the northern and southern ends for storage and living areas (Photo 5). However, the integrity of the original structure remains intact. Additional landscaping and regular maintenance, including the replacement of windows, shingles, and roofing material, have not affected the overall character of the building. The Mount Hermon Association purchased this building in 1942 from Southern Pacific and remodeled it for summer staff living quarters (Gudnason 1972:176). The building is well maintained and continues to function as staff living quarters.

5.0 Testing **Program**

A subsurface testing program consisting of manual augering was undertaken within the probable sawmill location between October 17-18,2001. A total of 10 auger holes were dug with a 3" diameter auger. Test holes were placed at 3-4 meter intervals along the North-South axis of the sawmill area with the exception of auger hole number ten, which was placed outside of the immediate sawmill location to test for possible alternate locations of the sawmill (Figure 3). Auger holes averaged 30 cm deep; the deepest being 40 cm below the surface. Soil samples from each auger hole were screened through 6 mm (1/4-inch) mesh to help identify cultural materials. Auger logs were maintained for each unit and all holes were immediately backfilled. Table 1 provides a description of the auger testing results.

Test Hole#	Depth Cm	Soil	Munsell	Results
1	0-10	Loosesandy silt, small angular gravels	7.5Y4/3 Brown	
	10-20	loose sandy silt, large (5-10 cm) sub-angular cobbles	7.5Y4/3 Brown	
2	0-10	Loose sandy silt, small angular gravels	7.5Y4/3	
	10-20	Loose sandy silt, large (5-10 cm) sub-angular cobble	7.5Y4/3	1 chert flake (2 cm);4 pieces glass (1 green, 3 clear)

EXHIBIT D

Test Hole #	Depth Cm	*soil*	Munsell	Results
	20-30	More compact sandy silt, large sub-angular cobbles	7.5Y4/3	
3	0-10	Loose sandy silt	7.5Y4/3	1 piece clear glass (2 cm)
	10-20	Loose sandy silt	7.5Y4/3	1 piece thick, cl r, bottle glass
	20-30	More compact sandy silt, large sub-angular cobbles	7.5Y4/3	
	30-40	More compact sandy silt, large sub-angular cobbles	7.5Y4/3	
4	0-10	Loose sandy silt, small sub-angular cobbles	7.5Y4/3	1 piece glass
	10-20	Loose l ilt l sub-angular cobbles	7.5Y4/3	
	20-30	More compact sandy silt, large sub-angular cobbles	7.5Y4/3	
5	**0-10**	Loose sandy silt, large sub-angular gravels	7.5Y4/3	2 chert flakes; 1 piece melted glass (clear)
	10-20	Loose sandy silt, large sub-angular gravels	7.5Y4/3	
	20-30	More compact sandy silt. large sub-angular cobbles	7.5Y4/3	
6	0-10	Loose sandy silt, sub-angular gravels	7.5Y4/3	
	10-20	Loose sandy silt, l angular gravels	7.5Y4/3	
	20-30	More compact sandy silt, large sub-angular cobbles	7.5Y4/3	
7	0-10	Loose sandy silt, sub-angular gravels	7.5Y4/3	
	10-20	Loose sandy silt, sub- g g l	7.5Y4/3	
	20-30	Loose sandy silt, angular gravels	7.5Y4/3	
8	0-10	Loose sandy silt, sub-angular gravels	7.5Y4/3	**1** rusted round nail
	10-20	Loose sandy silt, sub-angular gravels	7.5Y4/3	
	20-30	Loose sandy silt, sub-angular gravels	7.5Y4/3	
	30-40	More compact sandy silt, large sub-angular cobbles	7.5Y4/3	
9	0-10	Loose sandy silt, sub-angular gravels	7.5Y4/3	

41

EXHIBIT D

Test Hole #	Depth Cm	Soil	Munsell	Results
	10-20	Loose sandy silt, sub-angular gravels	7.5Y4/3	
	20-30	Loose sandy silt, sub-angular gravels	7.5Y4/3	
10	0-10	Loose sandy silt, sub-angular gravels	7.5Y4/3	
	10-20	Loose sandy silt, sub-angular gravels	7.5Y4/3	
	20-30	More compact sandy silt, large sub-angular cobbles	7.5Y4/3	

5.1 Soils

Typical soils within the sawmill area were composed of sandy silt topsoil filled with small sub-angular gravels. Below 10 centimeters, large sub-angular cobbles were encountered throughout the testing area. These large cobbles prevented deeper testing via auger in most instances. Attempts to identify this cobble constituent as a discrete layer (as bedrock) were unsuccessful due to the lack of a consistency in cobble depths and locations. This type of sandy, silt-cobble matrix is typical of a meandering stream channel like those of Bean and Zayante creeks. Mechanical testing would be more effective at determining the true nature of this rock layer.

Results of the auger testing program were minimal due primarily to the impenetrable rock layer resulting in the lack of depth for the majority of test holes. However, three chert percussion flakes were recovered within the first 20 cm of the soil deposit. The historic materials recovered during testing cannot be directly related to the sawmill but can be associated with the history of Mount Hermon. Of the eight pieces of glass recovered, at least *two* appeared to be non-modem bottle glass based on the crude, thick nature of the glass. No evidence of a structure was encountered, nor were any artifacts that may be specifically attributed to the presence of a sawmill.

No auger testing was performed at the Southern Pacific Railroad depot due to concrete and landscape coverage. Early photographs of the depot depict a large concrete area surrounding the building, which has been partly removed. Today, the majority of the area surrounding the depot is covered in concrete or asphalt, with landscaped grass and shrubbery filling all other adjacent areas. Therefore, auger testing would be limited to an area outside of the concrete or would have impacted only landscaped and disturbed soils.

6.0 Recommendations

Based upon information gathered during the testing program in conjunction with all previous research conducted within the Redwood Camp area, ENTRIX, Inc. recommends the following:

Historic sawmill area:

1. Due to the shallow rock layer encountered during manual augering and the prehistoric chert flakes recovered, there may be undiscovered cultural material remaining at the sawmill site. Any construction activity within 50' feet that may impact soils below **40** cm should be preceded by a deep testing program in order to determine presence/absence of cultural resources and to fully evaluate potential impacts. Alternatively, a qualified archaeological monitor should be retained during all construction activities within 50' of the historic sawmill area.

Southern Pacific Train Depot

2. The Southern Pacific Zayante train depot at Redwood Camp is considered a significant historic resource for purposes of CEQA. Therefore, any project that:

> "Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5024.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant" (15064.5 CEQA Guidelines).

is required to undergo mitigation pursuant to CEQA Section 15064.59(b) which states the following:

> **"A** lead agency shall identify potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource. The lead agency shall ensure that any adopted measures to mitigate or avoid significant adverse changes are fully enforceable through permit conditions, agreements, or other measures."

7.0 REFERENCES

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8.0 FIGURES

FELTON, CALIFORNIA
1991
COUNTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

1 1/2 0 1mile
1000 0 2000 4000 7000 feet
1 .5 0 1 kilometer

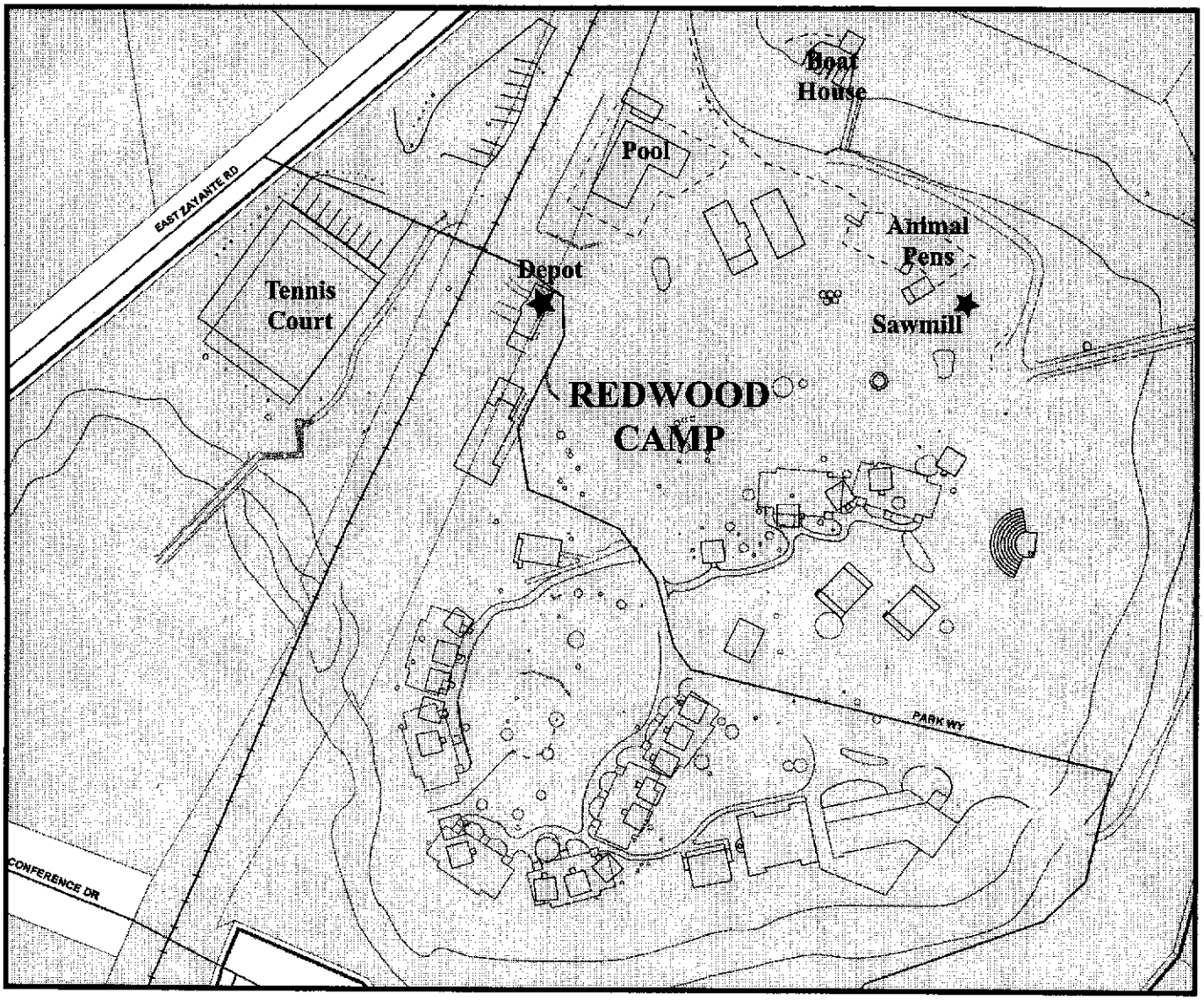
ENTRIX	
Figure 1 **Mt. Hermon** **Vicinity Map**	
Proj. No: 358701	**Date: 12/21/01**

45

EXHIBIT D

FIGURES

EXHIBIT D



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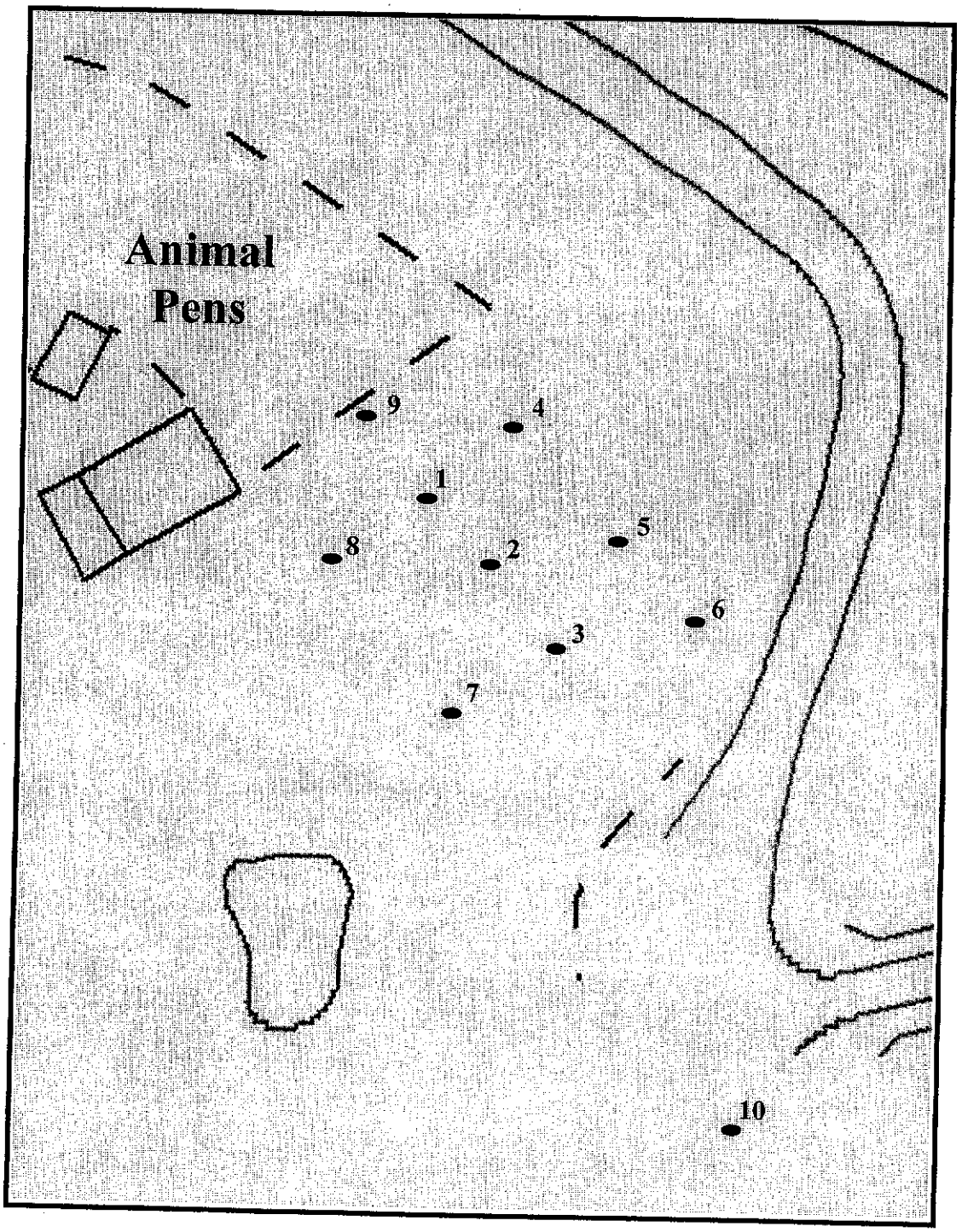
ENTRIX

Figure 2
Overview of Redwood Camp

Proj. No: 358701	Date: 10/21/01

47

EXHIBIT D



0 25 feet

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ENTRIX	
Proj. NO: 358701	Date: 10/21/01

EXHIBIT D

PHOTOGRAPHS

EXHIBIT D

9.0 PHOTOGRAPHS

PHOTO 1. Sawmill Area, Facing North Toward Cabin and Animal Pens.

PHOTO 2. Sign On Barrel Indicating Sawmill Location.

EXHIBIT D

58

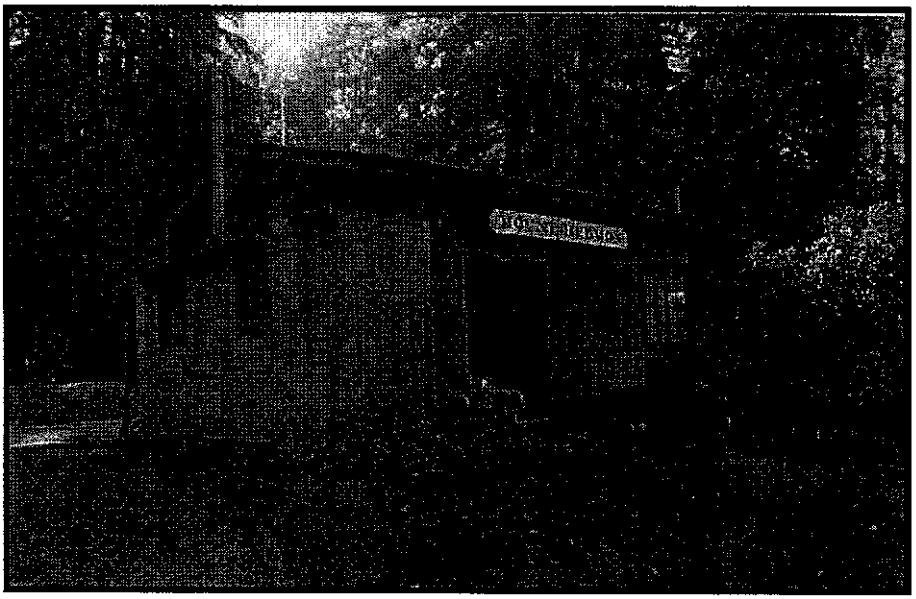


PHOTO 3. Zayante Depot, Shingles, Siding and Original Bay Window, North and West Elevations, Facing South.

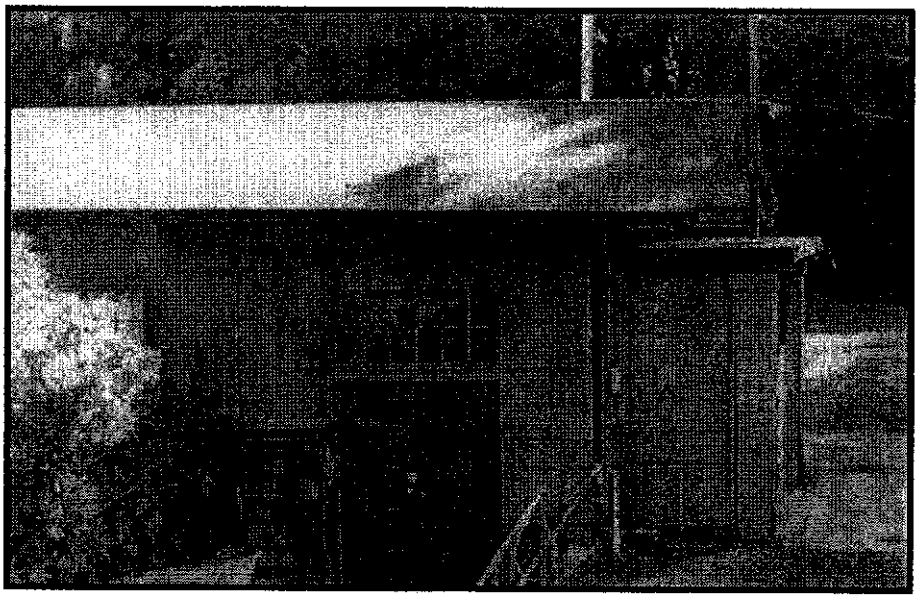


PHOTO 4. Zayante Depot, Two Level Construction; Doors to Lower Baggage Level, West Elevation, Facing East.

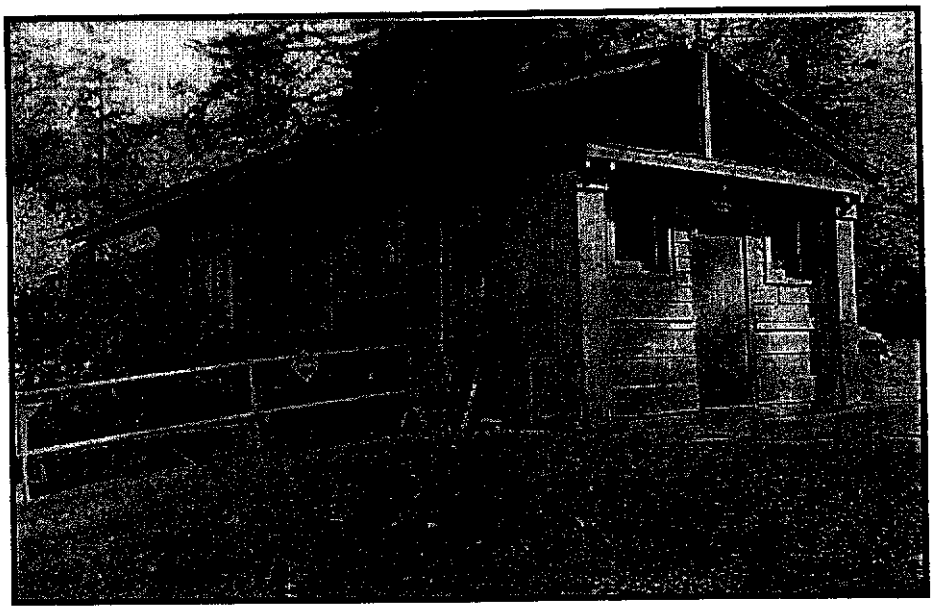


PHOTO 5. Zayante Depot, South Addition, Facing North.

52

EXHIBIT D

10.0 FORMS

DEPARTMENT OF PARKS & RECREATION FORM DPR 523
CONTINUATION SHEET

53

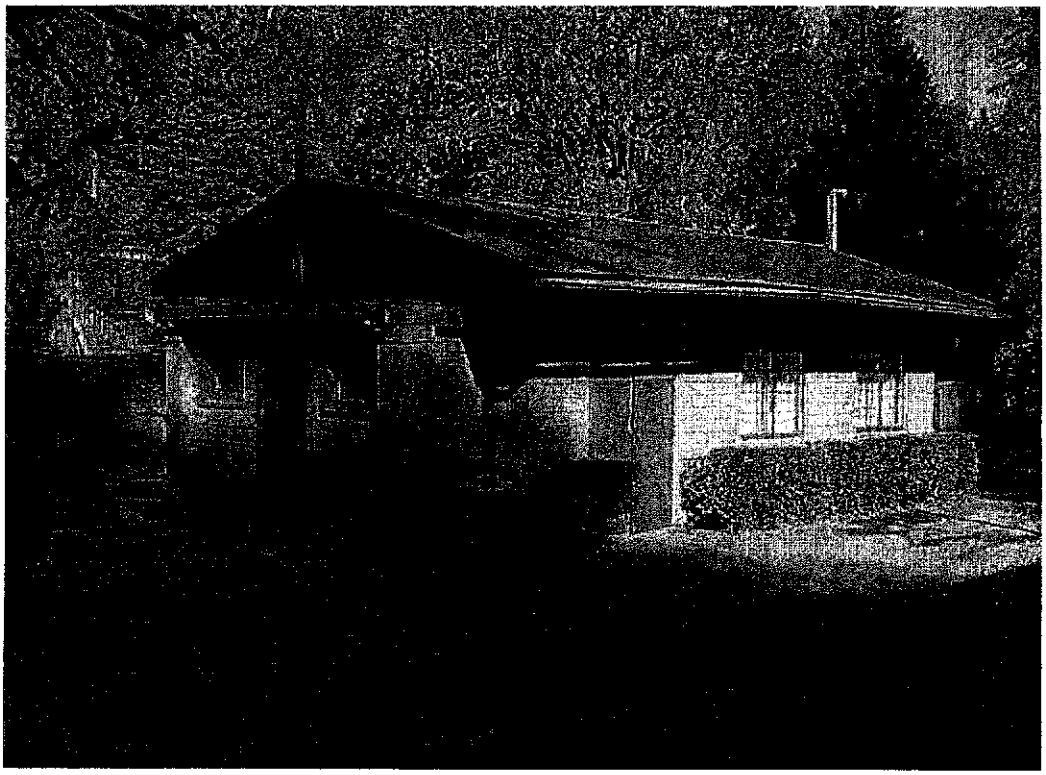
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI #
Trinomial

*Resource Name or # (Assigned by recorder) Southern Pacific Depot

*Recorded by: Brett Rushing *Date: Oct. 17 & 18, 2001 ☒ Continuation ☐ Update

During the field survey and testing program conducted at Mt. Hermon Conference Center on October 17 and 18, 2001, **ENTRIX Inc.** Staff Archeologist, Brett Rushing conducted a thorough investigation of the Southern Pacific Depot. The Depot retains all of the features and components recorded on the September 1988 DPR form. No additional information or changes were noted. (see photo)



ATTACHMENT E

Steven Raas & Associates, Inc.
CONSULTING GEOTECHNICAL ENGINEERS
444 AIRPORT BOULEVARD, SUITE 106 WATSONVILLE, CA 95076
(831) 122-9446 FAX (831) 722-9158
E-MAIL:srai@pacbell.net

0145-SZ41-C55
October 16, 2001
Revised November 14, 2001

Mt. Hermon Association, Inc
P.O. Box 413
Mt. Hermon, CA 95041

Attention: Dale Pollack

Subject: Mt. Herinon Road System Pavement Maintenance Plan
Mt. Hermon, California

Dear Mr. Pollack,

In accordance with your authorization, we have completed an inventory of the slopes on your road system with obvious geotechnical problems and have developed recommendations for ongoing pavement maintenance to satisfy geotechnical concerns. Our work has been perfonned in accordance with our proposal to you dated August 27,2001.

On October 8 and 9, 2001, we traveled all the roadways in the Mt. Hermon Association control as shown on the attached Figure 1, "Site Plan" and visually observed the roadway condition. The Mt. Hermon area is very hilly and the road system reflects that topography. Many of the roads are constructed of cut and fill, with the uphill portion of the roadway having an adjacent cutslope and the downhill portion of the roadway supported on some depth of fill. The underlying soil is mostly Santa Margarita Sandstone with lesser amounts of Monterey Formation mudstone and siltstone. See Figure 2, "Geologic Map". These bedrock types are reflected in the soil conditions evident throughout the area.

The Santa Margarita Sandstone, the dominant soil type in the road system, is geologically very stable and this is reflected in the condition of the road cuts and fills. We observed very little evidence of obvious slope failures in either cut or fill. The majority of the cuts and fills are showing long term stability and are well vegetated. Some minor sloughage of the sands from the cut slopes was observed. This sloughage may result in a maintenance problem but does not, in most cases, represent a stability problem for the slope.

INVENTORY OF EXISTING SLOPES

We have listed the obvious areas of slope instability that need either geotechnical attention presently or will probably need attention in the future. This is not intended to be an

EXHIBIT E

exhaustive list and there may be some areas of geotechnical concern that are present but we will not discuss. In addition, changes in the drainage, new grading, prolonged intense rainfall, or significant seismic shaking niay result in new areas that need attention. The areas of obvious geotechnical concern that we observed are as follows:

1. Conference Drive – the Conference Drive Landslide. This is a very large unstable landslide on the southern side of Conference Drive just below the area where Terrace Drive changes to Grandview Avenue. This landslide is well known and has been studied by many people, including our firm (see our report to you dated March **31,** 2000, our job number 0013-SZ41-C53). The landslide has not been stabilized and stabilization is a complex and potentially very expensive undertaking. Major soil failure could affect both the upslope residence and the downslope residences across and north of Conference Drive.

2. The Manzanita – across from **6** The Manzanita. **A** small erosion gully has formed due to concentrations of water from upslope sources. *An* older wooden retaining wall is adjacent to the active gully which is failing. Drainage improvements should be undertaken to intercept and control the upslope drainage and a small retaining wall could be constructed in order to replace the existing wall and backfill and stabilize the area of erosion.

3. Ridgeway – southeastern cut slope north of house number 42. This cut slope is oversteepened and has areas of slope failures which has resulted in soil in the roadway. **A** retaining wall should be designed and constructed to retain this slope for long term stabilization.

4. Azalea – east of house number 29. **A** cut slope failure needing a retaining wall for long term stability.

5. Woodwardia – at the hairpin leading up to Acacia Avenue. **A** nearly vertical cut slope where a high potential exists for soil slumping onto the road. This area may need a retaining wall to restore long term stability.

PAVEMENT MAINTENANCE PLAN

A plan for maintaining road cuts and road shoulders susceptible to landsliding or debris flows is presented below. This is a general maintenance plan – specific geotechnical issues need to be addressed on a site specific basis by your engineering staff.

1. Concentrations of surface water should be diverted from flowing over the faces of any cut slopes or fill slopes. This can be achieved through the construction of berms, ditches, culverts, or other drainage works. In addition, concentrations of water from upslope properties should be captured in pipes and discharged at safe locations – not over slope faces.

EXHIBIT 6

2. In the fall, on or around October 15, the maintenance staff should travel the road system, cleaning out any accumulations of leaves, soil, and debris which may exist in or around the catch basins and roadside drainage ditches. Inlets and discharge points of all culverts should be observed and debris cleaned out as appropriate.

3. During periods of intense rainfall, maintenance personnel should travel the road system to observe potential areas of poor drainage so that they can be corrected.

4. At the completion of major rainfall events. the maintenance staff should travel the road system and observe the condition of all drainage works, clearing soil and debris which may have washed down during the storm.

5. Areas of new slope construction, both cut and fill, should be vegetated with the vegetation well established prior to the onset of winter rains, approximately October 15.

6. Areas of significant slope movement should be brought to the attention of the engineers for the Association and restorative measures designed and constructed.

This completes our report. The observations and recommendations made in this letter are based upon a visual observation of the existing roadway conditions during our site visit. No subsurface investigation was included in our scope of services on this project. There may be geotechnical issues which exist associated with the Mt. Hermon roadways which are not visually obvious form the ground surface. Our scope of services did not include addressing pavement design or pavement maintenance issues, roadway geometric design issues, or any other issues other than issues pertaining to the road cuts and road shoulders susceptible to landsliding or debris flows. If you have any questions, please contact *us* at your convenience.

Very Truly Yours,

STEVEN RAAS &, ASSOCIATES, INC.

Steven M. Raas
Principal Engineer
G.E. 2039
Exp. 6/30/02

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Copies: 3

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EXHIBIT E

MOUNT HERMON

Mr. Don Bussey
Project Manager
Santa Cruz County Planning
701 Ocean Street, Rm. 400
Santa Cruz, CA 95060

February 16,2004

Subject: Supplemental Report on Development Permit Condition III.E, Financing and Responsibility of Road Maintenance Program.

Dear Don,

Maintenance of all roads within the Mount Hermon community is the responsibility of the Mount Hermon Association, Inc. The Association has two funding mechanisms in place to make sure annual financing is always available. The operating budget is allocated with $80,000, and is used for regular road maintenance projects for the year, and the capital budget is allocated $12,000 for emergency repairs.

If you have any questions, please contact me (831) 430-1204.

Sincerely,

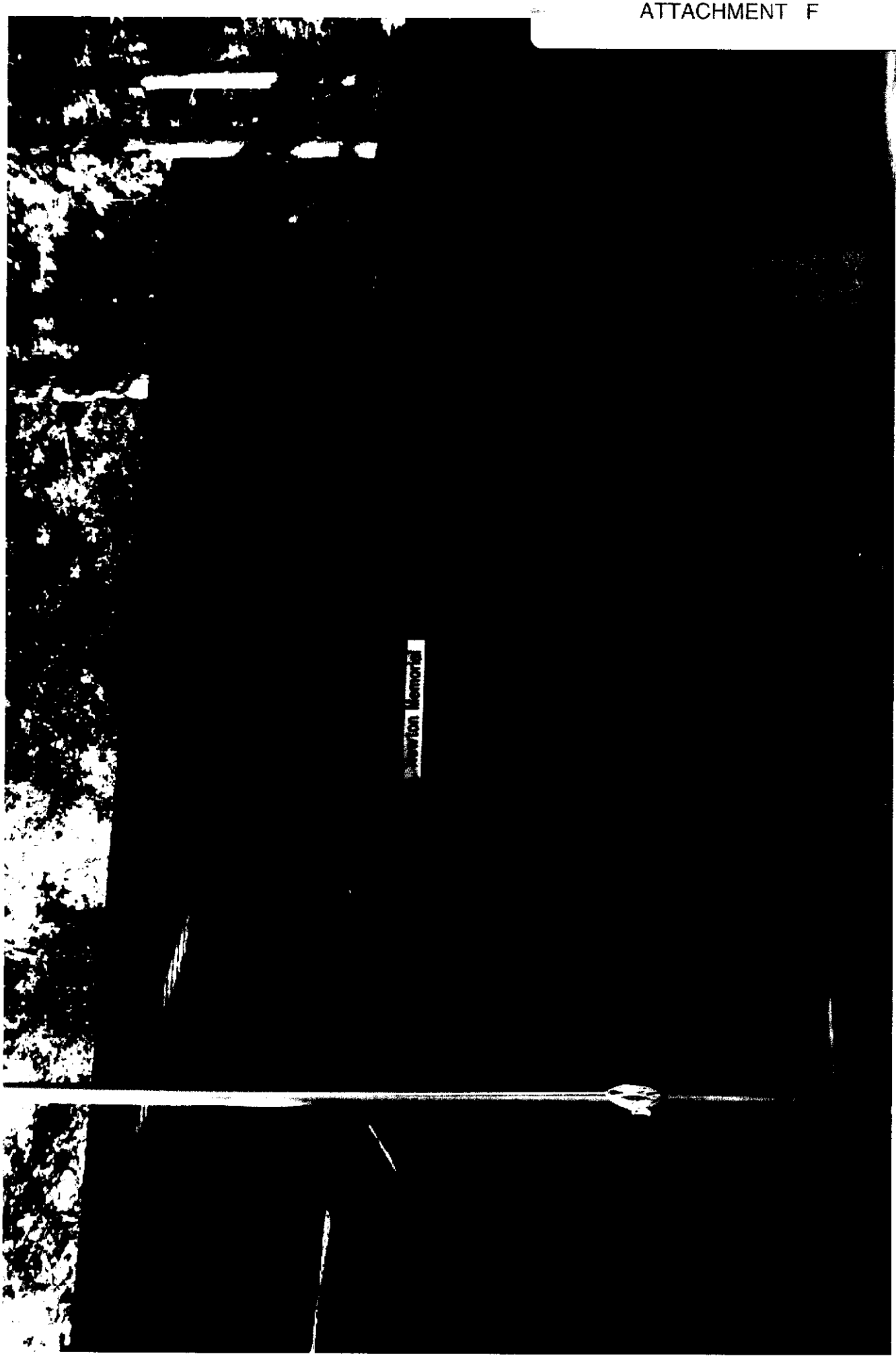
Dale Pollock

Dale Pollock
Technical Resources Manager

Conference Center • Ponderosa Lodge • Redwood Camp
P O Box 413, Mount Hermon, California 95041
Tel 831-335-4466 Fax: 831-335-9218 Web http://www.mounthermon.org/

EXHIBIT E

ATTACHMENT F



ATTACHMENT G

November 27,2001

Michelle Fodge
Development Review Planner
County of Santa Cruz
701 Ocean Street, Rm. 400
Santa Cruz, CA 95060

Subject: Mount Hermon Master Plan Development Permit 98-0046, Approval Condition 111G.

Dear Michelle,

As required under County Conditions of Approval for the approved Mount Hermon Use Permit and Master Plan update, Mount Hermon Association, Inc. is officially withdrawing its original 1996 application (No. 96-136) for a third conventional drinking water supply well

It is Mount Hermon's understanding that the withdrawal of the original 1996 well permit application is necessary to facilitate the forthcoming permit application associated with the well described in the technical memorandum written by Luhdorff & Scalmamini, (*Water Supply Augmentation and Mirigation, December 2000).* Mitigation measures 4.7-1, 4.8-9, and 4.10-3, which are defined in the County Conditions of Approval for Mount Hennon's new Use Permit and Master Plan Update, require implementation of the environmentally superior water supply alternative, known as Alternative 7 ***(Spring*** *Diversion, Direct Use, and In-Lieu Aquifer Rercharge, Luhdorff & Scalmamini, January 2001).*

If you have any questions, please contact me at (831) 430-1204

Sincerely.

Dale Pollock
Technical Resources Manager

Cc: John Ricker
Santa Cruz County
Environmental Health Services

EXHIBIT G

November 30, 2001

John Ricker
Environmental Health Service
County of Santa Cruz
701 Ocean Street, Rm. 312
Santa Cruz, CA 95060

Subject: Mount Hermon Master Plan Development Permit 98-0046, Approval Condition III G.

Dear John,

As required under County Conditions of Approval for the approved Mount Hermon Use Permit and Master Plan update, Mount Hermon Association, Inc. is officially withdrawing its original 1996 application (No. 96-136) for a third conventional drinking water supply well.

It is Mount Hermon's understanding that the withdrawal of the original 1996 well permit application is necessary to facilitate the forthcoming permit application associated with the well described in the technical memorandum written by Luhdorff & Scalmamini, *(Water Supply Augmentation and Mitigation, December 2000).* Mitigation measures 4.7-1, 4.8-9, and 4.10-3, which are defined in the County Conditions of Approval for Mount Hermon's new Use Permit and Master Plan Update, require implementation of the environmentally superior water supply alternative, known as Alternative 7 ***(Spring Diversion, Direct Use. and In-Lieu Aquifer*** *Rercharge, Luhdorff & Scalmamini, Junuun 2001).*

An identical letter has been sent to Michelle Fodge of the Planning Department.

If you have any questions. please contact me at (831) 430-1204

Sincerely,

Dale Pollock
Technical Resources Manager

EXHIBIT G

Winston H. Hickox
Secretary for
Environmental
Protection

California Regional Water Quality Control Board
Central Coast Region

Internet Address: http://www.swrcb.ca.gov/rwqcb3
81 Higuera Street, Suite 200, San Luis Obispo, California 93401-5411
Phone (805) 549-3147 • FAX (805) 543-0397

Gray Da
Governa

December 20,2001

Mr. Dale Pollock
Technical Resources Manager
Mount Hermon Association, Inc.
P.O. Box 413
Mount Hermon, **CA** 95041

Dear Mr. Pollack:

REVISED MONITORING AND REPORTING PROGRAM NO. 99-93, MOUNT HERMON WASTEWATER TREATMENT FACILITY, SANTA CRUZ COUNTY – ORDER NO. 99-93

On May ***28,*** 2001, and in accordance with Order No. 99-93, you submitted a report on the subject facility's nitrogen reduction results over the previous 18-month period. Regional Board staff **has** determined that the facility has consistently achieved at least a 50 percent reduction in nitrogen in its wastewater effluent, and that the leachfield performance has been satisfactory.

Please find attached revised Monitoring and Reporting **Program** (MRP) No. 99-93 (superseding previous version dated October ***22,*** 1999). The following revisions have been made:

1. The wastewater influent and effluent nitrogen sampling frequency was changed from every two weeks *to* monthly;

2. The monitoring report submittal frequency was changed **from** semi-annual to quarterly, and;

3. **In** recognition of the scheduled increase in waste **loading** to the facility per Order No. 99-93, the MRP has been modified to reinstate the intensive wastewater influent and effluent nitrogen monitoring and reporting for three months after each additional source is connected to the facility.

These revisions were reported to the Regional Board at its regularly scheduled public meeting on December **7,** 2001. It is staff's understanding that you will affect the revised **MRF'** on January 1,2002.

If you have any questions regarding the above, please contact **Mr. Todd *Stanley* at (805) 542-4769** or Tstanley@rb3.swrcb.ca.gov, or Mr. Chris Adair at (805) **549-3761.**

Sincerely,

for Roger W. Briggs
Executive Officer

Enclosure: Monitoring and Reporting Program No. 99-93, revised December **7,2001**

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Task 121-80
File Discharger file; Mount Hermon Assoc ,Inc Mount Hermon Conference Center

California Regional Water Quality Control Board
Central Coast Region

Winston H. Hickox
Secretary for Environmental Protection

Internet **Address:** http://www.swrcb.ca.gov/rwqcb3
81 Higuera Street, Suite 200, San **Luis** Obispo, **California** 93401-5411
Phone (805)549-3147• PAX (805)543-0397

Gray Davis
Governor

October 9,2002

Mr. Dale Pollock
Technical Resources Manager
Mount Hermon Association, Inc.
P.O. Box 413
Mount Hermon, CA 95041

Dear Mr. Pollack:

SANITARY SEWER, LIFT STATION UPGRADE – REDWOOD CAMP COLLECTION SYSTEM PROJECT, MOUNT HERMON WASTEWATER TREATMENT FACILITY, SANTA CRUZ COUNTY, ORDER NO. 99-93

The Regional Board has received and reviewed the report, *Sanitary Sewer, Lift Station Upgrade Redwood Collection System Lift Station and Force Main Addition,* dated September 2002, and associated drawings. The project is being conducted to comply with Waste Discharge Requirements Order No. 99-93, Provision D.4, which requires the incorporation of domestic wastewater from Redwood Camp into the centralized wastewater treatment system.

Per our telephone conversation of October 3, 2002, staff understands that the wastewater disposal system currently in use at Redwood **Camp** will remain completely functional during the subject project. Best management practices will also be employed to minimize erosion and sedimentation from project areas. Staff has no further comments on the report.

Thank you for the opportunity to comment. **if** you have questions regarding the above, please contact **Todd** Stanley **at (805) 542-4769** or Tstanley@rb3.swrcb.ca.gov, or Chris Adair at (805) **549-3761.**

Sincerely,

Chris Adair

for Roger W. Briggs
Executive Officer

S:\WB\Northern Watershed\TLS\WDR\Mount Hermon Assoc Inc - Mt Herman Conf Cntr\Mt Hermon - Redwood **Camp** Proj doc
Task: 121-20
File: Discharger file; Mount Hermon Assoc., Inc Mount Hermon Conference Center

EXHIBIT G

Description of Work

For

Sanitary Sewer Lift Station Upgrade Redwood Collection System Lift Station and Force Main Addition

Mount Hermon, California
September 2002

Owner:
Mount Hermon Association, Inc.
37 Conference Drive
Mount Hermon, CA 95041

Engineer/Contractor:
Ecosystems Design & Development, Inc.
9486 E. Lincoln Ave.
Del Rey, CA 93616

EXHIBIT ti

Summary

The basic function of this additional construction project is as follows:

1. Remove all leach lines from the Redwood Camp system, collect all wastewater from the camp and pump it into the main Mount Hermon collection system.
2. [redacted]
3. [redacted]
4. Remove three single pump stations from the existing force main system to the existing wastewater plant.
5. Provide standby power to Redwood, Victory and the Wastewater Plant
6. Provide telemetry from each of the new facilities for SCADA system and main camp alarm system.

Mount Hermon Association, Inc. is planning to upgrade their Redwood Camp sewer system. They will remove the leach lines and pump the septic tank effluent into their existing wastewater collection system and on to their wastewater treatment plant. This will include the addition of collection lines, duplex lift station and force main at Redwood Camp, tying it into the existing sanitary sewer collection system. The Victory Circle duplex lift station will be remodeled with pumps that are capable of pumping the entire collection system to the existing wastewater treatment facility. This remodel of the Victory Circle Lift Station will allow Lift Stations No. 1, 2 & 3 with single pumps to be bypassed and abandoned. Each lift station will include new PG&E electrical service and a 105KW 480/240 volt 3 phase diesel driven generator installed and connected to each lift station through a manual triple pole double throw switch

All improvements shall be made upon land owned by Mount Hermon Association, Inc. All the pipe lines shall be laid in land and roads owned and controlled by Mount Hermon Association, Inc.

U.S.A Alert shall be called and construction shall not start until underground utilities are located

Redwood

Collection System

A four-inch SDR-35 PVC collection line will be installed. This line will be collecting the wastewater from the effluent side of five *(5)* existing septic tanks. The line will start at the Trading Post where it will tie into the effluent end of its existing septic tank. It will then continue in a Southwestern direction for a distance of approximately 150 Lineal Feet through the Redwood Camp Recreation Field area at a slope of **2.0%** maintaining a minimum two-foot of cover. (Note: A cleanout will be provided at each horizontal change of direction and vertical change of slope). Near the edge of pavement, the line will turn approximately 30° where it will then follow the edge of the road towards the girls' cabins for a distance of approximately **175** Lineal Feet at a slope of 6.3% maintaining a minimum of two-foot cover. **Near** the girls' restroom, the four-inch line bends approximately **45"** to the southeast. Just down stream of this bend, a four-inch lateral will be provided (INV **284.00ft)** to receive the effluent from the septic tank near the boys' rest room. This septic tank also ***accepts*** the effluent from **the** staff housing on the northwest side of the Redwood Recreation Field. The four-inch main will then continue to the proposed Redwood Lift Station for a distance of approximately **75** feet where it will enter at an invert elevation of 273.00ft. Just before the gravity main enters the lift station, a four-inch lateral will be provided (INV 273.00ft) for the two staff housing units just to the north of **the** Zyante Dinning Hall. An independent four-inch line will flow from the effluent of the existing septic tank off of the girls' restroom at an estimated invert elevation of **270.75ft** for a **distance** of approximately 150 Lineal Feet at a slope of 0.9% entering the lift station at an invert elevation of **270.00ft**. Another independent line will be installed **tying** into the effluent line of ***the*** existing septic tank off the kitchen of the Zyante Dinning Hall. This four-inch line will flow for approximately **75** Lineal Feet at a slope of 1.0% entering the lift station at **an** invert elevation of **270.50ft**.

Lift Station

The Redwood duplex lift station will be locatedjust north of the Zyante Dining Hall in **the** Redwood Camps area of the Mount Hermon Conference Center. The lift station will be located a minimum of 120 Lineal Feet from the Zyante Stream edge. The excavation for this **lift station** shall be 96 cubic yards. The spoils shall be divided One pile (approximately **25** c.y) which will be covered by 6 mil Plastic tarp and weighted **down** for one **week** until it is **used** for backfill. The remaining 69 c.y. will be hauled to the Corporation yard and spread in a **compacted** fill of 8 inches. The lift station will be constructed of Reinforced Concrete Pipe (RCP) five–foot in diameter with a concrete base and deck It is expected that the Peak Wet Weather Flow rate to

this lift station is 30 gal/min (20 gal/min $_{(ave)}$). The lift station will consist of duplex Pumpex K89 F-VE1170 18.5Hp/480V/3Phase, 3480rpm non-clog pumps that are each designed to produce 40 gal/min at 147 TDH. The depth of the wet well is twelve feet. Each pump is capable of pumping the expected instantaneous peak hour wet weather flow rate of 40 gal/min. In the event of influent flow rates greater than 40 gal/min, both pumps will be activated. Each pump can be alternated as lead-lag in service and each will be called upon via float activated circuits. Each submersible pump will he mounted on a pair of stainless steel guide rail that will allow the pumps to he removed from the wet well without entry. An aluminum H-20 access hatch will provide access to the wet well. The pumps and appurtenances in the wet well are specified explosion-proof The wet well will have a wash down system controlled by timers for duration and frequency. The nine high-pressure water jets will wash the walls and under deck of the wet well with potable water protected with a double backflow preventor from a local water service. A high-level float will activate an alarm to the existing main camp alarm system if both pumps fail and the high level is reached.

Lift Station Controls

A new control panel will be provided along with new electrical PG&E service main for the lift station. A 105 KW 480/240V diesel driven generator will be installed and connected to this lift station through a manual triple pole double throw switch to provide electrical backup in case of power outage. The control panel will contain elapse time meters, a lead/lag controller, H-O-A's, and MiniCAS relays for the pumps. A float tree consisting of four (4) floats controls when the pumps turn on and off. The shutoff float will be set so that it will be actuated when the level in the wet well reaches and elevation of 266.00ft. The lead pump will turn on when the level in the wet well reaches 267.50ft. The lag pump will turn on when the level reaches 269.00ft. If both pumps fail, a high level float will be actuated at an elevation of 269.50ft. A universal irrigation timer will control the lift station wash down valve for time and duration

A new P.G. & E. electrical service and meter with main switch and duplex new control switch gear mounted in a minimum Nema 3R enclosure will be provided. All new equipment shall be bended into the surrounding landscape. A 110 volt service outlet and a 150 watt switched light shall be provided. A ¾" X 10 ft. copper ground rod with #2 copper wire shall be provided and bonded to the panels.

Pump Cycling and Reserve Storage Capacity

Design Drawdown = $1.5' \times 2\pi \times 2.5^2 \times 7.48 = 440$ gallons

440 gallons ÷ 40 gal/min =11 minutes (Total drawdown time w/o influent)–> try 13minutes...

(13min x 20 gal/min + 440gal) ÷ 40 gal/min = 17.5minutes (total drawdown time with influent)

Time to refill to "Pump On" level = 440 gal ÷ 20 gal/min = 22 minutes

Total cycle time = 17.5 + 22 = 39.5minutes = 1.54 cycles per hour.

Force Main

From the lift station, the wastewater will flow through a 2 ½" SDR-21 rubber gasket PVC Class 200 pipe at a rate of 40 gal/min (2.4 ft/sec) from Redwood Camps across the existing concrete bridge ma a rigid double containment pipe and securely fastened to the bridge, up the hill through the parcel in which Hillside is located (APN 066-101-26) along Park Way and up to Conference Drive where the force main will follow along the southern side of the road and will tie into an existing manhole at an invert elevation of 396.40±ft located near the existing Post Office. From this manhole, it will flow into the Victory Circle Lift Station through the existing six-inch gravity sewer main, A #12 copper wire will be buried with this force main for future detection. There will be a 2" conduit ran with this force main for running as well as alarm telemetry from the Redwood lift station to the main administration office and alarm system.

Victory Circle

Collection System

A new six-inch SDR-35 gravity line will be installed beginning near the existing Lift Station #1. A four-inch lateral is provided to connect the effluent of the existing clarifier (estimated invert elevation of 370.00±ft) abandoning the existing rock filter. The collection line will flow for approximately 100 Lineal Feet at a slope of 0.85% to Manhole #1. A lateral will be provided to connect the existing effluent of the existing septic tank from the *Azalea* Lodge and another four-inch lateral for a future tie-in of El-En-Roc. From Manhole #1, the six-inch collection line will flow for approximately 300 Lineal Feet at a slope of 10.7% to Manhole #2. Three (3) four-inch laterals will be provided for future tie-in, one for the existing Auditorium, one for future restrooms, and one for the existing Lilac Lodge. From Manhole #2, the six-inch collection line will flow into the Victory Circle Lift Station (invert elevation 343.00ft).

Lift Station

The existing Victory Circle Lift Station is constructed of two wet wells, both six-foot diameter and 12.75ft deep. The lift station will need to remain operational during the retrofitting process. Wet well #1 contains the existing pumps and piping for the lift station. The new pumps, guide rails, floats, etc, will be located in wet well #2. To isolate wet well #2 from wet well #1, the

existing eight-inch line connecting the two wet wells at the base will be plugged. At this time, there is no influent to wet well #2 so no flow will need to be redirected from wet well #2 to wet well #1. Once isolated, a submersible pump will be used to pump any remaining wastewater from wet well #2 to wet well #1. The existing manhole frame, cover and upper cone to wet well #2 will then be removed, involving a 25 c.y. excavation and backfill. The new six-foot diameter vertical barrels will be installed, with a six-inch influent line from the new collection line, a four-inch vent connecting to the existing vent of wet well #1 and the existing vent up a nearby tree. A new reinforced concrete lid will be cast with an aluminum hatch rated for H-20 loading. The new pumps, guide rails, floats, and piping will then be installed and once operational, the plug between the two wet wells will be removed and the existing pumps and piping in wet well #1 will be removed.

A new P.G. & E. electrical service and meter and main switch with duplex control switch gear mounted in a minimum Nema 3R enclosure will be provided. All new equipment shall be bended into the surrounding landscape. A 110 volt service outlet and a 150 watt switched light shall be provided A ¾" X 10 ft. copper ground rod with #2 copper wire shall be provided and bonded to the panels.

It is expected that the Peak Wet Weather Flow rate to this lift station is 120 gal/min (90 gal/min (ave)). At the lift station has a capacity 256 gal/vertical foot The lift station will consist of two (2) Pumpex K89 F-VE1232 32Hp/480V/3Phase, 3480rpm non-clog pumps that are each designed to produce 150 gal/min at 256 TDH. The depth of the wet well is 12.75 ft. Each pump is capable of pumping the expected instantaneous wet weather flow rate of 150 gal/min. In the event of influent flow rates greater than 150 gal/min, both pumps will be activated. Each pump can be alternated as lead-lag in service and each will be called upon via float activated circuits. Each submersible pump will be mounted on a guide rail that will allow for the pumps to be removed from the wet well without entry. An aluminum access hatch will provide access to the wet well. The pumps and appurtenances in the wet well are specified explosion-proof The wet well will have a wash down system controlled by timers for duration and frequency. The nine high-pressure water jets per wet well will wash the walls and under deck of the wet well with potable water protected by double check valve backflow preventor from a local water service. A high-level float will activate an alarm to the existing main camp alarm system if both pumps fail and the high level is reached.

Lift Station Controls

A new control panel will be provided along with new electrical PG&E service main for the lift station. A 105 KW 480/240V diesel driven generator will be installed and connected to this lift

station through a manual triple pole double throw switch to provide electrical backup in case of power outage. The control panel will contain elapse time meters, a lead/lag controller, H-O-A's, and MiniCAS relays for the pumps. A float tree consisting of four (4) floats controls when the pumps turn on and off. The shutoff float will be set so that it will be actuated when the level in the wet well reaches and elevation of 337.00ft. The lead pump will turn on when the level in the wet well reaches 338.50ft. The lag pump will turn on when the level reaches 340.00ft. If both pumps fail, a high level float will be actuated at an elevation of 341.50ft. A universal irrigation timer will control the lift station wash down valves for time and duration

Pumo Cycling and Reserve Storage Capacity

Design Drawdown = 2ea x 1.5' x 2π x 3^2 x 7.48 = 1269 gallons

1269 gallons ÷ 150 gal/min = 8.5 minutes (Total drawdown time w/o influent) –> try 10min

(10min x 90 gal/min + 1269gal) ÷ 150 gal/min = 14.5 minutes (total drawdown time with infl.)

Time to refill to "Pump On" level = 1269 gal ÷ 90 gal/min = 14.1 minutes

Total cycle time = 14.5+ 14.1 = 28.6 minutes = 2.1 cycles per hour.

Force main

The pumps will discharge into a six-inch C-900 PVC force main that will be restrained for a minimum of 40 lineal feet beyond the lift station to prevent the joints from "pulling" apart. The force main will parallel the new six-inch gravity sewer up hill towards the Azalea Lodge and tie into the existing six-inch PVC line down stream of the existing Lift Station #1. Once the new pumps are capable of being placed on line but before the existing pumps are removed from Victory Circle Lift Station, bypasses will be installed around Lift Station #2 and #3 with valuing that will allow the existing lift stations to remain operational. At the same time, valuing will be installed on the effluent side of Lift Station #1 that will allow the lift station to remain operational until Victory Circle Lift Station is complete and the tie-in is made. Once all bypasses are in place and the Victory Circle Lift Station is tested and on line, all valuing shall be set to bypass lift stations #1, #2 and #3. The new pumps will be turned on and allowed to slowly fill the effluent line to prevent the new pumps from overheating.

Existing Lift Stations

Once the new Victory Circle pump station is competed and fully tested, the pump stations #1, #2 and #3 will be bypassed out of service. The pumps and piping in the existing Lift Stations #1, #2, and #3 will be removed and any remaining water in the lift stations will be pumped. A four-inch hole will then be made in the bottom of each abandoned lift station to allow for any future

rain or surface water that may collect to drain easily and each lift station will be filled with compacted sand. The electrical services shall be removed from each of these three pump stations.

Existing Wastewater Plant

At the existing wastewater plant and pump station #4, a 105 KW 480/240V diesel driven generator will be installed and connected to this main service to the lift station and wastewater plant through a manual triple pole double throw switch to provide electrical backup in case of power outage. A ¾" X 10 ft. copper ground rod with #2 copper wire shall be provided and bonded to the panels.

A commercial power failure alarm will be installed alarming the automatic dialer to the operator on duty as well as the main camp administration

Telemetry of powerfailure and high level alarms

Each new Lift station and the existing wastewater plant will be updated with power failure alarms, high level alarms and running status of each pump. The new alarms and run indications will be added to the existing SCADA system which has automatic dial out facilities to designated operators on duty and to the main Camp alarm system.