

**INITIAL STUDY
AND NEGATIVE DECLARATION
FOR THE WARHEIT WELL
WATER SUPPLY ALTERNATIVE
PESCADERO, CALIFORNIA**

FINAL

October, 1987

San Mateo County

SCH 87090801

8025

(ENDORSED)

FILED

OCT 14 1987

NOTICE OF DETERMINATION

County Government Center
Redwood City, California 94063

WARREN SLOCUM, County Clerk
By CHRISTINA SANCHEZ
DEPUTY CLERK

This Notice has been prepared in compliance with the California Environmental Quality Act of 1970, Section 21152. The County of San Mateo has determined to approve the following project.

LEAD/RESPONSIBLE AGENCY OR DEPT.: San Mateo County

PROJECT TITLE: Pescadero Community Water System

PROJECT LOCATION: Pescadero, California

PROJECT DESCRIPTION: Development of a community water supply system consisting of a groundwater supply, treatment, storage, distribution and maintenance facilities. A County Service Area will be formed to operate the system. A fire protection system is optional.

The following environmental document was prepared pursuant to CEQA and certified as required by the San Mateo County Environmental Impact Report Guidelines:

Negative Declaration X Environmental Impact Report

Date of Completion of Final Document: October 13, 1987

The above environmental document is available at the offices of the Planning Division, County Government Center, 590 Hamilton Street, Redwood City, California between the hours of 8 a.m. and 5 p.m. of any working day.

The County of San Mateo hereby certifies that this environmental document has been completed in compliance with CEQA and all applicable State and local guidelines, and that the contents of this document have been reviewed and considered in reaching a decision on this project.

IT HAS BEEN DETERMINED THAT THE SUBJECT PROJECT IN ITS APPROVED FORM WILL NOT HAVE SIGNIFICANT EFFECT ON THE ENVIRONMENT.

A STATEMENT OF OVERRIDING CONSIDERATIONS HAS NOT BEEN ADOPTED FOR THE PROJECT.

MITIGATION MEASURES ADOPTED TO REDUCE IMPACTS OF THE PROJECT: See attached

October 14, 1987
Date

James L. Sweeney
Project Planner

MITIGATION MEASURES

- o All facilities shall be constructed in compliance with the San Mateo County Uniform Building Code and the recommendations of the County Geologist.
- o. A contingency water supply shall be planned in the event that normal system operations are interrupted.
- o The water storage tank shall be placed in an area of less than 30% slopes, away from areas highly susceptible to landsliding.
- o All areas graded for treatment plant and storage tank pads and access roads shall be revegetated with native plant species. Undesirable species such as pampas grass shall be grubbed out until native species have been established.
- o Storm water runoff from paved areas shall be controlled to reduce erosion.
- o The water storage tank and other facilities open to public view shall be painted a color compatible with their location.
- o The treatment plant and storage tank site shall be landscaped to partially screen the facilities from public view.
- o All above-ground facilities shall be sited above the level of the 100-year flood.
- o Landowners of property acquired for necessary facilities shall be properly compensated.
- o A long-term monitoring program shall be established to regularly monitor water levels and groundwater quality for all new and existing wells to reevaluate the viability of the local aquifer system as a long-term water supply for the community.
- o A monitoring well shall be installed between the water supply well or wells and the Pescadero Solid Waste Disposal Site. The groundwater shall be tested regularly for the presence of contaminants from landfill leachate.

RESOLUTION NO. 49689

BOARD OF SUPERVISORS, COUNTY OF SAN MATEO, STATE OF CALIFORNIA

* * * * *

A RESOLUTION CERTIFYING THE NEGATIVE DECLARATION FOR
THE COMMUNITY OF PESCADERO WATER SUPPLY PROJECT AND
ADOPTING FINDINGS THAT THE PROJECT WILL RESULT
IN NO SIGNIFICANT ENVIRONMENTAL IMPACTS

* * * * *

RECITALS

WHEREAS, it is the policy of the County of San Mateo, as provided in the California Environmental Quality Act of 1970, as amended, and the provisions of Title XIV, California Administrative Code, Guidelines for Implementation of the California Environmental Quality Act of 1970 (hereinafter "CEQA" and "Guidelines," respectively), that the County will inform decision makers, other agencies, and the general public of the environmental effects of the projects the County proposes to carry out or approve, and

WHEREAS, under Section 15092 of the "Guidelines," the County may decide to approve a project if the project as approved will not have a significant effect on the environment, and

WHEREAS, an expanded Initial Study in the form of an Environmental Assessment of the Water Supply Alternatives for the Community of Pescadero and Negative Declaration have been prepared and circulated, pursuant to the requirements of CEQA, Guidelines and County adopted objectives and procedures for the evaluation of projects and the preparation of environmental impact reports and negative declarations pursuant to CEQA, and

WHEREAS, the San Mateo County Planning Commission held a public hearing September 23, 1987, to review the proposed Negative Declaration to include the expanded Initial Study and hear testimony concerning the potential environmental impacts of the water supply alternatives, and

WHEREAS, responses to comments on the Negative Declaration have been prepared, and

NOW, THEREFORE, IT IS HEREBY RESOLVED, based on the evidence contained in the expanded Initial Study and presented in testimony during the public hearings, that the Board hereby finds that there is no substantial evidence that the Pescadero Community Water Supply Project, subject to the mitigation measures identified in the expanded Initial Study, will result in any significant environmental impacts, and

BE IT FURTHER RESOLVED, that the Board of Supervisors of the County of San Mateo hereby certifies the Negative Declaration for the Community of Pescadero Water Supply Project as complete, correct and adequate and prepared in accordance with California Environmental Quality Act and all applicable State and County Guidelines.

Regularly passed and adopted this 13th day of October, 1987.

AYES and in favor of said resolution:

Supervisors: MARY GRIFFIN

TOM HUENING

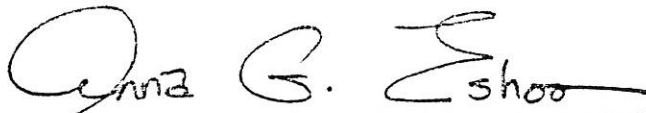
ANNA G. ESHOO

NOES and against said resolution:

Supervisors: NONE

Absent Supervisors: TOM NOLAN

WILLIAM J. SCHUMACHER



Acting President, Board of Supervisors
County of San Mateo
State of California

Certificate of Delivery
(Government Code section 25103)

I certify that a copy of the original resolution filed in the Office of the Clerk of the Board of Supervisors of San Mateo County has been delivered to the President of the Board of Supervisors.



EUNICE M. BRECHT
Clerk of the Board of Supervisors

8013

COUNTY OF SAN MATEO, PLANNING DIVISION

NEGATIVE DECLARATION

A notice, pursuant to the California Environmental Quality Act of 1970, as amended (Public Resources Code 21,000, et seq.) that the Pescadero Community Water Supply System, when implemented, will not have a significant impact on the environment.

FILE NO: EP 85-24

APPLICANT: San Mateo County Department of Public Works

PROJECT DESCRIPTION AND LOCATION

FILED

SEP 22 1987

WARREN SLOCUM, County Clerk

By LESLIE A. HOUTIBACK

DEPUTY CLERK

Development of a community water supply system consisting of a groundwater supply, treatment, storage and distribution facilities. A fire protection system, consisting of additional water storage, larger mains and fire hydrants, is optional. A public entity, such as a County Service Area, must be formed to operate the system. All connections to the proposed water system will be within the boundaries of the Pescadero Rural Service Center. Supply, treatment and storage facilities may be located southwest of Pescadero near Bean Hollow Road on County-owned land.

FINDINGS AND BASIS FOR A NEGATIVE DECLARATION

The Planning Division has reviewed the Environmental Assessment for the project and, based upon substantial evidence in the record, finds that:

1. The project will not adversely affect water or air quality or increase noise levels substantially;
2. The project will not have adverse impacts on the flora or fauna of the area;
3. The project will not degrade the aesthetic quality of the area;
4. The project will not have adverse impacts on traffic or land use;
5. In addition, the project will not:
 - a. Create impacts which have the potential to degrade the quality of the environment.
 - b. Create impacts which achieve short-term to the disadvantage of long-term environmental goals.
 - c. Create impacts for a project which are individually limited, but cumulatively considerable;
 - d. Create environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.

The County of San Mateo has, therefore, determined that the environmental impact of the project is insignificant.

MITIGATION MEASURES included in the project to avoid potentially significant effects:

- o All facilities shall be constructed in compliance with the San Mateo County Uniform Building Code and the recommendations of the County Geologist.
- o. A contingency water supply shall be planned in the event that normal system operations are interrupted.
- o The water storage tank shall be placed in an area of less than 30% slopes, away from areas highly susceptible to landsliding.
- o All areas graded for treatment plant and storage tank pads and access roads shall be revegetated with native plant species. Undesirable species such as pampas grass shall be grubbed out until native species have been established.
- o Storm water runoff from paved areas shall be controlled to reduce erosion.
- o The water storage tank and other facilities open to public view shall be painted a color compatible with their location.
- o The treatment plant and storage tank site shall be landscaped to partially screen the facilities from public view.
- o All above-ground facilities shall be sited above the level of the 100-year flood.
- o Landowners of property acquired for necessary facilities shall be properly compensated.
- o A long-term monitoring program shall be established to regularly monitor water levels and groundwater quality for all new and existing wells to reevaluate the viability of the local aquifer system as a long-term water supply for the community.

RESPONSIBLE AGENCY CONSULTATION

California Coastal Commission
California Department of Health Services
California Department of Water Resources

REVIEW PERIOD September 8 to October 5, 1987 .

All comments regarding the correctness, completeness, or adequacy of this Negative Declaration must be received by the County Planning Division, 590 Hamilton Street, Redwood City, no later than 5:00 p.m., October 5, 1987 .

CONTACT PERSON

Jim Sweeney, (415) 363-4161



Roman Gankin, Principal Planner

ENVIRONMENTAL ASSESSMENT OF
WATER SUPPLY ALTERNATIVES
FOR THE
COMMUNITY OF PESCADERO, CALIFORNIA

OCTOBER, 1987

Prepared for
San Mateo County

Prepared by
Thomas Reid Associates
Palo Alto, California

PESCADERO WATER SUPPLY
ENVIRONMENTAL ASSESSMENT
TABLE OF CONTENTS

CHAPTER		PAGE
I	SUMMARY	1
II	PROJECT DESCRIPTION	8
	A. Setting	8
	B. Project Objective	11
	C. Water Supply System Components	13
	1. Water Source	13
	2. Raw Water Storage	14
	3. Water Treatment	15
	4. Distribution System	17
	5. Treated Water Storage	17
	D. Water Supply System Alternatives	18
	1. Warheit Wells	19
	2. Potable Quality Wells	21
	3. Conjunctive Supply -- Honsinger Creek and Brackish Wells	22
	4. Other Water Systems Recently Examined	23
	5. Brackish Water Wells	24
	E. Institutional Arrangement	24
	1. System Operator	24
	2. Service Priorities	25
	3. Funding	25
	F. Water Conservation Measures	25
	G. Contingency Supply	26
	H. Economic Characteristics	26
	1. Basic System	26
	2. Fire Protection	31
	3. Future Community	31
	4. Land Acquisition	31
III	CONFORMANCE WITH PLANS, ORDINANCES AND POLICIES	34
	A. Federal	34
	1. Safe Drinking Water Act, 1986 as amended	34
	2. United States Fish and Wildlife Service/ Endangered Species Act, 1973 as amended	34
	3. United States Army Corps of Engineers	35
	B. State of California and Regional Agencies	35
	1. California Safe Drinking Water Act, 1986 as amended	35
	2. State Drinking Water Bond Law, 1986 as amended	36
	3. California Department of Fish and Game	36
	4. California Department of Forestry	37
	5. California Coastal Commission	38
	6. California Department of Parks and Recreation	38
	7. California Water Resources Control Board	38
	8. California Waterworks Standards	39
	9. Regional Water Quality Control Board	39

	10. Local Agency Formation Commission (LAFCo)	39
C.	San Mateo County	40
	1. San Mateo County General Plan	40
	2. Local Coastal Program	41
	3. San Mateo County Fire Ordinance	45
	4. San Mateo County Environmental Health Department	46
	5. San Mateo County Department of Public Works	46
D.	Summary of Possible Permits or Other Actions Required	47
IV	ENVIRONMENTAL SETTING	48
	A. Geology, Soils and Seismic Safety	48
	B. Hydrology and Water Quality	48
	C. Biology	52
	D. Land Use	60
	E. Public Services	61
	F. Aesthetics	62
V	ENVIRONMENTAL IMPACTS	63
	A. System-wide Impacts	63
	1. Geology, Soils and Seismic Safety	63
	2. Hydrology and Water Quality	63
	3. Biology	64
	4. Land Use	64
	5. Public Services	64
	6. Aesthetics	64
	B. Impacts of Warheit Well System	65
	1. Hydrology and Water Quality	65
	2. Biology	66
	3. Land Use	67
	C. Potable Quality Well	68
	1. Biology	68
	2. Land Use	68
	D. Conjunctive Supply	68
	1. Hydrology and Water Quality	68
	2. Biology	69
	3. Land Use	71
	4. Aesthetics	71
VI	MITIGATION MEASURES	74
	A. Mitigation Measures Which Apply to all Alternatives	74
	B. Specific Mitigation for Warheit Well System	75
	C. Specific Mitigation for Potable Well System	75
	D. Specific Mitigation for Conjunctive Supply	76
VII	ALTERNATIVES TO THE PROPOSED PROJECT	77
	A. No Project	77
	B. Other Sources in the Pescadero Creek Watershed	77
	C. Sources Outside of the Pescadero Creek Watershed	79

VIII	SHORT TERM/LONG TERM USES OF MAN'S ENVIRONMENT/ SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES	82
IX	GROWTH-INDUCING IMPACTS	83
X	EFFECTS FOUND NOT TO BE SIGNIFICANT	84
XI	REFERENCE	85
	A. Bibliography	85
	B. Persons and Organizations Consulted	86
	C. Report Preparers	87
XII	APPENDIX	
	A. Report Regarding Feasibility of Using Warheit Well as a Water Supply Source for Pescadero, California, Kennedy/Jenks/Chilton Engineers, September 1987	
XIII	RESPONSE TO COMMENTS	
	A. LIST OF COMMENTORS	1
	B. RESPONSES TO COMMENTS	2
	C. COMMENT LETTERS	20

LIST OF TABLES

TABLE NUMBER	TITLE	PAGE
1	Estimated Average Water Demand for Pescadero within the Rural Service Center Boundary -- Existing Community	9
2	Summary of Commercial and Institutional Water Use in Pescadero	10
3	Water Flow Demands	11
4	Alternative Systems Components	19
5	Preliminary Cost Estimate -- Warheit Well System	28
6	Preliminary Cost Estimate -- Potable Quality Well System	29
7	Preliminary Cost Estimate -- Conjunctive Supply System	30
8	Estimated Increased Costs for Fire Protection System	32
9	Summary of Necessary Land and Easement Acquisitions Per Alternative	33
10	Allowable Land Uses and Development Densities -- Community of Pescadero	43
11	Average Flows 1970-1981 Honsinger Creek and Pescadero Creek	52
12	Water Quality of Possible Pescadero Sources	54
13	Plant Communities	56
14	Average and Minimum Flow of Study Area Creeks Relative to Estimated Water Demand	67

LIST OF FIGURES

NOTE: All of the Figures are located at the end of the document for ease of reference.

FIGURE NUMBER	TITLE
1	Regional Setting
2	Project Location
3	Service Area
4	Project Vicinity
5	Water Treatment Plant Schematic
6	Warheit Well System
7	Well Site Search Boundary
8	Potable Quality Well System
9	Conjunctive Supply Water System
10	Honsinger Creek Diversion
11	Honsinger Creek Hydrology
12	Geologic Map of The Pescadero Area
13	Landslide Susceptibility Map
14	Pescadero Creek Watershed
15	Potential for Groundwater Supplies, Pescadero Area
16	Sensitive Biological Resources
17	Biological Communities Within Well Site Search Boundary
18	Prime Soils
19	Land Use
20	Flood and Fire Hazards
21	Geologic Hazards
22	Designated Scenic Corridors
23	Dam Sites Studies By USACE
24	Worley Flat Reservoir Proposal

I. SUMMARY

The community of Pescadero does not currently have a potable water supply. Drinking water needs are provided through bottled water which is trucked into the community. Other water needs are met with non-potable private wells. The purpose of the water supply project for Pescadero is to provide a reliable source of potable water sufficient to meet the current needs of the community and reduce the health hazard posed by the existing non-potable supply. Pescadero is eligible to apply for State funding for the water supply project under the Drinking Water Bond Law. This Environmental Assessment is prepared partially in support of the funding application to the State.

The water supply system alternatives examined in this Environmental Assessment were developed for San Mateo County by Kennedy/Jenks/Chilton Engineers (KJC). Project information including demand, components and costs was provided in the report entitled "Draft Report Water System for the Pescadero Rural Service Center", March 1987.

The proposed water supply system includes three potential alternative water sources, the Warheit well, a potable well other than the Warheit well, and a creek diversion/brackish well combination. Two other alternatives have recently been investigated, a total diversion of Honsinger Creek as the sole supply and a brackish well as the sole supply. Both of these last two alternatives have been rejected as infeasible.

A. PROJECT DESCRIPTION

Pescadero is designated as a Rural Service Area in the San Mateo County General Plan. It is for the most part an agricultural area. The Rural Service Center Boundary includes 130 residences, 16 commercial and church establishments and one 150-student elementary school. The estimated average water demand requires a flow rate of 41.3 gallons per minute (gpm). The water distribution system will be designed to handle the maximum flow on the maximum use day, which is estimated at 144 gpm. Treated water will be stored in water tanks, with a capacity of 30,000 gallons, to provide for the maximum demand on the maximum day. The treatment plant and water source will be sized to provide 74.3 gpm, meeting the average demand on the maximum day without the additional water storage and the maximum demand on the maximum day with the water storage.

1. Warheit Well Alternative

The Warheit Well alternative would entail the development of a County test well located southwest of Pescadero (Figure 6, at the end of the document). Pump tests conducted in 1985 and in August 1987 on the well indicate a satisfactory yield and quality of water would be available from this source. The results of the August 1987 pump test are in Appendix A.

Two alternative treatment plant sites are planned in the vicinity of the well. An adjacent existing earthen pond would be enlarged to a one-half

acre to hold 5 acre-feet of water for raw water storage. A treated water storage tank would be located above the 200-foot elevation in steep terrain either to the south or to the northeast of Pescadero. A system of pipes would distribute the water to the residential and commercial establishments within the Service boundary. The pipes would follow County roads.

2. Potable Quality Well Alternative

The Potable Quality Well alternative would use one or more potable wells as its source (Figure 8). Potential sites for test wells are located to the east and to the northwest of the community. Two alternative plant sites are located at the eastern end of Pescadero in the flatland. The three alternative treated water tank sites are at elevations above 200 feet in steep terrain to the south and to the northeast of Pescadero. A 5 acre-foot reservoir for raw water storage is included in this alternative.

3. Conjunctive Supply Alternative

The Conjunctive Supply Alternative would divert Honsinger Creek in the winter months when flows are sufficient and use brackish well water when the creek flows are low (Figure 10). It is estimated that Honsinger Creek would provide 50%-60% of the current water demand. The creek diversion would occur roughly 4600 feet upstream from the treatment plant, above sources of possible contamination. The water would be diverted from the creek using an infiltration gallery, which would serve to filter major sediments, and a pump. Honsinger Creek water would require conventional treatment including flocculation, filtration and chlorination.

Both the creek diversion and the well would be located east of the service area. A test well has been drilled in this area and has been tested, with results indicating that two or more wells, in conjunction with the creek, would meet the current water demand. The well water would be brackish and require reverse osmosis treatment. The treatment would create brine which would require disposal. A pipeline is proposed to transport the brine to either the ocean or Butano Slough.

The alternative treatment plants are located east of Pescadero and the alternative treated water storage tanks above the 200-foot elevation to the northeast and to the south of the community of Pescadero. A 5 acre-foot reservoir is included to allow for selectivity in withdrawing water from the creek and for some removal of turbidity.

4. Cost Estimates

Cost estimates for the project are based on the maximum grant of \$400,000 and a 35 year, 8-1/2% loan for the remainder of the project costs funded through the Safe Drinking Water Bond Act of 1984. The loan will be paid back by the water users based on the amount of water consumed. Monthly cost estimates for the average residence has been calculated for each of the three alternatives. The lowest cost per month is Warheit well, with an average monthly cost estimate of \$24. The Potable Quality Well alternative is the next lowest at \$31 per month. The most expensive source of water is the Conjunctive Source alternative, costing \$61 per month.

5. Fire Protection

Fire protection is not included in the above plan. If it were included, a larger water tank and larger distribution pipes would be necessary. The additional cost has been estimated at \$7 to \$8 per month for the average residence. The fire protection system is not fundable under the Safe Drinking Water Bond Act. Money to build this system would originate elsewhere.

B. Conformance with Plans, Ordinances and Policies

The State Drinking Water Bond Law of 1984 provides for State loan and grant assistance for eligible water projects. The projects are prioritized according to severity of contamination or supply problems. The San Mateo County Public Works Department is the agency applying to the State for funding under the Drinking Water Bond Law.

The project is subject to compliance with the County Local Coastal Program (LCP), among other required approvals. The LCP limits the capacity of the water system to the size needed to serve the community build-out level specified in the LCP. Both wells and creek diversions are allowable water supply alternatives.

The permits required will depend on the alternative chosen, the well site, and the impact of the water extraction and/or diversion on the surface waters and endangered species. The permits and consultations required by all the projects regardless of location or impact are as follows:

Permits:

- CA Coastal Commission Coastal Development Permit
- County Environmental Health Domestic Water Permit
- County Public Works Encroachment Permit

Consultations:

- U.S. Fish and Wildlife Service Biological opinion
- CA Department of Fish and Game Biological opinion
- CA Health Department Approval of Domestic Water Permit
- Local Agency Formation Commission Approval of formation of new County Service Area

C. Geology, Soils and Seismic Safety

The proposed well sites are located in alluvium near the Honsinger/Pescadero Creeks junction for the brackish well and in bedrock formations west of Butano Creek for the Warheit well. The potable well will be located in either alluvium near the Honsinger/Pescadero Creeks junction or possibly in nearby bedrock, depending on the results of the well search. The groundwater movement in the study area is influenced by the San Gregorio Fault system. The fault trends north-northwest through the study area just west of the Honsinger/Pescadero Creeks, offsetting the rock formations and possibly acting as an impenetrable barrier to groundwater movement.

The San Gregorio Fault is considered active. A maximum credible earthquake of 7.5 to 8.0 on the Richter Scale is suggested by the State of California seismic safety data. The fault hazards along with the potential landslide hazards on the steeper slopes can be mitigated through site selection, design and provision of contingency supplies in case the water supply is interrupted.

D. Hydrology and Water Quality

The study area is in the Pescadero Creek Watershed which encompasses 81 square miles. Pescadero Creek and its tributaries, Butano Creek, Honsinger Creek and Bradley Creek, provide the fresh water supply for the Pescadero Marsh. The conjunctive supply alternative would divert water from Honsinger Creek during times of high flow and use well water during times of low creek flow. Honsinger Creek would have the better quality water of the two sources, requiring less treatment than the well water which is assumed to be brackish in this alternative and would require reverse osmosis.

The groundwater of the Pescadero region generally contains excessive concentrations of salts, chlorides, iron, manganese and other nitrates. The shallow groundwater has been polluted by septic tank effluent and possibly agricultural fertilizer. Some of the deeper wells are contaminated with saline water. County test wells have been drilled in the area of the Honsinger and Pescadero Creeks junction. One of the wells produced an acceptable yield of 45 gpm of brackish water. A USGS recommended test well site is northwest of the above test well and may provide a better quantity or quality of water.

For the Potable Well alternative, the first and second choice test well locations are the test well site recommended by USGS and a test well site in the Bradley Creek Watershed north of Pescadero. The exact location of the well site will be determined after a complete survey has been conducted. The water quality for the potable well would be such that it would require conventional treatment including iron and manganese removal.

The Warheit well was tested in 1985. From the results of this test, Kennedy/Jenks/Chilton (1987) reports a yield estimate for the well at 135 gpm. The quality of the well water is the best of the sources being considered, requiring only chlorination and corrosion/stability control. More extensive pump testing in August 1987 indicated that the well has sufficient yield to serve the present community, that the water is acceptable for domestic use with minimal treatment, and that impacts to recharge of the local groundwater flow system will be insignificant. The pump test report is attached in the appendix.

E. Biology

The primary biological communities represented in the study area are coastal scrub, chaparral, grazed grassland, riparian and marshland. The well most likely will be drilled in the coastal scrub, chaparral or grazed grassland communities. Groundwater in both the riparian and marshland zones is more likely to become contaminated from surface water sources. If a well is placed in the 100-year flood plain a Stream Alteration Agreement would be

required by California Department of Fish and Game. Temporary impacts which would occur during well construction can be mitigated by revegetating disturbed areas with native species.

The water treatment plant and distribution lines will be located in agricultural or disturbed areas, except in the case of the Warheit well treatment plant. The treatment plant and associated facilities will remove approximately one-quarter acre of coastal scrub habitat. The finished water storage tank and access road will remove approximately one acre of either grazed grassland or chaparral, depending on the alternative chosen.

The well, depending on its location, may affect surface waters and the habitats supported by surface waters including the riparian zone, the steelhead and salmon fishery, and, downstream, the Pescadero Marsh. Because all sewage disposal in the valley is currently through individual leach fields the importation of water into the community from a source outside the Pescadero Creek or Honsinger Creek watersheds may increase the flow downstream in Pescadero Creek and the marsh.

The Conjunctive Supply will include diversion of Honsinger Creek water. A sufficient flow will be left in the creek to provide 20 acre-feet of irrigation water and to provide for the steelhead and salmon fishery. An instream flow study will need to be completed before the fishery requirement can be determined. The disturbance to the creek bed and riparian zone will be minimized through the mitigations described in the Biology section.

The brackish well, one of the two water sources comprising the Conjunctive Supply, will produce brine at an estimated 5 gpm per 50 gpm of water treated. If the brine is discharged into Butano Slough or Pescadero Marsh, the salinity level of the water could be changed. This may adversely impact the San Francisco garter snake, a federally endangered species inhabiting the marsh. Discharging directly to the ocean or exporting the brine are suggested to avoid any impact on fresh water biota.

F. Land Use

The Community of Pescadero is designated by San Mateo County as a Rural Service Center. Within the rural service center boundary there are 130 residences, 13 church and commercial establishments and one elementary school. The surrounding land use is primarily agriculture. The Pescadero Marsh, in the western part of the study area, is designated as a public recreation area.

Land use constraints include the Pescadero Creek floodway and flood zones along the creek corridors, the San Gregorio fault zone along the eastern edge of the rural service boundary, landslide susceptibility, slopes exceeding 30%, high fire hazard, and biologically sensitive habitats.

G. Public Services

The Pescadero Water Supply project will create a new water district responsible for treating and supplying potable water to the residences, commercial establishments and school within the rural service center

10/9/87

boundary. It is possible that consumers may buy the County supplied water only for uses related to ingestion, causing the calculated demand to be overestimated.

If fire hydrants were included in the water supply project, insurance ratings for the community would be reduced, effecting a lowering of insurance rates for the residences.

H. Aesthetics

The community of Pescadero is a rural community on Pescadero Road within two miles of Highway 1. Pescadero Road is designated a County Scenic Road and Highway 1 is designated a State Scenic Highway. The water tank will be placed at a 200-foot elevation or greater to achieve proper water pressure. The grading cut which will be required on the steep slope of the water tank site will create a negative visual impact on the Pescadero scenic corridor. Selection of a less visible alternative tank site is suggested.

I. Alternatives

In addition to the no project alternative, which would continue the health hazard of non-potable well use and the costs involved with the use of bottled water, seven dam/reservoir alternatives have been considered and were addressed in a 1969 report by the Army Corp of Engineers. A dam and reservoir project was determined to be economically infeasible.

J. Short Term/Long Term Uses -- Significant Irreversible Environmental Changes

The Pescadero Water Supply project will provide a long term source of drinkable water, eliminating the current health hazard presented by non-potable wells, and the expense of bottled water. If the well is not sited appropriately, the aquifer may be negatively and irreversibly impacted. Pump tests and geological studies should be completed for proper well siting. Grading and siting of water supply facilities may visually degrade the Pescadero scenic corridor unless alternative sites are selected to reduce this impact or the facilities are screened from view.

K. Growth Inducing

The installation of a potable water system has the potential to encourage growth in the community. Pescadero, however, possesses additional constraints besides water supply which limit its growth, including septic tank limitations, substandard lot sizes and limited area within the service center. An expansion of the rural service center boundary would require an amendment to the Local Coastal Plan, a vote by County voters and further environmental review.

L. Effects Not Found To Be Significant

The project will not have significant effects in the areas of noise, air quality, transportation or creation of solid waste, nor will it adversely affect public safety.

II. PROJECT DESCRIPTION

A. SETTING

The Community of Pescadero is located in San Mateo County, 39 miles south of San Francisco and two miles east of the Pacific coastline (Figure 1). The center of the community is located near the intersection of Stage Road and Pescadero Road (Figure 2).

Pescadero is designated as a Rural Service Center in the San Mateo County General Plan (Figure 3). It is a small, rural community with 130 residences, 16 commercial establishments, an elementary school, and several churches within the Rural Service Center Boundary. Pescadero High School and other residences are outside of the Rural Service Center Boundary and would not be served by this project. The community lies in an alluvial plain in the Pescadero Creek watershed, with Class I, II and III soils. The economy primarily based on agriculture, with some tourist trade due to its coastside location (Figure 4).

Water for the Community of Pescadero is now supplied by private wells -- there is no public water system. Many of the wells are shallow and have become contaminated by septic field drainage and possibly agricultural fertilizer so that the water contains excessive nitrates and bacteria. This water poses a significant health hazard to well users and is no longer suitable for a potable water supply. Bottled water is now used for drinking water by most Pescadero residents, businesses, churches and by the elementary school. Private wells are still used for irrigation and for other non-potable applications.

It is expected that the consumers will rely on treated water for all domestic purposes. The Uniform Plumbing Code requires potable water to all fixtures, and a dual water system whereby the consumer can use both private and public supply in house is not acceptable. Private well water may still be used for irrigation in accordance with public health standards.

Kennedy/Jenks/Chilton Engineers (KJC Engineers) conducted a water supply study of Pescadero for San Mateo County (March 1987). KJC estimated water use within the Rural Service Boundary of Pescadero to be 166 Equivalent Dwelling Units (EDU's). An EDU is defined as the average residential water customer. Demand by customers which use more than the average residence is expressed as a multiple of EDU's. For instance, a commercial establishment which uses four times the amount of water of a residence would be assigned four EDU's. The estimated water demand and EDU's of the customers within the Rural Service Center Boundary are summarized in Tables 1 and 2.

One EDU in Pescadero is estimated to be 360 gallons of water per average day, based on uses documented in similar communities (KJC Engineers, pg 3-1). The actual amount of water used each day will vary according to season, climate, amount of landscaping, cost of water, tradition of water use, soil type, income level, number of residents per dwelling, voluntary conservation measures in use, and the continued use of private wells for non potable water needs such as irrigation.

TABLE 1
ESTIMATED AVERAGE WATER DEMAND FOR PESCADERO
WITHIN THE RURAL SERVICE CENTER BOUNDARY
EXISTING COMMUNITY

CUSTOMER	EDU	AVERAGE USE GALLONS/DAY	FLOW RATE GALLONS/MIN
130 Residences (360 gal/day ea)	130.0	46,800	32.5
16 Commercial/Church Establishments	31.0	11,190	7.8
Elementary School (150 students)	4.2	1,500	1.0
Total	165.2	59,490	41.3

Source: KJC Engineers March 1987

TABLE 2
SUMMARY OF COMMERCIAL AND INSTITUTIONAL
WATER USE IN PESCADERO

NAME	ADDRESS	UNITS	USE PER UNIT (G.P.D.)	WATER USE (G.P.D.)	COMMENTS
PESCADERO ELEMENTARY SCHOOL	NORTH STREET	150 STUDENTS	10	1500	FOOD NOT PREPARED AT SCHOOL. NO DISHWASHING.
ST. ANTHONY'S CHURCH	NORTH STREET				
1ST CONGR. CHURCH	STAGE ROAD	40 PEOPLE/400 SQ.FT. HALL	3/PERSON	120	SMALL MEETING HALL IN REAR. 20 CAR PARKING.
GARAGE	350 STAGE	2 EMPLOYEES	35	70	2 EMPLOYEES
GALLERY	352 STAGE	1 EMPLOYEE	25	25	1 EMPLOYEE
ANTIQUES	290 STAGE	1 EMPLOYEE	25	25	1 EMPLOYEE
ARCHANGEL GROCERY	STAGE	40' FRONTAGE	450 1st 25' 400 2nd 25'	690	3-4 EMPLOYEES. DELI. TOO.
WILLIAMSON'S STORE	251 STAGE	50' FRONTAGE	450 1st 25' 400 2nd 25'	950	
BANK OF AMERICA	STAGE	5 EMPLOYEES	25	125	5 EMPLOYEES
GNL STORE - NO NAME	213 STAGE	30' FRONT	450 1st 25' 400 2nd 25'	530	1 EMPLOYEE
TEXACO STATION	PESC & STAGE	3 PUMPS	1500/PUMP	4500	
POST OFFICE	PESC & STAGE	4 EMPLOYEES	25	100	4 EMPLOYEES
THE PESCO STORE	PESC ROAD	2 EMPLOYEES	25	50	2 EMPLOYEES
DINELLI'S	PESC ROAD	21 CHAIRS	35	735	
BAR, DUARTE'S	STAGE ROAD	21 CHAIRS	20	420	
RESTURANT DUARTE'S	STAGE ROAD	55 CHAIRS	35	1925	
NATIVE SONS OF GOLDEN WEST	STAGE ROAD	100 PEOPLE/1000 SQ.FT.	3/PERSON	300	
ANTIQUES	STAGE ROAD	1 EMPLOYEE	25	25	1 EMPLOYEE
I.D.E.S HALL	END STAGE RD	200 PEOPLE/2000 SQ.FT.	3/PERSON	600	MEETING HALL

TOTAL AVG. DAY USAGE (NEIGHBORHOOD COMMERCIAL ONLY)

11,190 GALLONS = 7.77 gpm, Say 8 gpm

TOTAL MAX. DAY USAGE (NEIGHBORHOOD COMMERCIAL ONLY)

1.8 x 11,190 = 21,037

= 14.6 GPM

Say = 15 GPM

SOURCE: KJC Engineers, 3/87

10/9/87

The water pipeline system will be designed to handle the peak or "maximum instantaneous consumptive" demand, which is the maximum flow required on the maximum use day (Table 3). KJC Engineers recommends that the system be designed to provide a maximum of 144 gallons per minute (gpm) (KJC Engineers 3/87, pg 3-3). The maximum pipeline size expected to be fundable under the Safe Drinking Water Bond Act is six inches in diameter. A six inch diameter water system is capable of providing 144 gpm at adequate pressure.

TABLE 3
WATER FLOW DEMANDS

Consumptive Condition	Percent of the Average Annual Flow	Existing Community Flow Rate (gal/min)	Future Community Flow Rate (gal/min)
Average annual flow	100	41.3	72.9
Average flow maximum month	130	53.7	94.8
Average flow maximum day	180	74.3	131.2
Maximum flow maximum day	360	148.7	262.4

Source: KJC Engineers, 3/87

B. PROJECT OBJECTIVE

The purpose of this project is to find a reliable source which will provide the existing community with potable water and eliminate the health hazard posed by the current water supply.

The water system to be developed for Pescadero may be of sufficient capacity to supply growth within the Local Coastal Program. The County's primary objective is to supply water to the existing community. However, if the source is adequate, the County recognizes that additional growth may occur once the constraint of water supply is removed. There are several constraints to development in Pescadero other than water supply, as explained in Chapter IX., Growth Inducing Impacts.

It is not the County's objective to change the Rural Service Center Boundary or to extend water service outside of the Boundary. Such actions would require an amendment to the LCP and the General Plan as well as voter approval under Measure A. See also the discussion in Chapter III Plans, Ordinances and Policies.

10/9/87

Several alternative water supply systems have been investigated by San Mateo County. Three have been selected for analysis in this environmental assessment:

- o The Warheit Well - an existing potable quality well located southwest of the community.
- o Potable Quality Well - a potable quality well other than the Warheit well to be located within approximately one mile of the community.
- o Conjunctive Supply - a combination of surface and groundwater sources which uses Honsinger Creek for sixty percent of the supply and brackish water wells for forty percent of the supply.

The proposed facilities are sized to serve the present community inside the Rural Service Center Boundary only, without allowance for growth. KJC advises that it may be a desirable economy measure to increase the size of certain facilities in the proposed water system to allow for future growth, remembering that community growth in Pescadero is limited by water availability, flood hazards, and septic sewage disposal capacity. Expansion of the facilities may be conditioned on the discovery of additional water sources.

The facilities which should be sized to allow for growth are those which cannot easily be increased in size later; the water storage tank, the distribution pipelines, and the water treatment plant building. The treatment plant equipment itself can be economically enlarged as use increases, especially if space in the building has been reserved and piping is fitted for future use.

It may also be desirable to provide water storage and distribution system capacities which will meet fire protection standards. Fire protection would require a larger water tank and larger distribution lines. Grant funding is currently limited to a drinking water supply system only.

This environmental assessment will be used in support of the County of San Mateo's application for funding under the Safe Drinking Water Act. It will also be used as an informational document by several agencies which have review authority over this project. These agencies may include San Mateo County, the Local Agency Formation Commission (LAFCo), the California Coastal Commission, the State Department of Health, the State Department of Water Rights, and the California Department of Fish and Game. The permits required for the project are described in Chapter III.

This environmental assessment addresses the generic impacts of providing a water supply for the community of Pescadero as well as the specific impacts of the three proposed alternative systems. Each system comprises several components; some of the components, such as water storage and distribution, are common to more than one alternative. Similarly there are issues that pertain to providing a water supply system as a whole, such as growth inducement and seismic safety. To avoid redundancy, Chapter V, Environmental Impact, describes both system-wide impacts and alternative-specific impacts. Each discussion describes the impacts at the component level.

C. WATER SUPPLY SYSTEM COMPONENTS

All of the water supply alternatives for Pescadero require the same basic components:

- o a water source in the form of a well or surface water,
- o a water treatment plant
- o provision for water storage, and
- o a distribution system.

The alternative systems examined in this environmental assessment include these components with variations in location, amount of needed storage and degree of treatment required. A description of the components is provided below. How the components are combined to form each alternative system is described in Section D., "Water Supply System Alternatives".

1. Water Source

a. Well

The existing private wells which serve the community tap a shallow aquifer that has been contaminated by human and agricultural waste. Any well drilled to provide a new water supply for Pescadero will have to tap a separate aquifer and will likely be deeper than the existing wells.

When "a well" is the sole source of water, at least two wells are actually drilled in order to provide redundancy in the event one well is shut down for repair or maintenance.

Mechanically, a well is typically an underground steel pipe, a cement slab above ground which provides a sanitary seal and working area, a pump motor, piping, and valves. The components above ground are housed in a building. If the well provides potable water, that is water which only requires chlorination and fluoridation, the cement slab will be roughly 14 feet by 14 feet, and the water treatment will occur at the site of the well. The necessary chemicals will be stored in barrels in a separate room, the barrels will be tapped, and the chemicals will be fed in to the water supply through polyethylene piping. The chemicals will be mounted over a sump in the event there is an accidental spill, and safety equipment including alarms, a fan and shower will be included in building design. An electrical control panel will also be included in the building.

If the well delivers water which requires iron and manganese removal or which requires reverse-osmosis treatment, the cement slab at the top of the well will be much smaller, and the pump will be housed in a building just large enough to protect it. Water treatment will take place in a plant separate from the well and the water will be piped from the well to the treatment plant location.

A potable quality well will be accessed by a paved road in order to facilitate delivery of chemicals and site operation. A non-potable well may be accessed by dirt road since visits to the well will be limited to maintenance activities.

b. Surface Water

Using surface water entails finding a supply that is suitably sized and which provides clean water, and diverting the creek water to a reservoir and eventually on to water treatment. Honsinger Creek is the only surface water source included in the systems addressed in this environmental assessment. Honsinger Creek was selected for its size, its proximity to Pescadero, and the lack of contamination sources in the watershed above the diversion.

The hydrology of Honsinger Creek is described in 4.a, below and in Chapter IV.A. Briefly, there may be enough water in the creek to provide a partial supply, but not enough to satisfy full community demand year-round, particularly under drought conditions. The only reliable system making use of Honsinger Creek would divert water during times of suitable flow during the rainy season and use a brackish well to supplement the supply as needed during dry months. This is the basis of the Conjunctive Supply alternative, which is described under D.3, below.

Water would be diverted from the creek through an infiltration gallery -- a perforated pipe placed in a trench and backfilled with permeable gravel. The perforated pipe transmits raw water to a pump sump and the water flows to the reservoir via a raw water pipeline.

The infiltration gallery serves as a debris and fish screen and will filter major sediment from the source water. It typically will need to be replaced after ten to twenty years, when the gravel medium surrounding the perforated pipe plugs. It is less expensive to replace an infiltration gallery than to maintain a permanent diversion dam.

2. Raw Water Storage

Untreated, or "raw", water is stored for two reasons: to remove turbidity (suspended solids causing the water to appear cloudy or muddy) and to improve source capacity by providing extra storage. The alternatives examined in this environmental assessment all include a reservoir with five acre-foot capacity (1.6 million gallons). The reservoir would be earth-lined, about 1/2 acre in area and ten feet deep. Water would enter the reservoir via a pipeline from the source, then would be pumped from the reservoir into the treatment plant prior to distribution throughout the system. The reservoir would be located adjacent to the water treatment plant.

Site preparation may include grading, excavating, constructing berms, and placing a suitable clay lining so the reservoir will hold water. Partial landscaping of the berms may be possible.

3. Water Treatment

No matter whether the source is a well or surface water, the potable water supply for Pescadero must be treated before it can be consumed. Stringent potable water quality requirements have been set by the recent renewal of the Federal Safe Drinking Water Act. The more significant new requirements lower the turbidity standard from 0.5 to 0.2 Net Turbidity Unit (NTU) for surface water treatment, reduce chlorinated organic trihalomethane concentrations below 100 micrograms/liter and require that water be non-corrosive and non-scale-forming. In addition, the water must be bacteriologically safe, having been treated for Giardia and virus contamination, and must contain a minimal concentration of asbestos fibers.

The degree of treatment needed depends on the water quality of the source. Stringent potable water quality requirements have been set by the recent renewal of the Federal Safe Drinking Water Act. The Department of Health Services will be adopting requirements equal to or more stringent than Federal requirements. A schematic of a typical treatment plant is shown in Figure 5. This schematic shows all of the equipment needed under all alternatives. The actual equipment would depend on the source; for example, the reverse osmosis equipment is necessary only for the Conjunctive Supply Alternative because the alternative source is brackish water wells requiring reverse osmosis treatment.

Treatment Requirements. Water from a potable quality well such as the Warheit well requires conventional treatment for bacterial disinfection, and corrosion-scale stability. Flouridation for dental medication is optional. Bacterial disinfection is achieved through chlorination with hypochlorite, an active form of chlorine similar to household bleach. The corrosion-scale inhibitor is phosphate based.

Water from a well drilled in the Pescadero Valley would require bacterial disinfection and corrosion stability as well as turbidity, color, iron and manganese removal. These can be accomplished by permanganate oxidation, clarifications, filtration, disinfection and corrosion stability.

Surface water sources will require complete treatment as defined by the Department of Health Services. This includes flocculation, coagulation, sedimentation, filtration, and disinfection, or its equivalent.

A brackish source may also require total dissolved solids, chloride and nitrate removal by the reverse osmosis process.

Treatment Process. To clarify turbid water from a surface water source, the raw water would be metered into a reservoir through a baffled flocculator where disinfection and coagulant chemicals could be added. Sediment would settle out during storage, so that the reservoir would function as a clarifier. A five acre-foot reservoir could provide as much as two weeks of storage, allowing selectivity in diversion. More turbid stormwater runoff can be allowed to pass the diversion in favor of clearer water as long as demand can be met with the reservoir storage.

A dual filtration system is proposed in order to filter the water for Giardia, viruses and asbestos. The first stage is a depth clarifier composed of pea gravel; the second stage is a fine filter made of anthracite-silica-garnet sand. Tests with this type of dual filtration unit have produced water that will easily meet a 0.2 NTU standard, while treating water to as high as 100 NTU (turbidity units). KJC Engineers suggests that the initial installation be two trains of 30-inch diameter depth clarifier filters each with a minimal capacity of 35 gpm and a peak capacity of 50 gpm. A third train could be installed later to provide for a growth in service if necessary.

Other features of the water treatment plant include wash water ponding and recovery, sludge disposal ponds, a clear well, and a residual chlorine and turbidity monitor.

Treatment Plant Operation and Control. The water treatment plant facilities should be fully automated with system shut-down and telephone alarm to a maintenance operator in the event of malfunction. The plant will be staffed on a part-time basis for maintenance, surveillance and batching chemicals. A State Certified Operator would review plant operation weekly.

Treatment Residue. Conventional treatment will not result in residues which must be landfilled. Potassium permanganate which is added to the water to remove iron and manganese acts as an oxidant which will result in a small amount of solid compound which requires disposal. KJC Engineers estimates that in the worst case, where iron and manganese treatment is required continually, that three pounds of residue would be produced each day (Cullen Wilder, pers. comm.). The usual practice is to spread the waste water and residue over land. If necessary the effluent could be stored in a tank and removed to a disposal site regularly (eg. annually).

The residual brine from reverse-osmosis treatment also requires disposal. A process rate of 50 gpm will result in a brine disposal rate of 5 gpm (KJC Engineers, 3/87). The concentration of brine will in part depend on the source. As a general guide it is estimated that the brine will contain at least ten times the upper level concentration of total dissolved solids (TDS) found in drinking water (10,000 TDS or more). Seawater typically contains 30,000 TDS.

Alternative brine disposal plans have been examined: exporting brine out of the area by truck, using evaporation ponds, disposing of the brine in Pescadero Creek, and using a combination of export and creek disposal.

Exporting brine or building evaporation ponds are considered to be economically infeasible. Trucking and disposal fees are high, and not enough land is locally available for evaporation ponds in the cool coastal area. Disposal to Pescadero Creek would have to be confined to periods of high flow. Compliance would be difficult to enforce and could result in detrimental effects on downstream resources. The most economical, least problematical method for brine disposal is for a one-inch pipeline to carry the brine from the treatment plant along Pescadero Road to the ocean or to Butano Slough; that method is addressed in this environmental assessment.

Treatment Plant Site Preparation. A treatment plant would be built apart from the water source if treatment other than that required for disinfection and flouridation is needed. The plant, access road and parking area would require an area of approximately 0.25 acre. The site would be graded to provide for the building and paving. A small amount of landscaping may also be included.

4. Distribution System

A system of pipelines will distribute the treated water to residential and commercial establishments in the Service Area. All main water lines will be located within County Road rights of way. The distribution piping will be six inches in diameter, unless larger piping is installed for a fire control system.

There will also be pipelines from the wells to the treatment plant and from the treatment plant to the water tank and service area. These will be placed within County rights-of-way as much as possible. Depending on the location of the potable well(s), some pipeline may be placed across open space areas between the well site and the nearest road. It may also be necessary to obtain an easement over private land to connect the treated water tank to the distribution system.

The distribution system also includes water mains, valves, individual service connections, backflow prevention devices, air reliefs and blow offs. If desired, tees and valve assemblies may be installed in the water mains during construction to allow for efficient fire hydrant installation later.

Treated water is delivered through a service connection from the main in the street to the property line of each customer. A typical residential service connection will be 3/4" or 1" in diameter. Other connections may be larger, depending on expected water needs. The customer would disconnect from his well and reconnect to the new service connection provided at the property line. The cost of this plumbing would be borne by the customer. It is possible that existing privately owned wells would be kept in service for outside irrigation.

Each service would be metered, and an approved backflow prevention device would be installed to prevent contamination of the public water supply by back- siphoning well water.

5. Treated Water Storage

If a water treatment plant is required or if the source is of limited capacity, it is important to provide treated water storage. The water treatment plant can be reduced in size and cost if storage is used. With properly sized storage, a given source can provide service to about twice the number of customers than without storage. Stored water can also be used in the event there is an interruption in the source or in treatment.

TABLE 4
ALTERNATIVE SYSTEMS COMPONENTS

Source	Raw Water Storage	Treatment	Treated Storage	Distribution Lines	Other
Warheit Well	5 acre-ft reservoir	Conventional	30,000 gal	2.7 mi	None
Potable Well	None	Conventional and iron and manganese removal	30,000 gal	2.7 mi	Supply line well to plant
Conjunctive Supply	5 acre-ft reservoir	Conventional, complete, and reverse osmosis	30,000 gal	2.7 mi	Infiltration gallery, 0.9 mi supply line, brine disposal line

1. Warheit Wells

The Warheit Well is located to the southwest of Pescadero on County-owned lands (Figure 6). The source for this alternate is two wells in the vicinity of a test well drilled in April 1985 for a low income housing development proposed at that time.

The Warheit well was tested by Geoconsultants, Inc. in May 1983 in order to evaluate the ground water potential of this site to produce a potable water supply. The well was drilled to a depth of 280 feet with the bottom 33 feet of the well sealed due to poor water quality. The interval between 210 feet and 247 feet below the surface was pumped. The static water level in the test well was 169.5 feet. Within one-half hour following the start of the test, the pumping level dropped to 176 feet where it remained until the end of the test. The well was tested for 24 hours during which the yield was a constant 22 gpm (gallons per minute). The time it took for the water level to return to the original static level was 110 minutes.

From the results of the drawdown and recovery data, Geoconsultants calculated a potential yield of 135 gpm. The following is excerpted from Geoconsultants's report (Evaluation of Test Well "Warheit" No. 1, Pescadero San Mateo County, California, 1983):

"From the results of this evaluation, we conclude that the test well indicates a satisfactory yield and water quality of ground water can be developed at the site. It appears that the water-bearing strata penetrated by the test well are of sufficient thickness and probable areal extent to supply additional wells in the area, if land for sites is available, and a regional 'water balance' of the aquifer system demonstrates that additional yield can be secured in the vicinity without 'mining' the ground water."

Prior to firmly committing to a source in this location, Geoconsultants recommended more extensive testing. An additional test on the Warheit well was completed in August 1987 by KJC Engineers. The conclusions of the report (Appendix A) are as follows:

- "o It appears that the formation penetrated by the Warheit well can produce sufficient yield to serve the present community of Pescadero.
- o Drawdown data from the aquifer test conducted at a constant flow rate of 40 gpm indicate that greater flow rates probably can be achieved.
- o Physical constraints of the well construction and large depth to water appear to limit the maximum production of the well to approximately 45 to 50 gpm.
- o Water quality assessment of the groundwater supplied by the Warheit Well is acceptable for domestic water supply with minimal treatment required.
- o Long-term impacts to local groundwater and surface water levels cannot be quantified at this time; however, the impacts to recharge of the local groundwater flow system will not be significant in comparison with the available regional recharge."

Although it is expected that one well would have the necessary capacity, a second well would be drilled and equipped to be available in the event that the first well were not operating, such as in the event of an equipment breakdown or during routine maintenance.

As stated in the KJC Engineers March 1987 report: "the water quality of the Warheit well indicates that it can provide an acceptable source for potable water service in all respects with the possible exception of

bacterial disinfection and corrosion-scale stability. This source is considered to have the best water quality of the options being considered".

Assuming that Warheit produces potable water which requires minimal treatment, the treatment plant will be located at the site of the well. Preliminary water quality testing indicates that water from the Warheit Well would require chlorination, treatment for corrosion, and optionally fluoridation. If additional treatment is required, the plant would be located near the well site in one of two alternative locations, shown in Figure 6.

If water storage in addition to the water tank is advisable for the Warheit well, an existing earthen reservoir near the proposed treatment plant site would be enlarged to accommodate five acre-feet of raw water storage. Raw water from the well would be pumped into the reservoir or would be treated directly and distributed to the community.

The distribution system for the Warheit well differs from that for the other alternatives only because of its location southwest of Pescadero. The distribution line would be routed from the water treatment plant down Bean Hollow Road, along Pescadero Road to connect to the western portion of the service area, then continue along Pescadero Road to Stage Road. At Stage Road the distribution line turns both north and south. To the south, the line follows Stage Road to its end then extends up the hillside to the primary site of the treated water storage tank ("T1" in Figure 6). To the north, the distribution line follows Stage Road to the point of its intersection with North Street. The distribution line then turns east and follows North Street to the Rural Service Center Boundary. There is an alternate water storage tank site to the north of North Street ("T2" in Figure 6).

2. Potable Quality Wells

This alternative requires two wells other than the Warheit Well which yield potable water. The exact location of these wells has not been determined, but a possible potable well is located slightly west of the brackish test well drilled by the County. A search for additional wells will be conducted if this alternative is pursued by the County. Such wells would need to be located within about one mile of the treatment plant to be economically feasible (Figure 7).

The Potable Quality Wells alternative would need two wells, a water supply line to the water treatment plant, a water treatment plant, a distribution system and a treated water storage tank (Figure 8).

The treatment for potable quality wells would include both conventional treatment (chlorination, flouridation and corrosion/scale control), and if necessary iron and manganese removal.

There are four alternative locations for the treatment plant (Figure 8). The primary location (P1) is just north of Pescadero Road about 500 feet east of the junction with North Street. Another possible site (P2) is located 200 feet east of the intersection of North Street and Pescadero Road, on the south side of Pescadero Road. A third alternative site (P3) is located just south of North Street about 1200 feet west of the junction of North Street and Pescadero Road in an area presently containing a barn and paddock. The fourth possible site (P4) is located on the south side of North Street about 1200 feet west of P2 at approximately the location of the old Pescadero High School.

The water distribution system is the same under the potable and conjunctive water supply systems. Approximately 500 feet of pipeline would be laid along Pescadero Road from Treatment Plant site P1 to the junction of Pescadero Road and North Street. From here the pipeline will follow the entire length of North Street to Stage Road where it will turn south and extend to the end of Stage Road. About 500 feet of pipeline will run down Goulson St. from North Street. At the junction of Pescadero Road and Stage Road the pipeline will turn west and run about 3600 feet to serve the western portion of the Service Area.

There are three alternative locations for the water storage tank. The preferred site (T1) is located about 1300 feet north the site of Treatment Plant site P3, near the top of a hill northeast of the elementary school. The tank would be built at about the 200 foot elevation level. A water pipeline will connect the tank to the water distribution system where it intersects North Street. An alternative tank location (T2) is about 600 feet north of the site of Treatment Plant site P2. This tank would also be situated on a hill at about the 200 foot elevation and would be connected to the water distribution pipeline at North Street, outside of the service area. The third possible site for a water tank (T3), is located on the hill south of the center of the community, about 800 feet from the end of Stage Road. This tank is near 300 foot elevation for the potable and conjunctive water supply alternatives.

3. Conjunctive Supply -- Honsinger Creek and Brackish Wells

The Conjunctive Supply alternative requires water from Honsinger Creek when creek flows are high and water from at least one brackish well when flows in the creek are inadequate. The use of a well eliminates the need for the large capacity storage that would be needed if surface water were the only source. For the Conjunctive Supply alternative the required reservoir size is five acre-feet, large enough to allow for both selectivity in scheduling withdrawals from the creek and for some removal of turbidity.

The site selected for diversion is about 4600 feet upstream of the proposed water treatment plant (P1) location (Figure 9). This location is upstream of possible contamination sources and is accessible for maintenance; the equipment would be safe from flood damage.

A second, downstream location for the diversion was examined at the Pescadero Road crossing of Honsinger Creek. A diversion in this location would eliminate the need for 4600 feet of supply line, but the possibility of contamination from the developed area upstream, as well as the reduced water quality at this location make this option infeasible.

The rate of diversion from Honsinger Creek for the Conjunctive Supply depends on several factors and can change on an hourly basis. The amount diverted at any time will depend on rate of flow, turbidity of the water, demand for the water, how much water is in storage, and whether the operator is there to activate the diversion. The minimum flow to be left in the creek is that required for irrigation (approximately 20 AF annually), and that required to preserve the fishery.

The brackish well would be located within the boundary shown on Figure 7, within a mile of the treatment plant. A test well drilled nearby by San Mateo County yielded 45 gpm in an abbreviated pump test. A rate of at least 50 gpm is acceptable to serve the demand under this alternate. More extensive testing is required to prove the reliability of the test well, and a survey would also be made for a better source.

Treatment of water from Honsinger Creek will be complete, including flocculation, coagulation, sedimentation, filtration, and disinfection. The brackish water requires conventional treatment as well as reverse-osmosis treatment to remove the salts contained in the water. The unit cost of reverse-osmosis treatment is very high because of the energy, brine disposal and membrane replacement costs. KJC Engineer estimates that reverse-osmosis treatment would be required for fifty percent of the water delivered. During a severe drought, such as occurred during 1975-76, most of the water would be supplied by the well. Even during a crisis, water would be available for necessary uses, although at a higher cost due to the need for more reverse-osmosis treatment.

4. Other Water Systems Recently Examined

Two other water systems were examined in the KJC Engineers March 1987 report. At this time these systems are judged to be infeasible for hydrologic and economic reasons, as explained below.

a. Full Honsinger Creek Diversion

Honsinger Creek, a tributary to Pescadero Creek, would be the sole source of water in this alternative. Water would be diverted from the creek through an infiltration gallery placed upstream of the Crown Nine Ranch, then pumped through a 0.9 mile pipeline to a 100-acre foot raw water reservoir on North Road near Pescadero Road (Figure 10). The 100-acre foot reservoir is required to improve reliability since flows are deficient during dry periods. Water from the reservoir would be pumped through the treatment plant and into the distribution system. Conventional treatment would be required for this water, including flocculation, filtration and chlorination.

A study of hydrologic data on the creek for the period 1954 through 1981 reveals that Honsinger Creek and a 100-acre foot reservoir would provide enough water for 166 EDU's except during a drought such as that experienced in 1975-76 (Figure 11). This source will eliminate the existing health hazard but will not allow for any growth and at times may not be sufficient to supply existing demand.

The graph in Figure 11 shows how the Honsinger Creek Diversion would have functioned over twenty seven years if it had been in use from 1954 through 1981. The graph shows that diversion as a sole source of water will not consistently supply water for 166 EDU's. The Storage Volume represents the number of acre-feet of water which would have been present in a 100 acre-foot reservoir based on inflow from the creek and demand by 166 EDU's. When demand exceeds inflow it is met by drawing down the reservoir, so the storage volume curve falls (hence the downward spikes). The volume in storage naturally relates to the amount of rain available for recharge, hence the storage volume falls in the summer. When the curve falls to zero the reservoir would have been dry -- as in September 1972, and from April 1975 to November 1977. Severe conservation measures would be imposed when the curve falls below 30 acre-feet storage volume.

The storage volume shown on the graph assumes total creek diversion after allowing enough water to pass the diversion site to irrigate fifteen acres downstream, and the volume is adjusted for evaporation losses. Allowance for instream flow requirements of wildlife, including steelhead trout, is not included. Such requirements could further reduce the ability of this source to meet the demand of 166 EDU's.

This alternate is the most costly of the five examined by KJC Engineers in the March 1987 report, with an estimated operating cost of \$71 per month per EDU. The cost is due primarily to the large raw water storage that is necessary. Capital costs would include acquisition of water rights, and land for the raw water reservoir, treatment plant, and water tank, as well as a pipeline easement between the diversion and the reservoir.

Because of the high cost and limited reliability the Honsinger Creek Diversion Alternate has not been retained for detailed study in this Environmental Assessment.

b. 5. Brackish Water Wells

This alternative uses one or more brackish water wells as its only source. Brackish water requires reverse-osmosis treatment which is expensive and results in the need to dispose of the remaining brine. The unit cost of reverse-osmosis treatment is high because of the energy required, brine disposal costs and the need to periodically replace the membrane. KJC Engineers estimates the cost for this alternate to be \$64 per month per EDU.

Because of the costs and brine disposal issues involved, a system which relies on brackish water for the entire supply has not been retained for further analysis in this Environmental Assessment. In the event that none of the other alternatives under investigation prove feasible, the County may re-examine the possibility of using brackish wells as a sole source for Pescadero's water supply.

E. INSTITUTIONAL ARRANGEMENT

1. System Operator

One of the requirements of the Safe Drinking Water Bond Act is that a public entity must operate a water system funded through the Act. County Service Area Eleven will be established in order to operate the water supply system for Pescadero. The County Service Area boundary will be the same as the Rural Service Center Boundary defined for Pescadero in the Local Coastal Plan. This includes two disjunct areas; one around the center of the community and one to the west on Pescadero Road (Figure 3).

2. Service Priorities

Service priorities for a water system designed for Pescadero are outlined in the Local Coastal Program. A County Service Area established to operate the system will operate under a set of rules and regulation which determine exact service priorities. These rules and regulations will reflect the policies in the LCP.

The land uses in Pescadero which have priority for water service are summarized in Table 2.18 in the LCP. Existing commercial and residential water needs are considered Priority One uses. Priority Two uses are new commercial and recreational development, (eg. motels, restaurants, gas stations) and low-moderate income housing.

Agricultural use in Pescadero is not given any service priority in the LCP. It is assumed that such use would have priority after commercial and residential needs are met and that the rules and regulations of the district will address this issue. Very little agricultural demand is expected since most agricultural use occurs outside of the Service Area and because treated, public water will be relatively expensive in comparison with existing agricultural water supplies.

3. Funding

The County of San Mateo will apply for State funding under the Safe Drinking Water Bond Act. Pescadero is included on the list of communities which are eligible for this funding.

The Safe Drinking Water Bond Act provides loan and grant funds for water system projects of the type proposed for Pescadero. The monthly costs estimated for these alternatives assume a grant of \$400,000, the maximum allowed under the program. The remainder of the project costs are assumed to be funded by a 35 year, 8-1/2% loan, to be paid back by the users.

F. WATER CONSERVATION MEASURES

Probably the most effective water conservation measure included in the design of the water system is the meter which is attached to every service. It is the general experience of water districts that customers will use twice as much water if it is not metered (Cullen Wilder, pers. comm.).

Pescadero is a small, closely-knit community and the citizens understand the limited availability of water. Water conservation by customers would start with voluntary measures such as low flow shower heads, operating water-dependent appliances (eg. dishwasher) only when full, and by reducing yard irrigation and auto washing. Customers may continue to use private wells for some applications (e.g. irrigation), which would reduce the demand on the public system.

Customer water use will have to remain within the capacity of the source and service system, which is a limited supply. If voluntary conservation measures are not successful the district may need to increase water rates in order to impose financial constraints to water use.

10/9/87

Any new construction in the community will be required through the County Building Code to include water conserving equipment such as low-flow showerheads and toilets.

G. CONTINGENCY SUPPLY

It will be necessary to plan for a contingency supply in the event that the water system cannot serve the existing demand. Contingency supplies may include returning to current uses -- bottled water and private wells, importing water from another district by truck into Pescadero, or other means.

The entity established to run the water system will be responsible for providing a contingency supply. Depending on the situation, additional costs may be passed to the customers.

H. ECONOMIC CHARACTERISTICS

The following analysis is excerpted from the KJC Engineers "Draft Report Water System for the Pescadero Rural Service Center" (March 1987).

1. Basic System

Project cost estimates and monthly user cost estimates are shown in Tables 5 through 7. These estimates are for the basic system providing potable water for the existing community (166 EDU's).

Monthly costs are based on the project being funded by the Safe Drinking Water Bond Act. This Act provides loan and grant funds for water system projects of this type. The monthly costs assume a grant of \$400,000, the maximum allowed under the program. The remainder of the project costs are assumed to be funded by a 35 year, 8-1/2% loan, to be paid back by the users. The foregoing are the current terms of loans under this State program.

The normal maintenance and operations costs are estimated to be \$20/month/EDU. This estimate was provided by the County and is considered reasonable for a system of this type. Unusual water treatment costs are in addition to the \$20/month. Additional treatment costs are not expected for the Warheit Well alternate, and have not been included in the cost estimate. This represents a significant cost savings in capital required for the water treatment plant.

The Potable Well alternate would probably still require iron and manganese removal at an additional cost of about \$0.20/1000 gallons. In this case the extra cost is attributable to the chemicals required for the removal of iron and manganese. This \$0.20/1000 gallon cost results in an additional cost of approximately \$2.06/month/EDU.

For the Conjunctive Supply the portion of the water that is to be provided by the well when Honsinger Creek is insufficient must be given reverse osmosis treatment. The unit cost of reverse osmosis water treatment is extremely high because of energy requirements and the cost of replacing

10/9/87

TABLE 5
PRELIMINARY COST ESTIMATE
WARHEIT WELL SYSTEM

Item	Unit	Unit Cost	Quantity	Total
Well	Each	10,000	2	20,000
12' x 12' Bldg,	Each	15,000	1	15,000
Misc Piping, and Chlorination Paving and Site Work	Each	5,000		5,000
Generator Set	Each	7,000	1	7,000
Pipeline, 6" PVC	Lin. Ft.	15.00	13,000	195,000
Temporary Paving	Lin. Ft.	1.50	7,600	11,400
Pavement	Lin. Ft.	7.50	5,600	42,000
Treated Water Storage	Gal.	1.00	30,000	30,000
Gate Valve	Each	800	5	4,000
Services-Near Side	Each	300	74	22,200
Services-Far Side	Each	400	74	29,600

27,000
W.T.P.

SUBTOTAL: \$ 381,200
 17% ENGR, CONSTR. MGMT, FINANCIAL ADMIN.: 64,804
 10% CONTINGENCY: 44,600
 TOTAL: 490,604
 LESS ASSUMED MAX. GRANT: 400,000
 SUBTOTAL: 90,604
 STATE LOAD ADMIN. FEE, 4%: 3,625
 LOAN TOTAL: \$ 94,229

AVERAGE MONTHLY COST ESTIMATES

Maintenance and Operation (Estimate provided by S.M. County) \$20.00/Month
 Loan Amortization (8-1/2%, 35 Yr., 166 EDU's) \$ 4.27/Month
 Total \$24.27/Month

SOURCE: KJC Engineers, 3/87

TABLE 6
PRELIMINARY COST ESTIMATE
POTABLE QUALITY WELL SYSTEM

Item	Unit	Unit Cost	Quantity	Total
Well	Each	10,000	2	20,000
Treatment Plant:				
Filters	Each	15,000	2	30,000
Chem. Feed System	Each	2,000	3	6,000
12' x 20' Bldg	Each	10,000	1	10,000
Clear Well (10,000 gallons)	Each	7,500	1	7,500
Misc Piping	Each	10,000	1	10,000
Electric	Each	8,000	1	8,000
Paving and Site Work	Each	5,000	1	5,000
Generator Set	Each	7,000	1	7,000
Pump Station (7-1/2 h.p.)	Each	8,500	1	8,500
Wash Water Ponds	Each	10,000	2	20,000
Pipeline, 6" PVC	Lin. Ft.	15.00	14,500	217,500
Temporary Paving	Lin. Ft.	1.50	3,600	5,400
Pavement	Lin. Ft.	7.50	1,600	12,000
Treated Water Storage	Gal.	1.00	30,000	30,000
Gate Valve	Each	800	5	4,000
Services-Near Side	Each	300	74	22,200
Services-Far Side	Each	400	74	29,600

112,000
W.T.P.

SUBTOTAL: \$ 452,700
 17% ENGR, CONSTR. MGMT, FINANCIAL ADMIN.: 76,959
 10% CONTINGENCY: 52,966

 TOTAL: 582,625
 LESS ASSUMED MAX. GRANT: 400,000
 SUBTOTAL: 182,625

 STATE LOAD ADMIN. FEE, 4%: 7,305
 LOAN TOTAL: \$ 189,930

AVERAGE MONTHLY COST ESTIMATES

Maintenance and Operation (Estimate provided by S.M. County)	\$20.00/Month
Loan Amortization (8-1/2%, 35 Yr., 166 EDU's)	\$ 8.60/Month
Additional Iron and Manganese Removal Cost	\$ 2.06/Month
SOURCE: KJC Engineers, 3/87	Total \$30.66/Month

TABLE 7
PRELIMINARY COST ESTIMATE
CONJUNCTIVE SUPPLY SYSTEM

Item	Unit	Unit Cost	Quantity	Total
Infiltration Gallery	Each	\$10,000	1	\$ 10,000
Raw Water Storage	Acre Ft.	2,000	5	10,000
Well	Each	10,000	1	10,000
Treatment Plant:				
Filters	Each	15,000	2	30,000
Chem. Feed System	Each	2,000	5	10,000
Inline Rapid Mix	Each	7,000	1	2,000
12' x 20' Bldg	Each	10,000	1	10,000
Clear Well (10,000 gallons)	Each	7,500	1	7,500
Misc Piping	Each	10,000	1	10,000
Electric	Each	8,000	1	8,000
Paving and Site Work	Each	5,000	1	5,000
Generator Set	Each	7,000	1	7,000
Pump Station (7-1/2 h.p.)	Each	8,500	1	8,500
R.O. Unit	Each	21,000	1	21,000
Wash Water Ponds	Each	10,000	2	20,000
Pipeline, 6" PVC	Lin. Ft.	15.00	19,000	285,000
Temporary Paving	Lin. Ft.	1.50	3,600	5,400
Pavement	Lin. Ft.	7.50	1,600	12,000
Treated Water Storage	Gal.	1.00	30,000	30,000
Brine Pump Station	Each	5,000	1	5,000
Brine Disposal Pipeline (1")	Lin. Ft	6.25	12,000	75,000
Pavement Cutting & for the above	Line Ft	6.25	2000	125.00
Gate Valve	Each	800	5	4,000
Services-Near Side	Each	300	74	22,200
Services-Far Side	Each	400	74	29,600

328,000
W.T.P.

SUBTOTAL: \$ 838,700
 17% ENGR, CONSTR. MGMT, FINANCIAL ADMIN.: 142,579
 10% CONTINGENCY: 98,128
 TOTAL: 1,079,407
 LESS ASSUMED MAX. GRANT: 400,000
 SUBTOTAL: 679,407
 STATE LOAD ADMIN. FEE, 4%: 27,176
 LOAN TOTAL: \$ 706,583

AVERAGE MONTHLY COST ESTIMATES

Maintenance and Operation (Estimate provided by S.M. County) \$20.00/Month
 Loan Amortization (8-1/2%, 35 Yr., 166 EDU's) \$32.00/Month
 Additional R.O. Water Treatment Costs \$ 8.83/Month
 SOURCE: KJC Engineers, 3/87 Total \$60.84/Month

membranes. This additional cost is estimated as \$1.50/1000 gal., roughly \$1.30/1000 gal. additional for the energy and the remainder for the replacement of membranes. For the Conjunctive Supply the well is expected to supply approximately 50% of the water used, resulting in an average additional treatment cost of approximately \$8.83/month/EDU.

2. Fire Protection

The costs shown in Tables 5 through 7 are for the basic water system which provides for present water demand only. This is the system fundable under the current policy of the State Safe Drinking Water Bond Act. If the system were designed for fire flows in conformance with the County guidelines, the total cost would increase by approximately \$180,237 for the Potable Wells and Conjunctive Supply alternates and \$159,060 for the Warheit Well. These additional costs would result in an increase in the average monthly water bill of approximately \$8.00/EDU on the basic system for the Potable Wells and Conjunctive Supply alternates and approximately \$7.00/month/EDU for the Warheit Well. These calculations are shown in Table 8.

3. Future Community

The estimated growth in water demand based on growth currently allowed in Pescadero under the General Plan was summarized in Table 3. Based on these estimates the additional costs to build water systems which are sized for the future community are as follows:

Warheit Well	-	\$ 44,080	\$ 2.00/Mo/EDU
Potable Wells	-	\$107,920	\$ 4.87/Mo/EDU
Conjunctive Supply	-	\$364,000	\$16.50/Mo/EDU

4. Land Acquisition

Depending on the alternative, the County will need to acquire 1.0 to 1.75 acres of land as well as access easements and water rights. The acquisitions needed for each alternative are summarized in Table 9.

TABLE 8
ESTIMATED INCREASED COSTS FOR
FIRE PROTECTION SYSTEM

Warheit Well Alternate

Increased Storage Cost	\$180,000 gal @ 30¢/gal	\$54,000
Inceased Pipeline Costs		
3000' of pipeline		
increased from 6" to 10"	5400 ft as an increase of \$5.34/ft	28,836
30 Fire hydrants @ \$1200		36,000
	SUBTOTAL:	\$118,836
	17%, ENGR. MGMT, FINANCIAL ADMIN:	20,202
	10% CONTINGENCY:	13,904
	SUBTOTAL:	\$152,942
	LOAN ADMINISTRATIVE FEE 4%:	6,118
	TOTAL:	\$159,060
Total Increased Cost/Mo/EDU (166 EDU's) 8-1/2%, 35 year loan, =		\$7.20

INCREASED COST FOR FIRE PROTECTION

Potable Wells and Conjunctive Supply Alternatives

Increased Storage Costs	180,000 gal @ 30¢/gallon	\$54000
Increased Pipeline Costs		
5400' of pipeline	5400 ft. at an increase	
increased from 6" to 12" diam. .	of \$8.27/ft.	\$44,658
30 Fire hydrants at \$1200		36,000
		\$134,658
	17% ENGR, CONSTR. MGMT, FINANCIAL ADMIN.:	22,892
	10% CONTINGENCY:	15,755
	SUBTOTAL:	\$173,305
	LOAN ADMIN. FEE, 4%:	6,932
	TOTAL COST INCREASE:	\$180,237
Total Increased Cost/Month/EDU (166 EDU's) 8-1/2%, 35 year loan, =		\$8.16

SOURCE: KJC Engineers, 3/87

10/9/87

TABLE 9
SUMMARY OF NECESSARY
LAND AND EASEMENT ACQUISITIONS PER ALTERNATIVE

	<u>Warheit</u>	<u>Potable</u>	<u>Conjunctive</u>
Well Site/ Water Rights	None Needed	Possibly; depends on well location(s)	Yes, for Honsinger Ck diversion and possibly for well(s)
Treatment Plant Site	None Needed	0.25 acre	0.25 acre
Raw Water Reservoir	None Needed	Not required	0.50 acre
Distribution Lines	None	Possibly; depends on well location(s) Lines within service area are in County ROW	Yes; pipeline easements for creek diversion, to wells, and possibly a part of brine line
Water Tank Site	1.0 acre plus an easement for access road and pipeline	1.0 acre plus access easement	1.0 acre plus access easement
	<u>Warheit</u>	<u>Potable</u>	<u>Conjunctive</u>
Total	1.0 acre, 1 easement	Water rights, 1.25 acres, 1-2 easements	Water rights, 1.75 acres, 3-4 easements

III. CONFORMANCE WITH PLANS, ORDINANCES AND POLICIES

A. FEDERAL

1. Safe Drinking Water Act, as amended 1986

The Safe Drinking Water Act addresses the safety of drinking water supplies throughout the United States and establishes national drinking water standards. The Environmental Protection Agency has the primary responsibility of establishing these standards. The states are responsible for enforcing these standards as well as supervising public water systems and sources of drinking water.

2. United States Fish and Wildlife Service / Endangered Species Act, 1973

The Federal Endangered Species Act provides a means to protect endangered or threatened species and conserve the habitat or ecosystems on which they depend. The Act in Section 9 prohibits the taking of endangered fish or wildlife where "take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct." The Secretary of the Interior may permit the taking of fish or wildlife if such taking is incidental to, and not the purpose of the carrying out of an otherwise lawful activity (Section 10 (a)). The act provides only limited protection for endangered plant species against development. The taking of endangered plant species is not prohibited by this act and does not require a permit from the USFWS.

If a project requires a permit from a federal agency, that agency must consult with the Secretary and obtain a biological opinion detailing how the project affects endangered or threatened plant and animal species or its critical habitat. Each federal agency must insure that any action it authorizes will not jeopardize the existence of the endangered species or adversely modify critical habitat. If jeopardy or adverse modifications is found, the Secretary shall suggest reasonable and prudent alternatives.

If flows entering Pescadero marsh are reduced or if brine is emptied into Butano slough, the water supply system for Pescadero may have indirect impacts on federally listed endangered species in Pescadero Marsh. Under Section 7 of the Endangered Species Act the Army Corps of Engineers and the Coastal Commission must consult with the USFWS prior to issuing permits for the project.

The alternatives which use groundwater as a sole source are not expected to significantly reduce surface water flows. If a system directly involves the use of surface water from Pescadero Creek or its tributaries there is a possibility of impact on a listed species and it will be necessary to consult with the USFWS. At that time the USFWS will review the project to determine their jurisdiction and if a Section 10(a) permit is necessary. Since it is difficult to quantify the impacts which a reduced surface supply would have on endangered species in Pescadero Marsh and how much of that impact is due to the water supply system versus other uses, it is unlikely that "take" as defined under Section 9 of the Act could be proven, hence a Section 10(a) Permit would not be required.

10/9/87

3. United States Army Corps of Engineers

The Army Corps of Engineers has jurisdiction over projects which place fill in fresh waters or tidal action areas, or utilize bank protection measures such as concrete linings or rip-rap. The diversion of surface waters from Honsinger Creek may qualify under the general Nationwide Permit from the Corps. However, if an endangered species may be adversely affected, the Corps will have to issue an individual Section 404 Permit before the project can be built. This permit triggers the Section 7 Consultation under the federal Endangered Species Act. Additional information is needed before the Corps can determine whether the project is subject to its permit jurisdiction and which type of permit is appropriate.

B. STATE OF CALIFORNIA AND REGIONAL AGENCIES

1. California Safe Drinking Water Act, 1986

The California Safe Drinking Water Act establishes policies to ensure that water delivered by public water systems of this state be at all times pure, wholesome, and potable.

For public water systems with 200 or more service connections, the State Department of Health is responsible for carrying out the Act. The County Environmental Health Department is responsible for reviewing and permitting the small public water systems which supply fewer than 200 service connections. The Department is not responsible for review and approval of permits for small water systems, unless assistance is requested by the local health officer. The Pescadero water supply is less than 200 service connections.

The Department of Health Services is to act as the lead agency for review and approval of all projects funded under the Safe Drinking Water Bond Law regardless of size. The design and construction of the Pescadero Water Supply Project will be reviewed and approved by the Department of Health Services. The permits will be issued through the County Environmental Health Department.

No person shall operate a public water system unless he first files a petition for permission to do so with the department and receives a permit. The department must determine that the system will not be subject to back-siphonage and that the water to be supplied is under all circumstances pure, wholesome, and potable and will not endanger the lives or health of human beings, prior to granting a permit authorizing the water supply. Changes in distribution systems may be made without permit review only if the changes comply with the California Waterworks Standards.

Any person operating a public water system must provide an analysis of the water covering such matters and at such intervals as prescribed by the department.

10/9/87

The Act required the department to establish a program for detecting and monitoring organic chemical contaminants in drinking water delivered by public water systems, and conduct an evaluation of each public water system to determine the potential for contamination. Based on these evaluations, the local health officers develop a sampling plan for each system within their jurisdiction. The collected samples are submitted to a certified laboratory for evaluation. This section, however, is only operative during the fiscal year if the Legislature appropriates sufficient funds to pay for all state mandated costs to be incurred by local agencies.

The State Department of Health Services provided the Public Works Department with a list of inorganic and organic chemicals which should be tested for in the proposed water supply. This water source will continue to be tested every three years (Rex Goff, pers. comm. 7/27/87)

The person operating the water system must notify the department and the water users when any primary drinking water standard is not complied with, when a monitoring requirement specified in the department's regulations is not performed or when a water purveyor fails to comply with the conditions of any variance or exemption. A public water system shall not be operated without an emergency notification plan submitted to and approved by the department.

2. State Drinking Water Bond Law, 1986

The State Drinking Water Bond Law authorized State loan and grant assistance for eligible water projects. The program is administered by the Departments of Water Resources and Health Services. The program provides loan and grant assistance to eligible water suppliers to construct, improve or rehabilitate domestic water systems to meet at a minimum, safe drinking water standards. Priorities are set for eligible projects according to severity of contamination or supply problems.

3. California Department of Fish and Game

The Department of Fish and Game (CDFG) is responsible for protecting California fish and wildlife. The California Endangered Species Act requires a lead agency to consult the CDFG and obtain written findings of whether the proposed activity will impact state endangered or threatened species. The state act does not empower the department to deny a project permit issued by the lead agency or to prosecute instances where endangered species were taken. It is the role of the department to suggest ways of preventing harm to endangered species. Where a project involves both federal and state listed endangered species, the California Endangered Species Act acknowledges the federal act as the higher authority.

The department does have discretionary authority over a Streambed Alteration Agreement. Any project which changes the stream banks or beds, places pipes in the stream, or drills a well in the 100 year flood plain requires a Streambed Alteration Agreement from the CDFG before it can begin construction. The department cannot grant the permit if it would result in the taking of endangered species or their habitat.

Linda Ulmer, Field Biologist (CDFG), responded to the Notice of Preparation for this project. She was particularly concerned with the impact of diverting water from Honsinger Creek on the steelhead, riparian vegetation, and freshwater inflows into Pescadero Marsh needed to preserve the habitat of the endangered San Francisco Garter Snake (Linda Ulmer, 2/10/87). The letter states that "The mitigation section should address not only bypass flows for steelhead during the winter but also flows necessary to maintain instream rearing habitat for YOY (young-of-the year)/yearling steelhead in Honsinger Creek from April through December. Also, mitigation measures should be provided which will ensure that suitable freshwater inflows from Pescadero Creek to the marsh and coastal lagoon be maintained during low flow periods."

A permit from the State Water Resources control Board (SWRCB) will be required for the Conjunctive Supply alternative. CDFG has review authority for all appropriative water right applications. CDFG will strongly recommend to the SWRCB that studies be conducted by the County to assess impacts to fish and wildlife from reduced surface flows in Honsinger Creek, Pescadero Creek, and Pescadero Marsh prior to issuance of a permit. Also, this alternative would be subject to the requirements of Fish and Game Code Sections 5900 through 6100 regarding dams, conduits, and diversions. Selection of this alternative would require provisions for adequate fish flows, fish screens, ladders, fishways, etc.

Regarding the Wells Only alternative (potable or brackish), CDFG notes that "this would have a serious adverse impact on resident fish and wildlife only if surface flows in both Honsinger and Pescadero Creeks were significantly diminished. A hydrological assessment of groundwater utilization and recharge rates needs to be provided in the DEIR. This should include predictions on surface flow depletions for both streams which would result from groundwater pumping. A complete cumulative impact assessment on instream and riparian habitats affected by this project alternative should also be provided."

Linda Ulmer requests that data on seasonal stream flows necessary to maintain instream spawning and rearing habitat be "provided either in the Draft EIR or a supplemental DEIR in order for our agency to adequately assess potential impacts of the proposed project on fish and wildlife resources." An instream flow study would be necessary to determine this information. Such an involved study is not in the scope of this Environmental Assessment but is recommended as a mitigation measure to be completed prior to construction of any project which requires a Stream Alteration Agreement. A hydrological assessment of the Warheit well alternative is included in Appendix A.

4. California Department of Forestry

The California Department of Forestry (CDF) does not have permitting authority over this project. Since 1962, CDF has contracted with San Mateo County to provide fire protection for the rural areas including Pescadero. Any change in the water system used for fire protection must be approved by this department.

10/9/87

5. California Coastal Commission

The California Coastal Commission was established through the Coastal Zone Management Act in order to manage development along the coastline. The Commission's jurisdiction covers the length of the state extending up to five miles inland in some areas. Projects proposed within the Coastal zone are subject to a Coastal Development Permit. The Pescadero water supply project is within the Coastal Commission's appeal and jurisdiction. Therefore approval of a Coastal Development Permit to allow construction of the water supply system is appealable to the Coastal Commission.

The Commission operates through provision of federal laws under the National Oceanic and Atmospheric Administration (NOAA). If endangered species may be affected, the Coastal Commission must consult with the USFWS before issuing the Coastal Development Permit.

6. California Department of Parks and Recreation

The California Department of Parks and Recreation manages the Pescadero Marsh as a public trust. As the owner of the property adjacent to a creek, the department may apply for the right to divert and use this water. By leaving the water for instream uses, the department cannot own water rights. As a result, the department does not have legal rights to retain certain volumes of water flowing into the marsh. The department does not have direct permit authority over the project unless it involves using the marsh land. They can, however, review the project and make recommendations or file a protest in their role, as manager of the public trust, to protect the environmental quality of the marsh.

7. California Water Resources Control Board

The State Water Resources Control Board is divided into two statutory divisions: Water Rights and Water Quality. The Water Rights Division governs the appropriation of water as provided by the Water Code Title 23 Chapter 3, Subchapter 2. The Water Quality Division is broken into nine regional boards (See Section B.9. below).

Diversion of Honsinger Creek will require a Water Right Permit from the Water Rights Division. The pumping of groundwater may also require a Water Right Permit if it affects surface flows. Once submitted, the application is reviewed for the quality of water for domestic consumption, the change of quality of the creek due to the diversion, the change of the creek temperature and the resulting impact on aquatic life, possible sedimentation and vegetation encroachment, and whether the remaining flow is adequate to maintain wildlife. Once the application is considered complete, the division begins its review process. If there are no protests, the permit may be issued in six to eight months. If raised objections involve complicated issues, the review may take two to three years.

The Water Rights Permit authorizes the development of water resources. This enables the system to be constructed and begin water supply service. When the system is operating at its designated maximum, based on the quantity of water and the rate of diversion, the permittee then qualifies for a Water Right License. This license permanently entitles the owner to use of the water and is recorded with the County similar to a property right.

8. California Waterworks Standards

The California Waterworks Standards establish minimum standards for the design and construction of changes in the distribution system of an existing public water system. Changes in the distribution system of a public water system that conform with these standards may be made without obtaining an amended permit. These standards do not apply to existing facilities.

9. Regional Water Quality Control Board

The State is divided into nine regional boards which are authorized to adopt regional water quality control plans, prescribe waste discharge requirements, and perform other functions concerning water quality control within their respective regions, subject to State Board review or approval.

The Pescadero water supply project is located within the San Francisco Bay Region of the Regional Water Quality Control Board. The Board does not directly require a permit for this project. If the diversion of Honsinger Creek is subject to a Section 404 Permit from the Army Corps of Engineers, the Board will participate in the certification process of that permit. The RWQCB requires mitigation measures sufficient to protect the potential and existing beneficial uses of state waters.

10. Local Agency Formation Commission (LAFCo)

The Local Agency Formation Commission is a state agency organized at the county level. Each LAFCo has jurisdiction over annexations, incorporations and the formation of special districts. LAFCo also determines spheres of influence or ultimate service area boundaries for each city and special district in the county. Establishing a water supply for Pescadero requires the formation of a County Service Area (CSA) to manage the water system. This special district must be authorized by the San Mateo County Local Agency Formation Commission before the County can apply to the State for project funding.

Once the CEQA document has been certified by the County, the San Mateo LAFCo will review the project and make a determination. If it approves the CSA formation, the Commission will adopt a resolution authorizing the County to create this special service district.

C. SAN MATEO COUNTY

1. San Mateo County General Plan

The 1984 San Mateo County update is the current General Plan. The General Plan consists of four volumes: Resource Management and Community Development. Both contain issues and policy statements for the nine elements mandated by State law. Area Plans show land use plans adopted for unincorporated portions of the County. The Implementation Plan outlines how the County will implement the General Plan as a whole.

The General Plan designates Pescadero as a Rural Service Center and identifies the appropriate land uses for this community. The Plan encourages development within the service center to provide commercial facilities which support local residents and the surrounding agricultural and recreational economy. The General Plan also supports "infrastructure improvements necessary to serve the level of development allowed within Rural Service Centers in order to: 1) provide adequate access, water and sewage disposal facilities necessary to serve that level of development, and 2) mitigate any existing flooding hazards."

The General Plan outlines several water supply policies in support of efforts to provide adequate water systems for the Mid-Coast, rural service centers, and other unincorporated urban areas. Regarding potential water sources, general policies include:

- "a. Support the creation of water supplies which are commensurate with the level of development permitted in adopted land use plans.
- b. Identify and encourage the protection and development of sites in rural areas suitable for reservoirs to store water supplies.
- c. Encourage and support different techniques to convert saltwater to potable water.
- d. Consider treated wastewater as a potential source of water.
- e. Encourage the development of offstream reservoirs for the retention of water generated from winter runoff." (Policy 10.9)

The creation of new water systems for Rural Service Centers and Rural Subdivisions are allowed when it is demonstrated that connections to existing systems are not available, the new water system will use wells or springs as a source of supply, and adequate financing for the new water system is available. However, in the case of the Pescadero Rural Service Center, the General Plan allows "the use of surface water as a source of supply due to an existing inadequate supply of groundwater serving a substantial existing population."

Although an exception is made for Pescadero, County policies encourage the use of wells or springs rather than surface water for domestic water supplies to serve new development. These wells must be "located an adequate distance away from the normal watercourse of a stream in order to minimize impact upon downstream surface water supplies." The County will also "regulate the construction and location of wells in areas subject to flooding or served by septic tanks in order to minimize adverse impacts." Other water policies include the support of hydrological studies, the regulation of groundwater extraction, the restoration of polluted aquifers, and water conservation.

Policies regarding the community of Pescadero are specifically discussed in the Local Coastal Program (LCP). The LCP was adopted as an Area Plan by the County in 1980. This plan is discussed in detail in the next section.

2. Local Coastal Program

The 1976 California Coastal Act requires every local government with jurisdiction within the Coastal Zone to prepare a Local Coastal Program, including a land use plan. The Coastal Act requires this land use plan to be part of the general plan. This land use plan and all amendments must be approved for consistency with Coastal Act policies by the California Coastal Commission.

The Local Coastal Program for San Mateo County was certified in 1980 by the California Coastal Commission. The LCP uses four categories to classify the various communities within the County.

Urban Areas are those lands suitable for urban development because the area is either: 1) developed, 2) subdivided and zoned for development at densities greater than 1 dwelling unit per 5 acres, 3) served by sewer and water utilities, and/or 4) designated as an affordable housing site in the Housing Component.

Rural Areas are those lands suitable for a variety of residential commercial, agricultural and recreational land uses which are consistent with maintaining open space in order to 1) preserve natural resources, 2) manage the production of resources, 3) provide outdoor recreation, and 4) protect public health and safety.

Rural Service Centers are small rural communities having a combination of land uses which provide services to rural areas.

Rural Residential Areas are rural lands outside the urban rural boundary which are: 1) subdivided and developed with residential uses at densities less than 1 dwelling unit per 5 acres, 2) adjacent to urban areas, and 3) partially or entirely served with utility lines.

Pescadero is designated as a Rural Service Center. Land uses within this community provide commercial facilities to support agriculture and recreation and meet the needs generated by local employment. The LCP specifies development densities for the land uses dependent upon their land use designation. Specific densities allowed in Pescadero are presented in Table 10.

The Pescadero water supply project is defined in the LCP as a public works project and will be subject to a coastal development permit. Under the general policies of the LCP, the County requires "a coastal development permit from any public utility, government agency or special district wishing to undertake any development in the Coastal Zone...". As a condition of permit approval, the project proponent must conform to the County's zoning ordinance and the policies of the Local Coastal Plan.

Public Works Component

The LCP acknowledges the potential health hazard posed by the existing water supplies in Pescadero, and outlines several policies governing the development of a new water supply system for this community.

The capacity of the system must be limited to the water required to serve the community at the buildout level of the LCP's Pescadero Land Use Plan. Water connections will be confined to uses within the boundary of the rural service center. A recent study prepared by KJC Engineers identified 130 residents and 16 commercial establishments within this boundary. The LCP estimates buildout within this boundary at 250 dwelling units and 40 commercial outlets. Existing housing units and commercial facilities represent the highest priority recipient of the water supplied by this system. Other land uses such as new commercial recreation development or agriculture have lower priority. Monitoring water consumption by use is required in order to annually revise the estimated buildout capacity limits and the reservations for the priority uses.

Policy 2.42 discusses the release of permits and specifically requires the managing entity of the water system to:

- "1. Base release of water connection permits on proven capability of the system as it is determined initially and reevaluated annually,
2. Use the priorities for reservation of capacity to determine the order in which permits shall be granted. Prohibit the granting of permits to other land uses until the system is proven capable of supplying existing housing and commercial facilities and Coastal Act and LCP priority uses."

TABLE 10
ALLOWABLE LAND USES AND DEVELOPMENT DENSITIES
COMMUNITY OF PESCADERO

LAND USE -----	DENSITY -----
<u>Residential</u>	
Very Low	0.0 - 0.2 dwelling units per acre
Low	0.3 - 2.0 dwelling units per acre
Medium Low	2.1 - 6.0 dwelling units per acre
Medium	6.1 - 8.0 dwelling units per acre
<u>Commercial</u>	
General Commercial	no density specified
Neighborhood Commercial	no density specified
Coastside Commercial Recreation	no density specified
<u>Other</u>	
Institutional	no density specified
<u>Open Space</u>	
Public Recreation	1 d.c. per 40 ac. - 1 d.c. per 160 ac.
Private Recreation	1 d.c. per 40 ac. - 1 d.c. per 160 ac.
General Open Space	1 d.c. per 40 ac. - 1 d.c. per 160 ac.
Agriculture	1 d.c. per 40 ac. - 1 d.c. per 160 ac.

Source: San Mateo County, Local Coastal Program Policies, Table 1.2 and Table 1.3, November 1985.

Policy 2.44 addresses proposals using groundwater as the source of water supplies:

- "a. Require, if wells are proposed for increased water supply, two or more wells to reduce the potential for drawing down polluted water from the surface alluvium layer.
- b. Require a storage tank with capacity to provide a two to four week emergency water supply in case of full failure of the wells and/or rapid deterioration of water quality.

- c. Require that a qualified person agreed upon by the County and the applicant shall conduct studies which: 1) prior to the granting of a well permit, examine the geologic and hydrologic conditions of the site to determine a safe water yield which will not adversely affect water dependent sensitive habitats; and 2) during the first five years, monitor the impact of the well on groundwater and surface water levels and quality, plant species and animals of affected water dependent sensitive habitats to determine if the sensitive habitats are adversely impacted and what measures should be taken and when adverse effects occur. Require mitigation of adverse impacts.
- d. If the preliminary safe yield has been found to be other than previously established, after public hearings, revise the yearly allowable water withdrawal to reflect this new figure, seek other water sources and follow the requirement for the release of permits in Policy 2.42."

The Conjunctive Supply relies on one well and does not comply with policy 2.44(a). The Warheit and Potable Well alternatives each rely on two wells meeting the requirements.

For the existing community a minimum storage of 832,860 gallons (two week supply) is needed to comply with policy 2.44(b). At buildout projected in the LCP an increased amount of storage to provide a two week supply is needed to comply. Each alternative will store 30,000 gallons of treated water. The Warheit and Conjunctive Supply alternatives include storage for five acre-feet of raw water which is sufficient to meet the storage requirement. Without additional storage, the Potable Well alternative does not have adequate storage.

Sensitive Habitats Component

The LCP defines sensitive habitats as any area in which plant or animal life or their habitats are either rare or especially valuable. These areas include riparian areas, wetlands, sand dunes, marine habitats, sea cliffs, and habitats supporting rare, endangered, and unique species. The LCP establishes permitted uses, performance standards and buffer zones for each of these habitats. Permitted uses and performance standards are also specified for the buffer zones.

In general, any land use or development activities which would have significant adverse impacts on these sensitive habitat areas are explicitly prohibited. Resource dependent uses are permitted within sensitive habitats and must comply with USFWS and CDFG regulations. If it is determined that a project may cause significant impacts, a report must be prepared which provides mitigation measures to protect resources, and a program for monitoring and evaluating the effectiveness of mitigation measures. Also, the restoration of damaged habitat should be required as a condition of permit approval when the Planning Director judges that it is partially or wholly feasible.

Necessary water supply projects are specifically listed as permitted uses within riparian corridors. Diversion of Honsinger Creek would be subject to the following performance standards: 1) provide sufficient passage for native and anadromous fish as specified by the CDFG, 2) prevent depletion of groundwater supplies and substantial interference with surface and subsurface water flows, 3) maintain natural vegetation buffer areas that project riparian habitats, and 4) minimize alteration of natural streams.

The LCP designates Pescadero Marsh as a high priority resource management project. Specific policies encourage the State to conduct a thorough hydrological study of the watershed emphasizing the efficient use of existing water supplies. Groundwater extraction should be limited to aquifer safe yield.

3. San Mateo County Fire Ordinance

The County standards for fire flows are set forth in the San Mateo County Fire Ordinance. For residential districts where one family dwelling units are being considered:

1. The fire flow at any given hydrant shall be at least 500 gallons per minute for 2 hours duration at 20 psi residual operating pressure above the daily domestic consumption rate of 150 gpm.
2. The County Fire Warden shall determine the placement of all hydrants. Normally approved hydrants shall be located at each street intersection and at 500 foot intervals between intersections.

For multi-family residential areas or commercial districts:

1. The water mains shall be capable of providing a potential fire flow of 2500 gpm and the actual fire flow available from any one hydrant connected to any given water main shall be 1500 gpm for 2 hours duration at 20 psi residual operating pressure.
2. The County Fire Warden shall determine the placement of all hydrants. Normally approved hydrants shall be located at every intersection and at maximum intervals of 300 feet.

According to KJC Engineers, in order for fire flow standards to be met for the Potable Well and Conjunctive Supply Alternatives, a pipe 12" in diameter must be used to distribute the treated water from the storage tanks to the most remote point in the business section. The storage would need to be increased by 180,000 to 210,000 gallons. If County fire protection standards are to be met for the Warheit Well Alternative, a 10" pipe must distribute water from the tank to the business district. The storage would also need to increase by 180,000 gallons.

4. San Mateo County Environmental Health Department

The San Mateo County Environmental Health Department (Department) is the local agency responsible for enforcing the water quality standards and granting the Domestic Water Permits for water supply projects with fewer than 200 service connections. The Department has authority over the water supply system established for Pescadero. However, since the County will be seeking state funding for the project, the State Department of Health Services will review the project before the Department grants the permit.

5. San Mateo County Department of Public Works

The water supply system for Pescadero will be constructed and operated under the supervision of the County Public Works Department. The distribution system will be installed entirely within the rights of way of County maintained roads requiring an encroachment permit. This permit is routinely issued to projects meeting prescribed requirements.

D. SUMMARY OF POSSIBLE PERMITS OR OTHER ACTIONS REQUIRED

REVIEWING AGENCY -----	POSSIBLE ACTION REQUIRED -----	ALTERNATIVE -----	NOTES -----
<u>Federal</u>			
U.S. Army Corps of Engineers	Nationwide Permit or Section 404 Permit	Conjunctive Supply	Individual Section 404 Permit needed only if endangered species impacted.
U.S. Fish and Wildlife Service	Section 7 Consultation with U.S. Army Corps of Engineers and Calif. Coastal Commission	Conjunctive Supply	Consultation required only if decrease in surface flows or deposition of brine adversely impacts federally endangered species.
<u>State</u>			
LAFCo	Formation of new County Service area	Warheit Well Potable Wells Conjunctive Supply	LAFCo must approve the formation of a new County Service area.
Department of Fish and Game	Streambed Alteration Agreement	Potable Wells Conjunctive Supply	Permit required if changing creek flows or if wells are drilled in flood plain. Consult with San Mateo County on impacts to State listed rare and endangered species.
Coastal Commission	Coastal Development Permit	Warheit Well Potable Wells Conjunctive Supply	All alternatives subject to appellate authority
Water Resources Control Board -- Water Rights Division	Water Right Permit	Warheit Well Potable Wells Conjunctive Supply	Diversion requires permit. Groundwater wells require permit if pumping affects surface flows.
Department of Forestry	Fire Protection	Warheit Well Potable Wells Conjunctive Supply	Consult with San Mateo County on changes in water supply used for fire protection
Department of Health Services	Domestic Water Permit	Warheit Well Potable Wells Conjunctive Supply	Review Domestic Water Permit before approved by County Environmental Health.
<u>County</u>			
Environmental Health	Domestic Water Permit	Warheit Well Potable Wells Conjunctive Supply	Development of public water system requires permit regardless of supply source.
Public Works	Encroachment Permit	Warheit Well Potable Wells Conjunctive Supply	Installing the distribution lines along public rights of way requires permit.
Planning	Coastal Development Permit	Warheit Well Potable Wells Conjunctive Supply	

IV. ENVIRONMENTAL SETTING

A. GEOLOGY, SOILS AND SEISMIC SAFETY

The community of Pescadero is located in the historical floodplain of Pescadero Creek. The alluvium in this flatland area contains beds of gravel, sand and clay, and is up to 120 feet thick in places. Surrounding the valleys of Pescadero Creek and its tributaries are hilly areas of steep terrain composed of Tertiary bedrock formations to the east of Butano Creek and Cretaceous bedrock to the west (Figure 12). The bedrock consists mostly of sandstones, siltstones, mudstones and shales of marine origin.

The San Andreas Fault lies to the east of the Pescadero Creek Watershed on the east side of the Santa Cruz Mountains. Within the watershed there are two major fault zones, the Butano Fault east of the study area, and the San Gregorio-Hosgri fault system within the study area. The San Gregorio Fault trends north-northwest through the study area, cutting across the Pescadero Creek valley just east of the junction of Pescadero and Honsinger Creeks (Figure 12). The Big Basin Syncline and associated anticline are located east of the San Gregorio Fault, crossing Pescadero Creek from a northwest direction. The San Gregorio Fault is considered active (activity within the last 11,000 years).

The State of California seismic safety data suggests a maximum credible earthquake on the San Gregorio Fault is from 7.5 to 8.0 on the Richter Scale. Beyond approximately 1000 feet from the fault trace, the regulatory concern is not ground rupture but peak ground accelerations which can reach 0.7g to 0.9g.

The Pescadero Creek Watershed is experiencing continued tectonic uplift estimated at over one foot per century. The western part of the project area, the Pigeon Point Block, has been subject to both uplift and tilting eastward. Regional evidences of uplift in recent geological times include well-developed and abruptly faced marine terraces, rejuvenated creek channels which are actively downcutting, and steep slopes.

The steep slopes which surround the valley are highly susceptible to landsliding (Figures 13 and 21).

B. HYDROLOGY AND WATER QUALITY

Pescadero Creek Watershed

The Pescadero Creek Watershed encompasses 81 square miles. The primary watercourse is Pescadero Creek, which is fed by several tributaries, including Honsinger, Bradley and Butano Creeks. Honsinger Creek, which is perennial, joins Pescadero Creek just east of the community of Pescadero. Bradley Creek is intermittent and flows into Pescadero Creek from the north, between Pescadero and the marsh. Butano Creek, which is the main tributary to Pescadero Creek, joins Pescadero Creek at the marsh, a few hundred yards from its mouth (Figure 14).

The rainfall in the area averages 20 to 30 inches per year, and occurs mainly from November through March. Creek flow is turbid in the winter, when stormwater runoff carries a high sediment load, and relatively clear in the summer. Although no part of the Pescadero Creek watershed is densely developed, there is extensive low-density habitation and septic tank use along Pescadero Creek. Honsinger Creek is relatively unoccupied.

Surface and groundwater in the Pescadero Creek watershed is used to serve domestic, institutional and agricultural uses. Water for irrigation is primarily diverted from Pescadero Creek (John Wade, Midpeninsula Open Space Trust, pers. comm.). A broad estimate of agricultural water requirements is 1.5 to 2.0 acre-feet per acre of irrigated land. Although bottled water is now primarily used as the potable source, private wells still service non-potable domestic and institutional water needs. The wells tap shallow groundwater sources in the alluvium which have become contaminated with septic tank effluent and agricultural wastewater.

Groundwater Potential

Warheit Well. The Warheit well is located near the western border of the Pescadero Creek watershed, just west of Butano Creek in the Pigeon Point Formation. This bedrock formation consists of several hundred feet of conglomerate, sandstone, siltstone, and mudstone. The USGS (1980) reports that these materials are poorly sorted and for the most part well consolidated, resulting in generally low permeability. In local areas, though, the conglomerate and sandy units are fractured extensively and transmit water slowly to wells.

There are numerous seeps in the Pigeon Point Formation which form small perennial streams. The seeps indicate a certain amount of groundwater recharge and storage, yet the seeps are located mostly in topographically high areas. This might indicate that little of the recharge water travels far down into the Formation.

The original test well was drilled near the top of a ridge at an elevation of about 250 feet. The well was pumped at elevations between about 75 feet above sea level and 7 feet below sea level. Butano Creek is located downslope of the well at an elevation of less than 40 feet. In the pump test report completed on the Warheit well in August 1987, KJC Engineers indicate that "long-term impacts to local groundwater and surface water levels can not be quantified at this time; however, the impacts to recharge of the local groundwater flow system will not be significant in comparison with the available regional recharge."

Other Groundwater. Other groundwater sources in the vicinity of Pescadero may be located in Santa Cruz Mudstone, the Purissima Formation, or alluvial deposits. To the east of Pescadero, the San Gregorio Fault, Big Basin syncline and an associated anticline influence the direction of local groundwater movement. Both the Santa Cruz Mudstone and the Purissima Formation are offset by the Fault.

The Santa Cruz Mudstone is exposed only to the east of the Fault. This formation is a poor producer of water, consisting of indurated, fractured claystone and mudstone. Wells in this formation seldom yield more than 5 gpm according to the USGS (1980).

The Purissima Formation contains some sandstone beds containing water which may be permeable enough to yield 50-100 gpm in the area south of Pescadero Creek and west of the San Gregorio fault. The deeper sandstone beds in the area east of Butano and Little Butano Creeks contains a concentration of chloride which exceeds the recommended Public Health Service standard. The USGS predicts that the water west of the creeks might be of better quality, yet still not of high enough quality to meet Public Health standards for drinking water. In the Purissima Formation water occurs under artesian, or confined, conditions. It is estimated that with two or more wells in the Purissima Formation, 100 gpm could be produced but the water would not be potable.

Thick and coarse-grained alluvial deposits occur just northwest of the junction of Honsinger and Pescadero Creeks. Permeable gravel and sand beds in this area occur at depths below 60 feet, as indicated by logs of wells. Lenticular clay beds commonly occur between 20 and 40 feet.

The alluvium is capable of yielding 100 gpm but the water is locally excessive in concentrations of nitrates, chloride, iron or other constituents. Several wells northwest of the junction of Honsinger and Pescadero Creek are reported to yield more than 50 gpm, according to USGS. Two of the wells contain water which is potable but very hard. Two of the four County test wells located to the south and southeast of the Honsinger and Pescadero Creek junction produced saline water (Figure 15). The other two test wells produced insufficient amounts of water to meet the estimated demand.

The operational life of wells in this area may be limited due to the nearness of the fault line which may act as an impenetrable barrier, thereby increasing drawdowns in the well. It has been proposed by Geoconsultants that saline water under pressure could migrate up the fault zone and into the adjacent alluvial deposits.

Two locations have been recommended for additional test wells. The first choice for a test well site is in the alluvium north of the junction of Honsinger and Pescadero Creeks, west of the San Gregorio Fault. This site was recommended by USGS. The second choice is in Section 3, north of the Community of Pescadero and the cemetery on Bradley Creek. This test well would be in the Purissima Formation (Figure 15).

Surface Waters

Surface waters in this portion of the study area include Pescadero Creek and its tributaries, Honsinger Creek, Bradley Creek and Butano Creek.

Pescadero Creek is a perennial stream. Based on thirty-three years of data collected by the US Geological Survey (1951-1984), the average annual flow of water in Pescadero Creek is 32,800 acre-feet.

The average annual volume of water in Butano Creek based on the twelve years of data available from USGS (1962-74) is 16,010 acre-feet. Butano Creek enters Pescadero Creek very close to the mouth of Pescadero Creek, so although it contributes a large portion of the total volume in Pescadero

Creek, this volume is present for only a short distance before the creek empties into the ocean.

Although Bradley Creek has a watershed twice as large as Honsinger Creek, flows are less dependable and the creek is defined as intermittent by the USGS.

Honsinger Creek is a perennial tributary to Pescadero Creek. During the summer months it is supplied primarily by seeps and springs from an aquifer. For their 3/87 report KJC Engineers simulated the monthly flows in Honsinger Creek over a 28-year period, based on rainfall data, soil survey data, field survey, and local interviews. Using a computer model it was estimated that the mean annual volume of the creek is 890 acre-feet.

The relative contribution of water from Honsinger Creek to Pescadero Creek is presented in Table 11, based on calculations using USGS flow data for Pescadero and KJC Engineers flow estimates for Honsinger. These data indicate that between 1970 and 1980 Honsinger Creek contributed typically three or four percent of the flow in Pescadero Creek. This estimate is high because the only gauging station used for Pescadero Creek is three miles east of Pescadero, two miles upstream of the confluence with Honsinger Creek, and 5.3 miles upstream of the mouth. It does not take into account the influence of Bradley or Butano Creeks. It also does not take into account that approximately twenty acre-feet of water is diverted from Honsinger Creek annually to provide irrigation in the Honsinger Creek watershed.

Because of their dependability of flow and proximity to the service area only Pescadero and Honsinger Creeks have been considered as surface sources for a water supply.

Use of Pescadero Creek for a water supply is limited due to the amount of development on the Creek and the potential for contamination. Diversion of Pescadero Creek would have to occur so far upstream that it would become uneconomical to use it as a water source. While the Honsinger Creek watershed encompasses only two miles above the proposed point of diversion, it is relatively undeveloped and still provides a consistent source of water.

In the hydrological analysis of Honsinger Creek presented in the KJC Engineers March 1987 report, it was determined that Honsinger Creek as a sole source of water would meet the water demand of 166 EDU's for all but three of the twenty-eight years, and would not be suitable as a sole source of water for Pescadero.

Although Honsinger Creek cannot be used as a sole source it may be partially diverted and supplemented with a groundwater supply. KJC Engineers estimated that under the conjunctive supply alternative Honsinger Creek would supply 50% to 60% of the current water demand with a well supplying the remaining amount.

10/9/87

TABLE 11
AVERAGE FLOWS 1970-1981
HONSINGER CREEK AND PESCADERO CREEK

Water Year (Oct-Oct)	Pescadero Creek (acre-feet)	Honsinger Creek (acre-feet)	Percent of Pescadero Creek
1970-71	18,533	737	4
1971-72	4,663	53	1
1972-73	51,825	2,021	4
1973-74	47,305	1,384	3
1974-75	25,784	400	2
1975-76	2,986	13	0.4
1976-77	1,249	3	0.2
1977-78	45,616	1,675	4
1978-79	16,600	889	5
1979-80	41,522	1,165	3
1980-81	9,634	391	4
Average:	24,156	794	3

Notes: Data for Pescadero Creek came from the USGS "Water Resources Data for California", and was taken from a location three miles upstream of Pescadero, about two miles upstream of the mouth of Honsinger Creek. Data for Honsinger Creek was estimated in the KJC Engineers 3/87 report, based on rainfall and soil characteristics.

The water quality of Honsinger Creek is compared to other potable sources of water for the Pescadero in Table 12. The water from Honsinger Creek contains excessive amounts of turbidity, color, iron and bacterial content. When high run-off occurs during and after major storms, there is typically a greater amount of turbidity and sediment concentrations in the creek water, at times exceeding 100 NTU (turbidity units).

C. BIOLOGY

Most of the alluvial plain around Pescadero has been developed for agriculture. Biological resources are found in streams and marshes in the valley and in the natural open space areas in the hills surrounding Pescadero. The biological communities present include coastal strand, brackish and freshwater marsh, coastal scrub, streambank vegetation, and grassland, as defined in Thomas' Flora of the Santa Cruz Mountains.

The streams and marshes of the Pescadero Creek watershed support significant biological resources. The primary watercourse is Pescadero Creek, which is fed by several tributaries including Butano, Honsinger and Bradley Creeks. Butano is the largest tributary to Pescadero Creek. Pescadero Marsh has formed behind the coastal dunes near the confluence of Butano and Pescadero creeks (Figure 16).

The San Mateo County Local Coastal Program (LCP, Chapter 7) lists sensitive species which are associated with the water resources:

10/9/87

- o The California Black Rail, Laterallus jamaicensis coturniculus, inhabits coastal salt and inland freshwater marshes in California. Gradual habitat destruction has resulted in State listing as a Rare species. It is known to inhabit Pescadero Marsh.
- o The San Francisco Garter Snake, Thamnophis sirtalis tetrataenia, occurs near freshwater marshes, ponds, and slow moving streams in San Mateo County, California. The majority of prime habitat for this species has been destroyed by urbanization. This species is listed as Endangered by both the State of California and the US Fish and Wildlife Service. This species inhabits Pescadero Marsh and the surrounding area.
- o The California Brackish Water Snail is known to inhabit the Pescadero Marsh. It is listed as a rare and endangered species in the LCP and is a Federal Candidate 2 species, which means there is enough information to nominate the species but the US Fish and Wildlife Service is continuing to gather information in order to compile a listing package. The snail is not listed by the State of California (Steve Niccolo, pers. comm.).

TABLE 12
WATER QUALITY OF POSSIBLE PESCADERO SOURCES

CHARACTERISTIC	UNITS	HONSINGER CREEK (1)	DUARTE PROPERTY WELL #1 (2)	WARHEIT WELL (3)	DRINKING WATER CRITERIA (4)	
<u>GENERAL</u>						
pH	--	7.4	--	7.8	6.5 - 8.5	S
Turbidity	NTU	4.3(5)	--	--	0.2 - 0.5	P
Color	CU	<u>23.0</u>	--	--	15	S
Odor	TON	NONE	--	--	<3	S
Conductivity	umhos/cm	669.0	<u>2990.0</u>	490.0	900 - 1600	S
Total Dissolved Solids	mg/L	505.0	--	420.0	500 - 1000	S
Total Hardness	mg/L-CaCO ₃	225.0	--	220.0	180	R
Total Alkalinity	mg/L-CaCO ₃	188.0	--	79.0	200	R
<u>MINERALS</u>						
Calcium	mg/L	58.0	--	59.0	--	-
Magnesium	mg/L	20.0	--	18.0	--	-
Sodium	mg/L	93.0	--	62.0	20 - Low	R
Potassium	mg/L	2.8	--	--	--	-
Iron	mg/L	<u>0.39</u>	<u>30.0</u>	<0.01	0.3	S
Manganese	mg/L	0.02	<u>1.19</u>	<0.02	0.05	S
Carbonate	mg/L	<1.0	--	0.0	--	-
Bicarbonate	mg/L	229.0	--	96.0	--	-
Chloride	mg/L	58.0	<u>780.0</u>	110.0	280 - 500	S
Sulfate	mg/L	159.0	--	11.0	250 - 500	S
Nitrate (N)	mg/L	0.37	0.52	2.67	10	P
Phosphate (P)	mg/L	0.08	--	--	--	-
Fluoride	mg/L	0.34	0.62	<0.01	1.4	P
Silica	mg/L	25.0	--	--	--	-
Boron	mg/L	0.51	--	--	1.0	R
<u>HEAVY METALS</u>						
Arsenic	mg/L	<0.01	0.007	<0.01	0.05	P
Barium	mg/L	0.10	<0.05	<1.0	1.0	P
Cadmium	mg/L	<0.002	<0.01	<0.01	0.01	P
Chromium	mg/L	<0.001	<0.005	<0.0085	0.05	P
Copper	mg/L	<0.01	--	<0.1	1.0	S
Lead	mg/L	<0.01	<0.01	<0.005	0.05	P
Mercury	mg/L	<0.0002	<0.001	<0.001	0.002	P
Selenium	mg/L	<0.01	<0.01	<0.01	0.01	P
Silver	mg/L	<0.01	<0.01	<0.02	0.05	P
Zinc	mg/L	<0.01	--	0.11	5.0	S
<u>ORGANICS</u>						
Endrin	µg/L	<0.04	--	--	0.2	P
Lindane	µg/L	<0.04	--	--	4.0	P
Methoxychlor	µg/L	<0.2	--	--	100.0	P
Toxaphene	µg/L	<1.0	--	--	5.0	P
2,4-D	µg/L	<0.4	--	--	100.0	P
2,4,5-TP Silvex	µg/L	<0.04	--	--	10.0	P
THM's	µg/L	<1.0	--	--	100.0	P
<u>RADIOACTIVITY</u>						
Gross Alpha	pci/L	1.30±1.53	--	--	15.0	P
Gross Beta	pci/L	0.43±10.04	--	--	50.0	P
<u>BACTERIOLOGICAL</u>						
Total Coliform	MPN/100ml	<u>17,000</u>	--	--	0.0	P
Fecal Coliform	MPN/100ml	<u>2,300</u>	--	--	0.0	P
Fetal Streptococcus	MPN/100ml	<u>2,300</u>	--	--	--	-

NOTES:

- Kennedy/Jenks/Chilton Laboratory Report 863169 - 7/25/86
- Sequoia Anatical Laboratory Report 011455 - 12/10/80
- Sequoia Anatical Laboratory Report 3040576 - 5/5/83
- Drinking Water Criteria: California Department of Health Services
P = Primary Standards, S = Secondary Standards, R=No Standard - But Recommended
- Underlined () - Exceeds Standard & Treatment Required Removal

- o Steelhead Trout (Salmo gairdnerii gairdnerii), and Coho salmon (Oncorhynchus kisutch), use Pescadero Creek and its tributaries as spawning habitat. Pescadero Marsh is also used by Steelhead for rearing and smolting and is of critical importance in maintaining the run.

Steelhead are valued for sport fishing, and Coho salmon are valued for commercial fishing.

- o The Tidewater Goby (Eucyclogogius newberryi) is restricted to fresh or brackish coastal lagoons. This fish is a Federal Candidate II species, and inhabits the Pescadero lagoon.
- o The Salt Marsh Yellowthroat is a Federal Candidate II bird species which inhabits the Pescadero marsh and surrounding area.
- o The California Red-legged frog (Rana aurora draytonii), is a Federal Candidate II species which lives in vegetated areas along bodies of slow-moving water.

There are no rare or endangered plants known from the study area.

The water supply system components are located in four plant communities. The Warheit well and treatment plant would be placed in coastal scrub, while the water storage tank would be in chaparral or grazed grassland habitat. The water treatment plant for the Potable Quality well and Conjunctive Supply system would be located in an area already developed for agriculture, and the water storage tank would be located in grazed grassland or chaparral habitat. The Conjunctive Supply would also be located in the riparian zone of Honsinger Creek. The plant species which comprise these habitats are listed in Table 13.

The coastal scrub habitat near the site of the Warheit well is being invaded by pampas grass, which will eventually overtake the native coastal scrub plant species and alter the character of the habitat.

The exact siting of the potable well(s) has not been determined, although they would only be economical within roughly one mile of the center of Pescadero. The biological communities inside this boundary include grazed grassland, riparian, marsh, coastal scrub, and chaparral (Figure 17). It is most likely that the wells would be located in grazed grassland, or chaparral because these are the dominant communities in the area. It is not desirable to drill in a riparian or marsh zone because the water in a riparian zone can be contaminated from upstream sources, a marsh location would most likely deliver brackish water, and there are several regulatory constraints.

Pescadero Creek and Tributaries

Pescadero Creek supports steelhead trout and coho salmon; it is considered by CDFG to be one of the more important fisheries on the coastside. Steelhead and coho salmon are valued for both commercial and sport fishing.

TABLE 13
PLANT COMMUNITIES

COASTAL SCRUB

Scientific Name	Common Name
<u>Polypodium scouleri</u>	Coast polypody
<u>Zygadenus fremontii</u> var. <u>minor</u>	Zygadene
<u>Urtica californica</u>	Coast nettle
<u>Eriogonum latifolium</u>	Coast buckwheat
<u>Dudleya farinosa</u>	Bluff lettuce
<u>Fragaria chiloensis</u>	Beach strawberry
<u>Horkelia californica</u>	California horkelia
<u>Potentilla glandulosa</u>	Sticky cinquefoil
<u>Rubus ursinus</u>	California blackberry
<u>Lupinus variicolor</u>	Varied lupine
<u>Lupinus arboreus</u>	Tree lupine
<u>Lupinus chamissonis</u>	Blue beach lupine
<u>Rhus diversiloba</u>	Poison oak
<u>Ligusticum apiifolium</u>	Pacific lovage
<u>Heracleum maximum</u>	Cow parsnip
<u>Lomatium caruifolium</u>	Alkali parsnip
<u>Armeria maritima</u> var. <u>californica</u>	Sea pink
<u>Phacelia malvaefolia</u>	Stinging phacelia
<u>Scrophularia californica</u>	Coast figwort
<u>Diplacus aurantiacus</u>	Sticky monkey flower
<u>Orthocarpus purpurascens</u> var. <u>latifolius</u>	Owl's clover
<u>Castilleja latifolia</u> var. <u>wightii</u>	Wight's paint brush
<u>Lonicera involucrata</u>	Twinberry
<u>Baccharis pilularis</u> var. <u>consanguinea</u>	Coyote brush
<u>Erigeron glaucus</u>	Seaside daisy
<u>Anaphalis margaritacea</u>	Pearly everlasting
<u>Layia platyglossa</u> ssp. <u>platyglossa</u>	Tidy tips
<u>Eriophyllum staechadifolium</u>	Lizard tail
<u>Achillea millefolium</u> var. <u>californica</u>	Common yarrow
<u>Artemisia californica</u>	California sage

CHAPARRAL

Scientific Name	Common Name
<u>Pityrogramma triangularis</u>	Goldenback fern
<u>Pellaea andromedaefolia</u>	Coffee fern
<u>Pellaea mucronata</u>	Birds foot fern
<u>Zygadenus fremontii</u> var. <u>fremontii</u>	Fremont's star lily
<u>Chlorogalum pomeridianum</u>	Soap plant
<u>Quercus agrifolia</u>	California live oak
<u>Quercus dumosa</u>	California scrub oak
<u>Calandrinia breweri</u>	Brewer's calandrinia
<u>Dendromecon rigida</u>	Tree poppy
<u>Holodiscus discolor</u>	Cream bush
<u>Cercocarpus betuloides</u>	California mountain mahogany

10/9/87

Adenostoma fasciculatum
Prunus ilicifolia

Chamise
 Holly-leaved cherry

Scientific Name

Common Name

Photinia arbutifolia
Pickeringia montana
Lotus scoparius
Rhus diversiloba
Rhamnus californica
Ceanothus sorediatus
Ceanothus papillosus
Ceanothus cuneatus
Zauschneria californica
Garrya elliptica
Arctostaphylos glauca
Arctostaphylos crustacea
Vaccinium ovatum
Eriodictyon californicum
Salvia mellifera
Lepechinia calycina
Diplacus aurantiacus
Castilleja foliolosa
Baccharis pilularis var. consanguinea
Haplopappus arborescens
Gnaphalium californicum
Eriophyllum confertiflorum

Toyon
 Chaparral pea
 California broom
 Pacific poison oak
 California coffee berry
 Jim bush
 Warty-leaved ceanothus
 Common buck brush
 California fuschia
 Coast silk tassel
 Big-berried manzanita
 Brittle-leaved manzanita
 Evergreen huckleberry
 Yerba santa
 California black sage
 Pitcher sage
 Sticky monkey flower
 Woolly paint brush
 Coyote brush
 Golden fleece
 Everlasting
 Yellow yarrow

RIPARIAN

Scientific Name

Common Name

Equisetum arvense
Populus trichocarpa
Salix lasiandra
Salix laevigata
Salix lasiolepis
Alnus oregona
Alnus rhombifolia
Platanus racemosa
Acer negundo var. californica
Fraxinus latifolia
Cornus glabrata
Cornus californica

Common horsetail
 Black cottonwood
 Yellow willow
 Red willow
 Arroyo willow
 Red alder
 White alder
 Sycamore
 California box elder
 Oregon ash
 Smooth dogwood
 Western red dogwood

SALT MARSH

Scientific Name

Common Name

Triglochin striata
Distichlis spicata var. stolonifera
Spartina foliosa
Monerma cylindrica
Salicornia pacifica

Three-ribbed arrow grass
 Salt grass
 California cord grass
 Thin tail
 Pickleweed

<u>Atriplex patula</u> var. <u>hastata</u>	Fat hen
<u>Chenopodium macrospermum</u> var. <u>farinosum</u>	Coast goosefoot
<u>Tetragonia expansa</u>	Sea spinach
<u>Potentilla egedii</u> var. <u>grandis</u>	Pacific silverweed
<u>Frankenia grandifolia</u>	Alkali heath
<u>Limonium californicum</u>	Sea lavender
<u>Cuscuta salina</u> var. <u>major</u>	Marsh dodder
<u>Plantago juncooides</u> var. <u>juncooides</u>	Pacific seaside plantain
<u>Grindelia latifolia</u>	Coastal gum plant
<u>Jaumea carnosae</u>	Fleshy jaumea
<u>Cotula coronopifolia</u>	Brass buttons

FRESHWATER MARSH

<u>Typha latifolia</u>	Broad-leaved cattail
<u>T. angustifolia</u>	Narrow-leaved cattail
<u>Sparganium eurycarpum</u>	Broad-fruited burreed
<u>Lilaea scillioides</u>	Flowering quillwort
<u>Alisma plantago-aquatica</u>	Common water plantain
<u>Sagittaria latifolia</u>	Broad-leaved arrowhead
<u>Polypogon monspeliensis</u>	Annual beard grass
<u>Carex spp.</u>	Sedge
<u>Cyperus eragrostis</u>	Tall cyperus
<u>Eleocharis macrostachya</u>	Wire grass
<u>Scirpus americanus</u>	Three square
<u>S. californicus</u>	California tule
<u>S. robustus</u>	Prairie bulrush
<u>Lemna spp.</u>	Duckweed
<u>Juncus effusus</u> var. <u>brunneus</u>	Bog rush
<u>Rumex crispus</u>	Curly dock
<u>R. conglomeratus</u>	Green dock
<u>Polygonum coccineum</u>	Swamp knotweed
<u>P. pesicaria</u>	Lady's thumb
<u>Ranunculus lobbii</u>	Lobb's water buttercup
<u>Rorippa curvisiliqua</u>	Yellow cress
<u>Lupinus polyphyllus</u> var. <u>grandifolius</u>	Large-leaved lupine
<u>Hypericum anagalloides</u>	Tinker's penny
<u>Lythrum hyssopifolia</u>	Loosestrife
<u>Jussiaea repens</u> var. <u>peploides</u>	Yellow water weed
<u>Epilobium franciscanum</u>	Willow herb
<u>E. adenocaulon</u> var. <u>occidentale</u>	Northern willow herb
<u>Hydrocotyle verticillata</u>	Spike marsh pennywort
<u>Allocarya chorisiana</u>	Artist's allocarya
<u>Bidens laevis</u>	Bur marigold
<u>Helenium puberulum</u>	Sneezeweed"

Source: Thomas, Flora of the Santa Cruz Mountains of California, 1961.
 Munz, A California Flora, 1959.

Butano Creek is the principal tributary to Pescadero Creek and also provides spawning habitat for steelhead trout and coho salmon.

Steelhead have been observed in Honsinger Creek, and after a survey conducted in 1962, CDFG recommended that the creek be managed as a relatively important spawning tributary to Pescadero Creek. Although Honsinger Creek may offer marginal spawning habitat since the bed is mainly sand and there are few riffle areas, the flow of clean water from Honsinger augments the Pescadero Creek water flow and quality. Winter flows from Honsinger Creek may also aid in opening the mouth of Pescadero Creek to the winter Steelhead runs.

Steelhead trout and coho salmon have specific habitat requirements. They are anadromous fish; that is, they start life in fresh water, migrate to salt water to mature and return to spawn in fresh water. Steelhead remain in fresh water for one to two seasons, spend another one to two seasons in salt water, then return to their home stream to spawn. Steelhead can return to spawn two or three times during their lifetime. Coho salmon must remain in fresh water at least one year, or until they grow to five or six inches in length.

The rate of growth of the individual fish depends on the quality of their freshwater habitat, especially with regard to food availability. Coho salmon generally spend two seasons in salt water then return to fresh water to spawn. Salmon die after spawning.

Steelhead and coho salmon re-enter the freshwater to spawn in the fall or winter. The time of migration varies from stream to stream and depends on water temperature and amount of flow. In the smaller coastal streams a sandbar may have formed at the mouth and the fish cannot migrate until rains have washed through and opened the channel. For steelhead a fall/winter run can last from as early as August to as long as April, depending on channel and water conditions. Coho salmon have a shorter spawning period, usually October to February.

Steelhead and coho salmon require certain conditions for spawning. The stream must be cool or cold, there must be a gravel bottom with rock sizes of six inches or less in diameter, and there must be pools and riffles. Coho salmon fry cannot survive in waters which get too warm in summer; temperatures above 70 degrees fahrenheit are detrimental and above 80 degrees are fatal.

Pescadero Marsh

Pescadero Marsh is located at the mouth of Pescadero Creek next to Route 1, north of Pescadero Road. It is an area of approximately 300 acres created where the fresh water from the Pescadero Creek watershed converges with salt water from the ocean to create both fresh and brackish water marsh habitat. The marsh is known to contain three rare or endangered species: the California Clapper Rail, the California Brackish Water Snail, and the San Francisco Garter Snake, and is habitat to many less threatened species of invertebrates, fish, birds and mammals. The Preserve is owned and operated by the State Parks and Recreation Department; it is considered by the State to be a top priority wetland because of its biological value and

10/9/87

the persistent threats to its existence caused by uses which affect the supply and quality of water in the Pescadero Creek watershed.

The marsh depends primarily on Pescadero and Butano Creeks for its supply of fresh water, while Honsinger Creek, Bradley Creek, and other ephemeral creeks provide secondary sources.

D. LAND USE

Pescadero is composed of small farms and a simple commercial area supporting agriculture, recreation, and the needs generated by local employment. The land immediately surrounding the Rural Service Center contains prime agriculture soils and is used for irrigated crops (Figure 18). Pescadero Marsh to the west of the service area is a State Parks and Recreation Preserve. Property south of the marsh is owned by the San Mateo County Public Works Department and is designated as open space. The remaining land in the vicinity is designated for agriculture, however, most of it is uncultivated pasture and open space (Figure 19).

Pescadero is designated by the County as a Rural Service Center. The Rural Service Center boundary encompasses roughly 75 acres around Pescadero Road, Stage Road and North Street (Figure 3). Development is permitted within this boundary at the densities prescribed in the Local Coastal Programs, as described in Chapter III, Plans, Ordinances and Policies. According to the KJC Engineers March 1987 report, 130 residences are concentrated along Pescadero Road, Stage Road and North Street. The western portion of the service center has low density housing accommodating 0.3 to 2.3 dwelling units per acre. The remaining housing in the service center is zoned medium density allowing between 6.0 and 8.7 dwelling units per acre.

The commercial district is located on Stage Road and provides basic services for the community. The 16 commercial establishments include grocery, hardware and general supply, restaurants, and a gas station. There is also one elementary school and a post office. Facilities located outside of the Rural Service Center boundary include a high school, fire station and cemetery.

The County can issue a maximum of seven residential building permits each year in the rural areas of the Pescadero Creek watershed outside of the Rural Service Center boundary. These uses would not be served by the proposed water supply and would have to rely on private on-site sources of water.

There are numerous land use constraints around Pescadero. The entire Rural Service Center, the Pescadero Marsh and the creek corridors are subject to flooding caused by a hundred year storm (Figure 20). Pescadero Marsh is also subject to tsunamis. While the flood plain identifies all areas of inundation, the floodway defines the area of most serious flood hazard. Development can occur in the flood plain by elevation the building above the level of the 100-year flood. However, since fill cannot withstand swiftly moving currents, construction is heavily restricted within the floodway.

10/9/87

Pescadero Marsh and the riparian corridors are also considered Sensitive Habitat, which further constrains development in these areas.

The region east of Stage and Cloverdale Roads is identified as a high fire risk area (Figure 20). The degree of fire hazard is dependent upon three major components: the natural setting of the wildland area; the degree of human use and occupancy of the wildland area; and the level and ability of public services to respond to fires that do occur (San Mateo County, 1984)

There are also geologic constraints to development in Pescadero (Figure 21). An active fault zone borders the eastern edge of the rural service center boundary. The landslide areas identified in this figure represent those areas designated as a highly susceptible to landslides (Classes IV, V, VI and L on Figure 13).

E. PUBLIC SERVICES

Water Supply

The water supply for Pescadero is presently provided by private wells and bottled water. Water supply would be administered by a water district responsible for treating and supplying domestic water for all connections in the Rural Service Center. Such a water district does not exist at present.

The private wells which provide the present supply are contaminated with septic tank material and excessive nitrates. Boiling the water for five minutes kills the fecal coliform bacteria but increases the nitrate concentration. Consumption of this water poses a significant health hazard. Intestinal diseases may result from using this water for domestic purposes. Bottled water is purchased for drinking throughout the community. Well water may be used for outdoor irrigation.

As explained in Project Description (Chapter II), the current water consumption for the community is estimated at to be approximately 60,000 gallons per day. (KJC Engineers, 3/87).

Fire Service

Fire protection for the Pescadero area is provided by the State Department of Forestry under the title of the County Fire Department. The Pescadero Station has two engines and twelve personnel. Fire protection service is supplemented by a volunteer fire company made up of local residents. The Pescadero volunteers have one engine, one water tender and 15 personnel. The fire station is located at the intersection of Pescadero Road and Bean Hollow Road. The response time, which is based on the driving distance, is approximately three minutes. There are no fire hydrants located in the town. There are several small private reservoirs which can supply water when needed. These sources, however, may not be reliable (Tom Berry, pers. com., 7/21/87).

The adequacy of fire protection services is measured by the insurance ratings set by the Insurance Services Office. The I.S.O. rating reflects the adequacy of the water supply and the fire department, the quality of

fire communications and the frequency of fire safety control programs. On a scale of one (best) to ten (most deficient), Pescadero rates an eight.

Establishing a water service system provides an opportunity to upgrade the water supplies for fire protection by installing fire hydrants throughout the town. One third of the insurance rating depends upon the source of water supplies.

School District

Pescadero has two schools serving their community. Pescadero Elementary is located on North Street and instructs preschool-aged children up through the 7th grade. The preschool enrolls 28 children and the elementary enrolls 165 children. Pescadero High School is located outside the Rural Service Center between Cloverdale Road and Pescadero Road. This school instructs students in the 8th through 12th grades living in the Pescadero and La Honda areas. Total enrollment is 121 students.

The elementary school will receive water from this new system. Since the high school is outside of the Rural Service Center, it can not be connected to this water system unless a General Plan amendment approved by County voters.

F. AESTHETICS

The community of Pescadero lies in an alluvial plain in the Pescadero Creek watershed, between the crest of the Santa Cruz Mountains and the Pacific Ocean. It is a rural community, supported primarily by agriculture and the tourist trade resulting from its coastal location.

The alluvial plain is developed with row crops, residential and commercial uses, while the surrounding hills and coast consist mostly of grazing land and open space. Recreational resources include Pescadero Beach, Pescadero Marsh State Park Preserve, and county parks in the mountains east of the community. Pescadero Road is designated a County Scenic Road and Route One is designated a State Scenic Highway (Figure 22).

V. ENVIRONMENTAL IMPACTS

A. SYSTEM-WIDE IMPACTS

There are environmental impacts inherent to providing a water supply for Pescadero, for example impacts on land use and public services, and there are impacts which are common to all of the proposed alternatives, such as aesthetics, seismic safety and soils stability. These impacts are described below. Impacts which are specific to each alternative are described in the following sections (B., C., and D.).

1. Geology, Soils and Seismic Safety

If a major earthquake and ground rupture were to occur along San Gregorio Fault, pipes crossing the fault zone, such as pipes supplying water from Honsinger Creek or from a well located east of the fault, could be sheared. There may also be seismic risk involved in the siting of the water treatment facility. Damage from ground rupture is a possibility in a major earthquake if the plant or water storage facilities are located within 1000 feet of the fault. At distances greater than 1000 feet from the fault, estimated maximum ground accelerations of 0.7g to 0.9g constitute the seismic risk associated with the maximum credible earthquake. It is possible but unlikely that ground shaking would interrupt the water supply.

The Warheit Well Water Treatment Plant, water storage tanks and all piping will be located at least 1000 feet west of the San Gregorio Fault. At this distance, ground rupture is not considered a hazard. Some seismic risk may be associated with ground accelerations estimated at approximately 0.7g to 0.9g. It is possible but unlikely that the water supply would be interrupted by seismic shaking.

All proposed treated water storage tank sites are located in hillside areas with slopes of over 30% and high landslide susceptibility as indicated on the Landslide Susceptibility map (Figures 13 and 21). The site at the south end of Stage Road contains landslide deposits and has the highest susceptibility to future landsliding.

2. Hydrology and Water Quality

Over time heavy pumping of wells in the Pescadero Valley could adversely affect the groundwater quality by drawing down poor quality water located in shallow aquifers. At the rate of 100 gpm, the groundwater levels could be lowered locally and seasonally. Groundwater levels should fully recover during the rainy season.

A potential test drilling site is located in the Bradley Creek Watershed. The water quality of the groundwater is potentially better from the Purissima Formation than from the Santa Cruz Mudstone according to USGS. It is not known whether the pumping of a well at this site would draw down poorer quality shallow ground water or whether the groundwater would exhibit a continuing trend of lowering.

3. Biology

The distribution pipeline for the water system will be placed under or along County roads or facility access roads. As such, no biological impacts are expected from the distribution lines themselves.

4. Land Use

Water system facilities located on the valley floor will be subject to inundation during the 100-year flood. A 100-year flood would affect access to treatment and storage facilities for maintenance and servicing.

5. Public Services

Water Service

CSA #11 → Providing a public water supply system for Pescadero will reduce the health threat now posed by the use of contaminated private wells. A public entity must be formed to operate the system in order for the project to be eligible for funding under the State Safe Drinking Water Bond Act. It is expected that County Service Area Number Eleven will be formed for this purpose. The County will then be responsible for constructing, operating and maintaining the system, for defining the rate structure and creating the bylaws of the system, for assuring water conservation, and for providing a contingency supply in the event there is a malfunction in the system or a drought.

Fire Service

Establishing a water service system in Pescadero provides an opportunity to install fire protection equipment, including water storage and hydrants. Installing a fire protection system will require storage and distribution capacity beyond that which is necessary for a drinking water supply alone. The increased capital costs of the fire protection system are not fundable under the State Safe Drinking Water Bond Act.

Rates for fire insurance will decrease if a fire protection system is installed. One-third of insurance rating depends on the water supply. Similar rural communities have a rating of four or five on a ten point scale. Pescadero has a rating of eight. If a fire protection system is provided in the community the response time will be improved, the rating will go down, and a concomitant decrease in rates would occur. The current rating of eight could drop by as much as four points (Tom Berry, CDF, pers. comm.).

6. Aesthetics

The most visually apparent components of the water system alternatives are the plant, reservoir, the water storage tank and access roads. In order to achieve adequate water pressure it is necessary to place the water storage tank 200 feet or higher in elevation. The water distribution lines will be buried, so no aesthetic impacts are expected other than those perceived during construction and maintenance.

Significant aesthetic impacts may result from placement of a treated water storage tank on the hillside above the south end of Stage Road. In this location the tank site will be visible from the center of the community, and will change the aesthetic quality of the site from open space to semi-developed. Because of the 30% slope and susceptibility to landsliding approximately one acre of land will be needed to construct a water tank pad and access road. The aesthetic quality of the water tank site will be dominated by the cut and fill necessary to assure stability. While the graded portions around the access road may be revegetated, the cut behind the water storage tank may be too steep to revegetate and remain barren. This location for the water storage tank is outside of the Rural Service Center Boundary and is at the edge of the County Scenic Corridor designated along Pescadero Road and Stage Road.

The other possible tank location, northeast of town center, will be less visible than the southern location because it is slightly more remote. Although still in an area susceptible to landslides, the alternate location is on slopes which are less steep, so the cut may be less steep. However, the alternate site is in grassland, so there is little vegetation which will screen the tank or the grading necessary to construct the tank and access road. This site is within the designated County Scenic Corridor.

Over the long term there may be concerns regarding the aesthetic impacts resulting from community growth facilitated by the availability of potable water. Enough growth can eventually change the rural character of Pescadero. Growth inducement is addressed in Chapter IX. In short, there are several impediments to growth in Pescadero other than the water supply. The Local Coastal Program Visual Resources Component contains policies establishing special design guidelines for Pescadero, and protecting landforms, vegetative cover, designated Historical Structures and Historical Districts, Scenic roads and Scenic Corridors.

B. IMPACTS OF WARHEIT WELL SYSTEM

1. Hydrology and Water Quality

The Warheit well would provide a source of better quality water than is currently available to the Community of Pescadero through private wells. Water from the Warheit well would require only disinfection and corrosion/stability control (KJC Engineers, 1987, Appendix A). There is a possibility, though, that extended pumping of the well would draw down poorer quality shallow groundwater or surface water, or draw up the saline water from the strata below, causing degradation of the quality of the aquifer. The production rate of the well would be controlled to prevent this. In the report on the pump test completed in August 1987, KJC Engineers indicates that the "formation appears capable of producing 80 gpm or more with an estimated drawdown of approximately 30 feet." Present physical constraints caused by the size of the well casing and the depth to ground water "appear to limit the production of the Warheit well to approximately 45 to 50 gpm."

The effect of continuous pumping of Warheit well on the surface waters, including Butano Creek and Pescadero Marsh, is estimated to be insignificant (KJC Engineers, 1987).

2. Biology

Temporary impacts to the coastal scrub community will occur when equipment is brought in to drill the well and when the pipeline is constructed between the well and the treatment plant. Once these activities are completed the community can recover, although disturbed areas may be invaded by pampas grass before the native vegetation is able to recolonize the area.

The water treatment plant, access road and parking area will permanently remove approximately one-quarter acre of coastal scrub habitat, now dominated by California polypody, Coyote brush and Pampas grass. Erosion may also result when slopes are exposed during grading, during site preparation and from an increase in runoff from paved surfaces.

There is an existing earthen pond near the proposed treatment plant site. This pond may be enlarged to increase water service reliability; the decision to enlarge the pond depends in part on the results of the well test pumping. The basin is edged with freshwater pond vegetation, primarily rushes and reeds, and could provide amphibian habitat, although the water in the pond was turbid on the day of a site visit in July 1987. Enlarging the earthen reservoir will result in removal of some existing pond vegetation. Replacement of this vegetation will depend on the steepness of the reservoir banks, operational procedures and whether vegetation will be allowed to grow around a water supply reservoir.

The water storage tank and access road will require the removal of about one acre of habitat. The primary tank location is in chaparral habitat to the south of the center of Pescadero. The plant species which are common to this biological community are listed in Table 13 in Chapter IV. The alternate locations are in grazed grassland to the northeast of town center. All of these sites are at 200-foot or greater elevation and on steep slopes. The proposed location is on thirty percent slopes in an area designated to have landslide potential. Erosion can occur from grading (cut and fill), site preparation and increased runoff from paved surfaces.

An important impact issue related to the Warheit Well is whether drawing on the aquifer will affect surface waters. If Butano Creek is a primary source for this aquifer, pumping water out of the aquifer may cause water in the creek or water which feeds the creek to be drawn down into the aquifer. This in turn could decrease the amount of freshwater which enters Pescadero Marsh. Butano Creek is also an important fishery resource; a change in creek flows may degrade the spawning habitat historically used by steelhead and salmon in this creek.

Over a twelve year monitoring period, the USGS recorded an average annual flow of 16,010 acre-feet, with a minimum of zero acre-feet during that time (Table 14). If the Warheit Well was recharged solely by Butano Creek, the water demand (166 EDU's) would represent less than one percent of the average annual flow. At times when there was zero flow in Butano Creek pumping of the well could decrease the aquifer and increase the amount of time required for flows in Butano to return to normal.

TABLE 14
AVERAGE AND MINIMUM FLOW OF STUDY AREA CREEKS
RELATIVE TO ESTIMATED WATER DEMAND

Creek	Avg annual flow (AF)	Water Use As		Min Flow of record (AF)	Water Use As % of Creek 67 AF
		% of Creek 67 AF	136 AF		
Bradley (1)	1,590	4%	9%	6	>100%
Butano (2)	16,010	<1%	<1%	0	>100%
Honsinger (3)	794	8%	17%	3	>100%
Pescadero (4)	32,800	<1%	<1%	0	>100%

Notes:

(1) Average and minimum flows based on a watershed area of 4 square miles with flow volumes scaled from Honsinger Creek.

(2) Average and minimum flow based on USGS monitoring from 1962 to 1974. USGS has not monitored Butano Creek since 1974. Gauging station is 1.7 miles southeast of Pescadero.

(3) Average and minimum flows based on data provided in KJC Engineers, 1987. Neither agricultural diversion of roughly 20 acre-feet per year nor instream flow requirement are taken into account.

(4) Average and minimum flow is based on a 33 year period of record. Gauging station is located 3 miles east of Pescadero, upstream of Butano, Bradley and Honsinger Creeks.

The pump test report completed for the Warheit Well in August, 1987 addresses the impacts of pumping the well on surface waters and the recharge area, and is attached in Appendix A. Although not quantified it is concluded in the report that "the impacts to recharge of the local groundwater flow system will not be significant in comparison with the available regional recharge."

3. Land Use

This site of the Warheit Well, treatment facility and water storage reservoir is owned by the County of San Mateo and designated as open space. The water tank site is designated as agriculture.

The well and water treatment plant site are both free of from flooding and fire constraints, and are not located on prime agriculture soils. The storage tank, however, is proposed in an area of steep slopes and potentially unstable soils. The land for this storage tank site will have to be leased or purchased by the County. Use of these sites for the water system facilities is compatible with the surrounding land uses.

C. POTABLE QUALITY WELL

1. Biology

The water storage tank and access road will remove one acre of habitat. The preferred site and one alternative site are located on a hillside in grazed grassland habitat. The other alternative site is located in chaparral habitat. All of these sites are at 200-foot or greater elevation and in areas of landslide potential. The alternative located in chaparral, to the south of town, is on thirty percent slopes. Erosion can occur from grading, site preparation and increased runoff from paved surfaces.

Depending on their location, the potable well(s) may affect surface waters and the habitats supported by surface waters, including the riparian zone, the steelhead and salmon fishery, and, downstream, the Pescadero Marsh. Without knowing the location of the well site and information about the water source supplying the well such impacts can not be adequately assessed.

If the potable wells are placed in the 100-year flood plain CDFG will require a Stream Alteration Agreement (see Chapter III). CDFG can then also require instream flow studies to determine what amount of water is needed to maintain the fishery. Such a study should also address how these wells could impact the stream and the fishery, particularly with regard to cumulative uses of the water source.

The biological impacts of the treatment plant and distribution lines are insignificant because these facilities are located in areas which have already been disturbed or altered.

2. Land Use

The treatment plant site and one alternate site border the 100 year flood plain and are located on Class II soils. Two additional plant sites, the barn and the old high school, are located above the flood plain on Class I soils. The treated water storage tank sites are located above the flood plain off prime soils. These sites are considered a hazardous fire area and also lie within the San Gregorio fault zone.

All sites proposed for this alternative would have to be leased or purchased by the County from the individual property owners. Selection of the alternate plant sites preclude the continued use of the barn and conversion of the school building for other uses such as the farm labor housing currently proposed. The use of all other sites are compatible with the surrounding agriculture designation.

D. CONJUNCTIVE SUPPLY

1. Hydrology and Water Quality

Partial diversion of Honsinger Creek would reduce the creek flow levels downstream. There is the possibility that this may affect the water level of the Pescadero Marsh which provides a habitat for endangered species.

10/9/87

The water provided by the creek would be of better quality than is currently available from private wells, although the turbidity, color, iron and bacterial content would not meet current drinking water standards without treatment. KJC Engineers states that the new drinking water standard of 0.2 NTU would be difficult to achieve during times of high run-off levels even if flocculation, clarification and filtration were optimized at 95% to 98% removal efficiency. With a small creek like Honsinger Creek, the turbidity levels will rapidly increase during a storm and will decrease within a few hours afterward.

The supplemental well water supply would be brackish, containing excessive concentrations of salts, chlorides, iron, manganese and other nitrates. If the well is located near the San Gregorio fault, the fault line may act as an impenetrable barrier causing increased drawdowns in the well and limiting the operational life of the well. If the theory proposed by KJC Engineers of saline water migrating upward along the fault is correct, then the drawdowns in the well would decrease but the water quality of the aquifer would deteriorate, becoming more saline.

The brackish well would produce an outflow of brine at a rate of 5 gpm per 50 gpm of water treated. The total dissolved solids (TDS) contained in the brine is estimated at 100,000 TDS or greater, compared to sea water which typically contains 30,000 TDS.

The brine outflow would impact the surface water into which it would be disposed. The degree of impact depends on the salinity content of the receiving water and its dilution capacity. The outflow would be located in the vicinity of Pescadero Marsh and Butano Slough or directly into the ocean, downstream of water diversions for agriculture or other uses.

2. Biology

The biological impacts of the Conjunctive Supply alternative possibly include disturbance of the creek bed, removal of natural habitat (primarily chaparral), and the effects of brine on Butano Slough and Pescadero Marsh.

Placing and maintaining the infiltration gallery will require disturbance of the bed of Honsinger Creek. This can increase turbidity in the water and affect downstream resources. There will also be local disturbance of riparian vegetation during construction which can result in erosion, also affecting downstream resources.

Reduction of flows in Honsinger Creek can affect downstream riparian vegetation which depends on a consistent supply of water. The vegetational character of Honsinger Creek may eventually change downstream to include weedier species if the water flow is greatly reduced. Water allowed to pass the diversion site in order to satisfy the fishery requirement set by CDFG in the Stream Alteration Agreement will continue to support the riparian vegetation.

The five-acre reservoir, treatment plant and distribution lines are proposed in locations which have already been disturbed by agricultural or other rural development. The sites are relatively flat and significant erosion is not expected.

10/9/87

The water storage tank and access road will remove about one acre of habitat. The preferred site and one alternative site are located on a hillside in grazed grassland habitat. The other alternative site is located in chaparral habitat. All of these sites are at 200-foot or greater elevation and in areas of landslide potential. The alternative located in chaparral, to the south of town, is on thirty percent slopes. Erosion can occur from grading, site preparation and increased runoff from paved surfaces.

Depending on their location, the brackish well(s) may affect surface waters and the habitats supported by surface waters, including the riparian zone, the steelhead and salmon fishery, and, downstream, the Pescadero Marsh. Without knowing the location of the well site and information about the water source supplying the well such impacts can not be adequately assessed.

As described under Hydrology and Water Quality, above, reverse osmosis treatment results in the need to dispose of brine. The proposed method of disposal is through a one-inch pipeline which empties into Butano slough or the Pacific Ocean. This line would follow roadway rights-of-way from the treatment plant to the point of disposal. According to KJC Engineers, it may also be feasible to dispose of brine in the Pacific Ocean. Brine is generated at a rate of five gpm per every fifty gpm of brackish water processed. The concentration of salts in the brine will depend in part on the water source. As a general guide it is estimated that the brine will contain at least ten times the upper level concentration of total dissolved solids (TDS) found in drinking water, which would be 10,000 TDS or more. Seawater typically contains 30,000 TDS.

Disposing of brine to Butano Slough can adversely affect biological resources associated with the slough and Pescadero Marsh. The exact impacts will depend on the concentration of the brine and whether it is delivered to the slough at times of high or low flows. If delivered at low tide or at a time when freshwater flow to the marsh is low the impacts of the brine may be more severe. Without careful control of its disposal the brine can change the salinity of the habitats which depend on an inflow of fresh water. The endangered San Francisco garter snake survives on amphibians which are sensitive to salinity. It is possible that disposal of brine to the slough will adversely affect the habitat of the garter snake.

An instream flow study needs to be completed before the fishery requirement can be established. CDFG will not grant a Stream Alteration Agreement until the impacts of diversion on the fishery have been determined through the instream flow study.

Similarly, if the brackish wells are located in the 100-year floodplain CDFG may require additional studies related to the impacts of these wells.

3. Land Use

A majority of the farmers in Pescadero irrigate their crops by diverting water from Pescadero Creek. Diversion of Honsinger Creek will marginally reduce the Pescadero Creek flows available for agricultural production. If farmers presently using Pescadero Creek water do not own water rights, the Honsinger Creek diversion may reduce the irrigation water available for crops resulting in a decrease in the acreage that may be cultivated. Even if the present use of Pescadero Creek water is guaranteed through water right ownership, the diversion may impede future increases in withdrawals desired to expand agricultural production.

The net result of the Honsinger Creek diversion, as with any surface water diversion in the Pescadero Creek watershed, is that less freshwater will flow directly to Pescadero Marsh. Although the California Parks and Recreation Department does not have water rights to protect flows into the marsh it does have the responsibility of the public trust to protect the marsh, and a reduction in freshwater flows to the marsh can affect its ecological health. Part of this potential impact may be reduced when diverted water is returned to the hydrologic system through the septic leach fields.

4. Aesthetics

In addition to the system-wide impacts noted under Section V.A., above, aesthetic impacts may be caused by components which are specific to the Conjunctive Supply alternative.

The five acre-foot reservoir is located in an area presently used for agricultural purposes, next to the proposed treatment plant site, and inside the Scenic Corridor. The reservoir will require approximately 0.5 acre, will be at least ten feet deep, and will be constructed out of earth. People who can view the site will see an earthen-bermed pond associated with the water treatment plant.

The equipment associated with diversion of Honsinger Creek will be buried or hidden by vegetation and will not have an aesthetic impact.

The water distribution lines and the brine disposal line will be buried, so no aesthetic impacts are expected other than those perceived during construction and maintenance.

VI. MITIGATION

Mitigation measures which are recommended for the water supply alternatives are summarized in the following table. Several measures apply to all of the alternatives and will be necessary no matter which system is selected. Other measures are specific to a certain alternative.

In all cases, it is suggested that the seismic risk be taken into consideration and such items as are deemed necessary by the San Mateo County Building Division, Public Works Department and other reviewing agencies be incorporated into the water treatment plant and water storage facility design.

If the water supply is interrupted by an earthquake, if the treatment plant shuts down or damage to the distribution system occurs, or if water is not available for some other reason, the water district may need to provide a contingency supply. This should be clearly defined as soon as is practicable.

Final siting of the treated water storage tank necessary under all alternatives should avoid areas with greater than 30% slope and high susceptibility to landsliding. This will mitigate both aesthetic and public safety impacts. Siting the tank to reduce its visibility and the amount of cut and fill necessary should be considered. The tank should be painted a color which is compatible with its location and screened from public view with appropriate landscape materials. Tanks should be sited after all geological, engineering and economic factors have been taken into consideration as well.

Standard runoff control and revegetation measures should be taken to reduce erosion in and around graded and paved areas. Operating areas around wells, treatment plant buildings and water storage tanks should be maintained free of exotic vegetation including pampas grass and broom.

Building design and landscaping around the water treatment plant site may be used to soften the aesthetic effects of a semi-industrial use.

A pump test would be performed for any well before it is approved by County Environmental Health as final system design. This applies to all alternatives since all include one or more wells. The pump test addresses water quantity and quality in the well. Based on the results, a report is prepared which makes recommendations as to water treatment and rate of production from the well. If drawdown of surface water occurs in the pump test, indicating that the aquifer is limited, the pump test may advise a reduced rate of production or abandonment of the well. Such a report should also indicate aquifer recharge area and whether significant changes in surface flow will occur in Pescadero Creek or its tributaries. If a Stream Alteration Agreement is required, as in the case of using a surface water supply, CDFG may also require an instream flow study to define steelhead and salmon requirements, and the potential impacts the well will have on these species.

10/9/87

Two test well sites are mentioned under the Potable Well alternative -- one in the valley alluvium and one in the Bradley Creek watershed. The USGS suggests that for the first potential test drilling site a test well be drilled to a depth of 125 feet with the strata above 40 feet sealed off. Testing should be for several consecutive hours at a rate of at least 50 gpm. A small observation well installed a few feet away in the shallow alluvium is suggested to determine the drawdown in the observation well, which is indicative of the rate of downward groundwater movement of the poorer quality shallow groundwater into the producing zone.

The second potential test drilling site would require more study. KJC Engineers recommends that the areal extent of the Bradley Creek watershed and the quality of water in Bradley Creek be investigated. KJC Engineers further recommends that the water quality of the domestic and irrigation wells drilled in the Bradley Creek watershed be examined.

The flood plain boundary should be clearly identified and avoided if possible when siting the treatment plant and wells under the Potable and Conjunctive Supply alternatives.

Mitigation specific to the Conjunctive Supply alternative includes that for diversion of water from Honsinger Creek and for brine disposal. In order to reduce the impacts of placing the infiltration gallery in the creekbed of Honsinger Creek it is recommended that the gallery be placed during the summer when flow in the creek is low and that the flow be diverted by temporary pipe around the disturbance area during construction.

An instream flow study which defines the fishery requirements on Honsinger Creek would be required before CDFG will grant a Stream Alteration Agreement.

Brine disposal to Butano Slough should be avoided. An alternative method of disposal should be used -- either disposing of brine in the ocean or contracting with a service to export the brine to a suitable disposal area.

SUMMARY OF MITIGATION MEASURES

ENVIRONMENTAL FACTOR/ ADVERSE IMPACT	SUGGESTED MITIGATION	EFFECT/ EFFECTIVENESS	FEASIBILITY/ AUTHORITY
A. MITIGATION MEASURES WHICH APPLY TO ALL ALTERNATIVES			
Seismic risk to water supply system	Follow San Mateo County Uniform Building Code	Assures standards of construction take maximum ground acceleration into account	Required
	Plan a contingency supply in the event system is disrupted	Effective as long as another supply is available; extra expense may need to be passed to rate-payer	Feasible
	Place water storage tank in area less than 30% slope and away from areas highly susceptible to landsliding	Effective; tank needs to be at an elevation which insures adequate pressure; may increase costs if placed much farther away	Feasible
Well contamination caused by drawdown of shallow groundwater or drawup of saline water	Follow recommendation made in pump test report	Effective with correct pump test design	Completed for for Warheit wel a contaminated well would have to be modified or abandoned un the supervision the Health Dept
Loss of natural habitat, invasion of exotic species such as scotch broom or pampas grass	Revegetate with native plant species and grub out undesirable species until natives have established	Effective	Feasible; would need to be part of system operation

ENVIRONMENTAL FACTOR/ ADVERSE IMPACT	SUGGESTED MITIGATION	EFFECT/ EFFECTIVENESS	FEASIBILITY/ AUTHORITY
Erosion and aesthetic impacts caused by grading and runoff from paved areas	Control runoff from paved areas	Effective in reducing erosion	Feasible
Aesthetic impacts of proposed storage tank location	Site water storage tank out of areas with 30% or greater slope	Would reduce impacts caused by unstable soils. Tank needs to be at a certain elevation to assure water pressure. Re-siting can increase capital costs	Feasibility to be determined
	Use a tank color compatible with its location	Will reduce visibility of the tank	Feasible
	Landscape storage tank site	Will reduce aesthetic impacts; does not need to be extensive; should use drought-tolerant native species	Feasible
B. SPECIFIC MITIGATION FOR WARHEIT WELL SYSTEM			
Temporary impacts to coastal scrub habitat	Revegetate with native coastal scrub species	Effective	Feasible
C. SPECIFIC MITIGATION FOR POTABLE WELL SYSTEM			
Placement of water treatment plant in flood plain	Site treatment plant above 100-year flood level	Will prevent inundation of treatment plant and possible disruption of water treatment	Feasible; needs to be taken into account in final siting and design

ENVIRONMENTAL FACTOR/ ADVERSE IMPACT	SUGGESTED MITIGATION	EFFECT/ EFFECTIVENESS	FEASIBILITY/ AUTHORITY
Loss of existing agricultural land uses	Compensate landowners for sites not owned by County	Will affect capital costs of project; effect depends on site, landowner	Required
D. SPECIFIC MITIGATION FOR CONJUNCTIVE SUPPLY			
Downstream effects of diversion of Honsinger Creek on fishery, riparian, Pescadero Marsh resources and agricultural uses	Prepare an instream flow study to determine amount of byflow necessary for these resources	Will determine fishery and agricultural requirements, may indicate impacts to Marsh. Can delay project for two years and increase costs	Feasible May be required by CDFG as part of Stream Alteration Agreement
Effects of brine disposal on Pescadero Marsh sensitive habitats	Dispose of brine in the ocean or export it to a suitable disposal site rather than dispose of it in Butano Slough	Ocean environment is less sensitive to the brine; will increase disposal pipeline costs. Export would greatly increase operation costs.	Feasible; offered as alternative by KJC Engineers
Impacts to Honsinger Creek creekbed when infiltration gallery is emplace	Place gallery in summer months and pipe flow around construction	Will minimize sediment introduced to creek	Feasible
Placement of water treatment plant in flood plain	Site treatment plant above 100-year flood level	Will prevent inundation of treatment plant and possible disruption of water treatment	Feasible; needs to be taken into account in final siting and design
Loss of existing agricultural land uses	Compensate landowners for sites not owned by County	Will affect capital costs of project; effect depends on site, landowner	Required

10/9/87

VII. ALTERNATIVES TO THE PROPOSED PROJECT

A. NO PROJECT

Under the No Project alternative bottled water would remain the principle source of potable supply in Pescadero, requiring the residents to pay a premium for drinking water. Continued operation of private wells could result in a substantial health hazard if the wells are used for household supply.

The No Project alternative would not require creation of a water district, or the necessary capital investment. The no Project will be less expensive for San Mateo County in the short term, but longer term expenses may arise in the form of monitoring services needed from County Environmental Health.

Growth in the community is limited by water availability, flood hazards, and septic tank leach field capacity. This would continue to be the case under the No Project alternative. The population and economy in Pescadero may eventually decline as a result of the health hazard and the costs involved in using bottled water.

B. OTHER SOURCES IN THE PESCADERO CREEK WATERSHED

In 1969 the US Army Corps of Engineers prepared a study which addressed several water resource development alternatives on the San Mateo County coastside. Seven dam/reservoir alternatives in the Pescadero Creek watershed were reviewed for the purposes of providing flood control, municipal and industrial water supply, recreation, and wildlife management (Figure 23). The most promising of these, the Worley Flat Dam and Reservoir (Figure 24) was addressed in greater detail. All of these alternatives are briefly described below.

None of the alternatives have been developed. In order for a dam and reservoir project to be economically feasible services other than municipal water supply, such as flood control and recreation, would need to be provided. But in order to provide flood control and be recreationally attractive the project would be out of scale to the municipal water supply need. When the Worley Flat proposal was made public there was much local opposition to the project, mainly because it was felt to be an inappropriately large scale use for the region.

If a reservoir were built on Pescadero Creek now, it would be necessary to go far upstream in order to avoid contamination sources. This would increase the cost of providing a water supply because of the length of pipeline and easement needed.

The alternative development schemes given consideration in the Pescadero watershed which could provide a municipal water supply were:

- 1) **Five Mile** -- A dam and reservoir five miles upstream of Pescadero, between Pescadero and San Mateo County Memorial Park. Reservoir capacity of 30,000 to 45,000 acre-feet, providing an annual yield of 8,000 acre-feet water supply. Would partially flood the park and cause the loss of a significant stand of redwood trees. Could partially serve flood control; recreational benefits limited.
- 2) **Worley Flat** -- A dam and reservoir thirteen miles upstream of Pescadero and one mile upstream of San Mateo County Memorial Park. Reservoir capacity between 40,000 and 54,000 acre-feet, yielding a maximum of 14,500 acre-feet water supply annually. Could provide adequate flood control and would be a significant recreational resource, accommodating an estimated 1,500,000 visitor days per year.
- 3) **Portola Site** -- A dam and reservoir placed south of the border of Portola State Park. Reservoir capacity of 29,000 acre-feet, providing 7,000 acre-feet for water supply annually. Requires a 230-foot high dam. Not enough to provide adequate or economical flood control; recreational benefits limited.
- 4) **Low Worley Flat and Five Mile** -- Dam and reservoir at Worley Flat for 25,300 acre-feet of storage and dam and reservoir at Five-mile for 25,000 acre-feet of storage for a combined storage of 50,300 acre-feet with an annual water supply yield of 14,500 acre-feet.
- 5) **Low Worley Flat and Portola Site** -- Dam and reservoir at Worley Flat for 25,300 acre-feet of storage and dam and reservoir at Portola site for 28,700 acre-feet of storage for a combined storage of 54,000 acre-feet and an annual water supply yield of 14,500 acre-feet.
- 6) **Butano Creek** -- Dam and reservoir at river mile 5.5, with 57,000 acre-foot storage and 6900 acre-foot annual water supply yield. Costly dam construction due to presence of an active fault.
- 7) **Bean Hollow** -- Pump water from Pescadero Creek into a 53,000 acre-foot reservoir at Bean Hollow to provide an annual supply of 14,500 acre-feet of water. Pump rate would be 150 cubic feet per second. Conveyed to service area by pipeline. Would not supply flood control or recreational benefits. Hydrologic studies required.

C. SOURCES OUTSIDE OF THE PESCADERO CREEK WATERSHED

The same USAGE report which is referenced under B., above, addressed the options of placing a reservoir on San Gregorio Creek to the north of the Pescadero Creek watershed or Gazos Creek to the south of the watershed.

The proposal on San Gregorio Creek was for a dam and reservoir at river mile 2.7 with 64,000 acre-feet of storage and 12,500 acre-feet annual water supply yield. Flood control is not necessary on San Gregorio Creek, and recreational benefits are limited. Pipeline to transfer this water to the Community of Pescadero would most likely follow Route One from San Gregorio to Pescadero Road, then turn inland to the service area. Such a pipeline requirement would increase the cost of this project to the point that it would be more economical to use brackish wells and reverse osmosis treatment for the entire supply.

The proposal on Gazos Creek was for a dam and reservoir at river mile one, to provide 20,000 acre-foot storage with an annual yield of 5,000 acre-feet for water supply. Nine miles of pipeline would be required to reach Pescadero. As with the San Gregorio Creek alternative the pipeline requirement makes this proposal uneconomical.

VIII. SHORT TERM/LONG TERM USES OF MAN'S ENVIRONMENT-- SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The Pescadero Water Supply project will use renewable resources, mainly in the form of water. Well water will be extracted at a rate such that the aquifer may replenish its supplies without increasing drawdowns in the well. If not sited correctly, the well could draw water of a poorer quality into the aquifer, thereby irreversibly degrading the aquifer and reducing its usefulness as a water source. Pump tests and geological studies will be conducted as mitigating measures to reduce this possibility. Extracting groundwater at a rate no greater than the rate of recharge will provide a long term source of drinkable water for the Community of Pescadero.

The commitment of land to water treatment, water storage, access roads and parking for the system will total approximately one and three-quarters acres. For the Warheit well alternative this would entail conversion of 1.25 to 1.75 acres of undisturbed land, an existing pond and pond vegetation to these facilities, depending on the site chosen for the treatment plant and whether the reservoir is required. Both the Potable Quality Well alternative and the Conjunctive Supply alternative would commit a total of about 1.75 acres of land. Of this, 1.5 acres are chaparral or grazed grassland, depending on the tank site chosen. The treatment plant would be located on about .25 acre of agricultural or other lands.

The water storage tank and associated grading on the steep slopes would visually degrade the scenic corridor of the Pescadero area if the tank was located at one of the currently proposed sites. Mitigation included in this report suggests that an alternative site be selected in order to reduce the impact.

IX. GROWTH INDUCING IMPACTS

The provision of a new water system will encourage community growth. Treatment plant capacity can be sized to accommodate the water demand generated by the community at buildout within the present rural service center boundary and according to the LCP. Since the water supply system will be limited to an identified buildout level, the extent of growth is limited.

The maximum buildout level is determined by the zoning designations and land use constraints. Major portions of the town are built within the floodway. Development in these areas is strictly limited by the County Environmental Health Department, eliminating potential infill for most of the town. The residential section along North Street is outside the floodway and may accommodate limited infill development. Several of the North Street parcels may be subdivided to create an additional 30 lots based on minimum lot size requirements. The only commercial area outside the floodway is south of Stage Road. Although outside the floodway, these areas are still within the 100 year flood plain and development restrictions may still apply.

The extent of growth possible depends both upon the available water supply and actual water consumption. Residents currently use private wells for domestic needs and purchase bottled water for ingestion. In calculating the future demand, KJC assumes consumers will rely on the treated water for all their domestic uses as required under the Uniform Plumbing Code.

An available water supply without feasible development sites within the existing boundaries creates pressure to expand the rural service center. This may occur if the possible buildout level is overestimated and water is provided for development which cannot occur, or if the community uses less water than anticipated making additional supplies available.

Measure A was passed by the voters of San Mateo County in 1986 requiring the expansion of water service areas to be voted on by the County residents. The expansion of the Pescadero service center boundary would require an amendment to the LCP and approval by County voters. Provision of Farm Labor Housing is one exception not requiring voter approval. Any LCP amendment would be subject to further environmental review.

X. EFFECTS FOUND NOT TO BE SIGNIFICANT

The County of San Mateo prepared an Initial Study for the Pescadero Community Water System. The County found the impacts on air quality, traffic/circulation, noise, and cultural resources to be insignificant. In addition, the County determined that the project would not have cumulative impacts.

10/9/87

XI. REFERENCE

A. BIBLIOGRAPHY

- Akers, J. P. January 1980. The Potential for Developing Groundwater Supplies in the Pescadero Area, San Mateo County. California: U.S. Geological Survey; Water Resources Investigations 80-6; Menlo Park.
- California Department of Fish & Game. 1986. California Endangered Species Act.
- Department of Health Services, Sanitary Engineering Branch. 1986. California Safe Drinking Water Act.
- Department of Health Services, Sanitary Engineering Section. 1977. California Domestic Water Quality and Monitoring Regulations.
- Department of Health Services, Sanitary Engineering Section. 1980. California Waterworks Standards.
- Federal Emergency Management Agency. August 5, 1986. Flood Insurances Study: San Mateo County, California Unincorporated areas.
- Munz, Philip A, And David D. Keck. 1973. A California Flora and Supplement. University of California Press, Berkeley, California.
- San Mateo County. November 1984. Community Development: General Plan Hearing Draft, Department of Environmental Management.
- San Mateo County. November 1986. Policies of the San Mateo County General Plan, Department of Environmental Management.
- San Mateo County. November 1985. Local Coastal Program Policies, Department of Environmental Management.
- Thomas, John Hunter. 1961. Flora of the Santa Cruz Mountains of California. Stanford University Press, Stanford California.
- U.S. Army Corps of Engineers. 1969. Water Resources Development Interim Survey Report for Pescadero Creek Pacific Coastal Streams, San Mateo County California.
- U.S. Government. 1986. The Safe Drinking Water Act As Amended.
- U.S.F.W.S. 1973. Endangered Species Act.
- Ulmer, Linda. February 10, 1987. California Department Fish & Game letter to Jim Sweeny.
- Wire, J. C. 1980. Evaluation of Test Drilling Duarte Property; Pescadero, San Mateo County, California, Geoconsultants Inc. report to Department of

10/9/87

Public Works, County of San Mateo.

Wire, J. C. 1981. Evaluation of Test Drilling Wells 3 & 4; Pescadero, San Mateo County, California, Geoconsultants Inc. report to Department of Public Works, County of San Mateo.

Wire, J. C. 5/3/83. Evaluation of Test Well "Warheit" No. 1; Pescadero, San Mateo County, California, Geoconsultants Inc. report to Department of Public Works, County of San Mateo.

Wood, P. R. 1982. Warheit Water Test Well Near Pescadero, San Mateo County CA; Perry R. Wood Report to Dept of Public Works, County of San Mateo.

B. PERSONS AND ORGANIZATIONS CONSULTED

California Coastal Commission; Diane Landry

California Department of Fish & Game; Linda Ulmer

California Department of Forestry; Tom Berry

California Department of Parks & Recreation; Tom Taylor

Department of Health Services; Sharron Wong

Kennedy/Jenks/Chilton Engineers; Cullen Wilder

Midpeninsula Open Space Trust; John Wade

La Honda/Pescadero Unified School District.

Regional Water Quality Control Board, San Francisco Bay Region; Ken Theisen

San Mateo County Environmental Health; Rex Goff

San Mateo County Local Agency Formation Commission; Bill Davis

San Mateo County Public Works; George Zinckgraf

State Water Resources Control Board, Division of Water Rights; Al Yang

U.S. Army Corps of Engineers, Compliance Section; Joyce Minjiras

U.S. Fish & Wildlife Service Office of Endangered Species; Pete Sorrenson

10/9/87

C. REPORT PREPARERS

Thomas Reid Associates

Thomas S. Reid
Taylor Peterson
Kate Werner
Cathy Pinkerton
Gen Guracar
Victoria Harris

10/9/87

FIGURE 1
REGIONAL SETTING

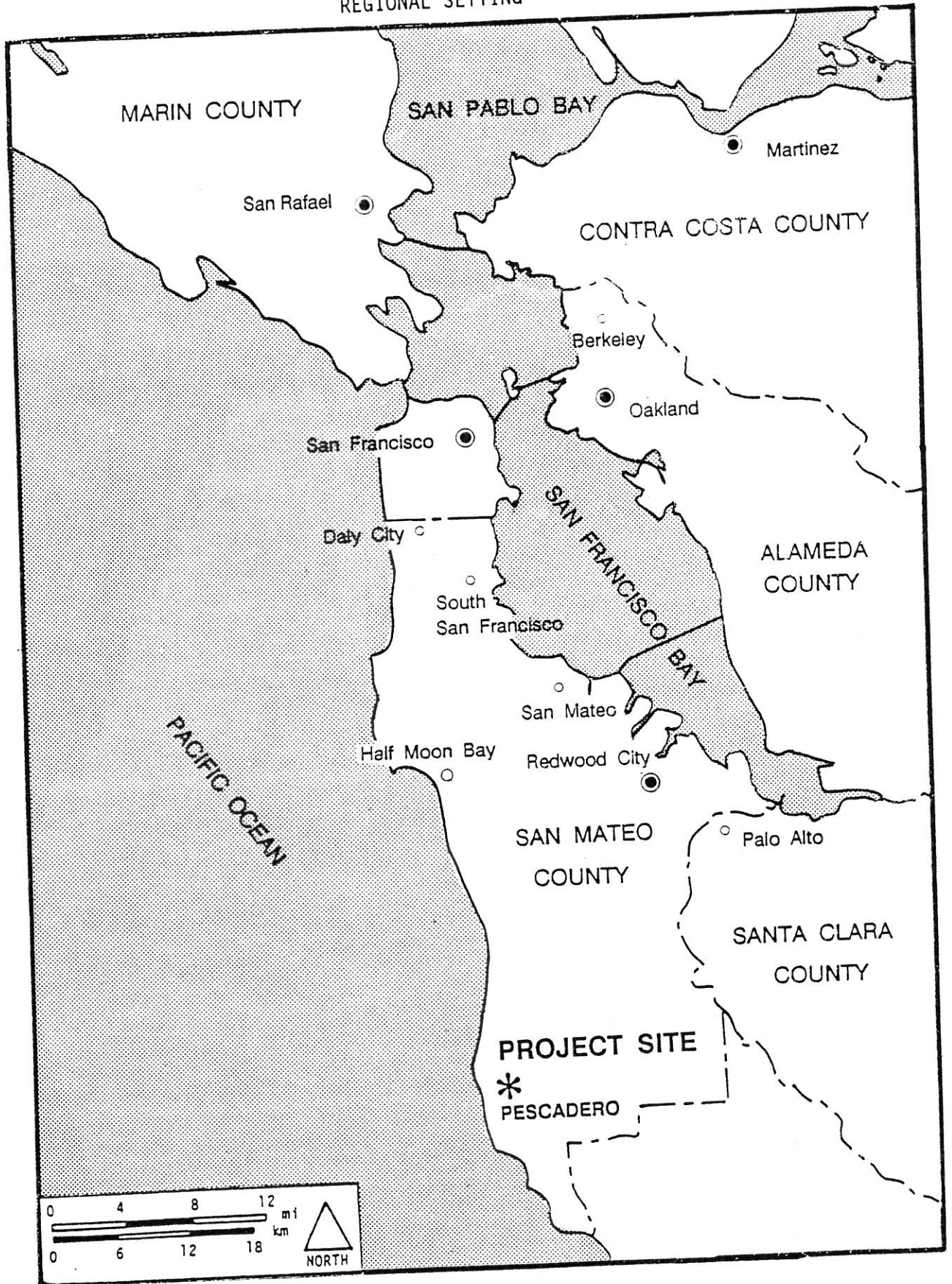


FIGURE 2
PROJECT LOCATION

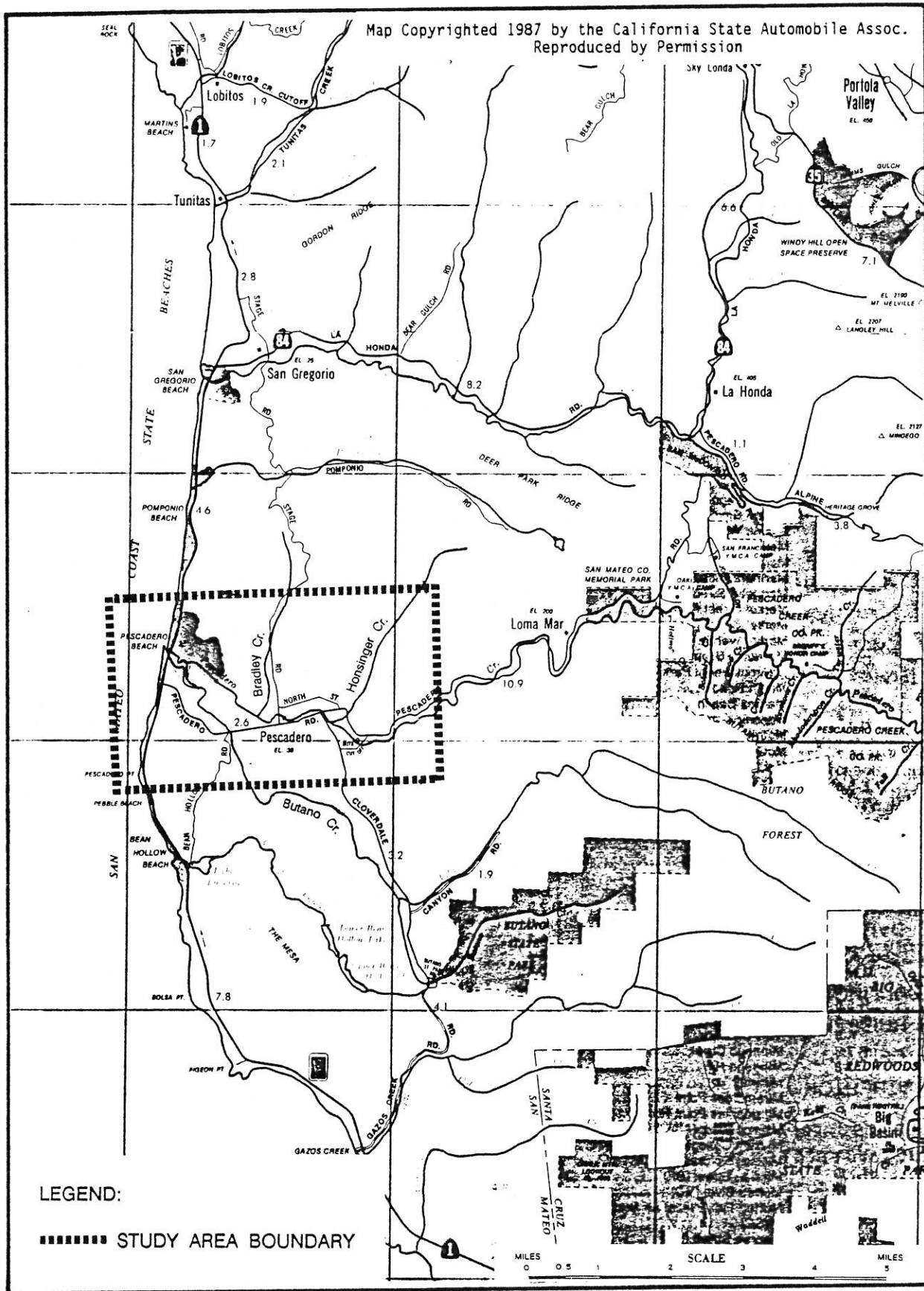
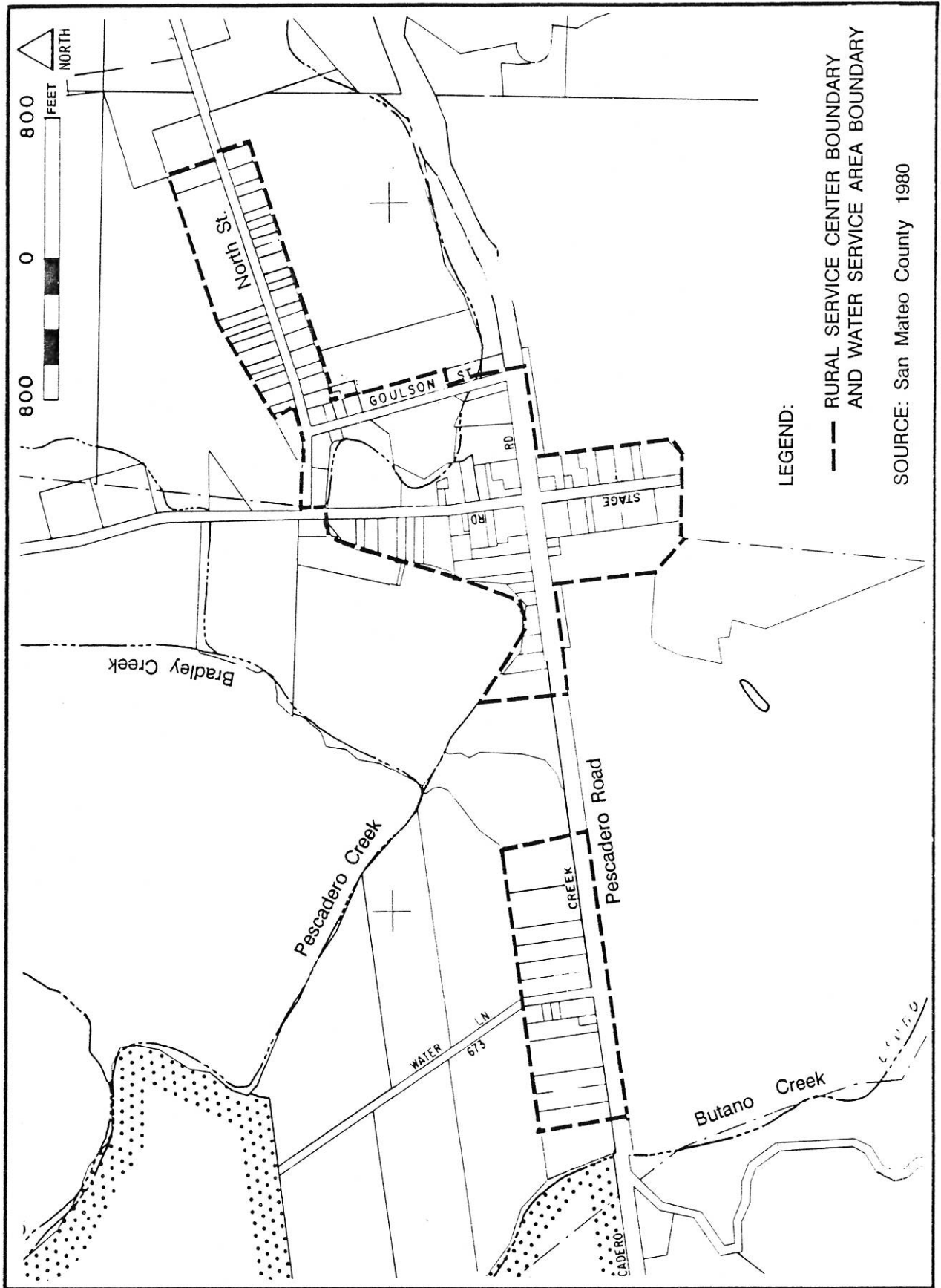


FIGURE 3
SERVICE AREA



10/9/87

FIGURE 4
PROJECT VICINITY

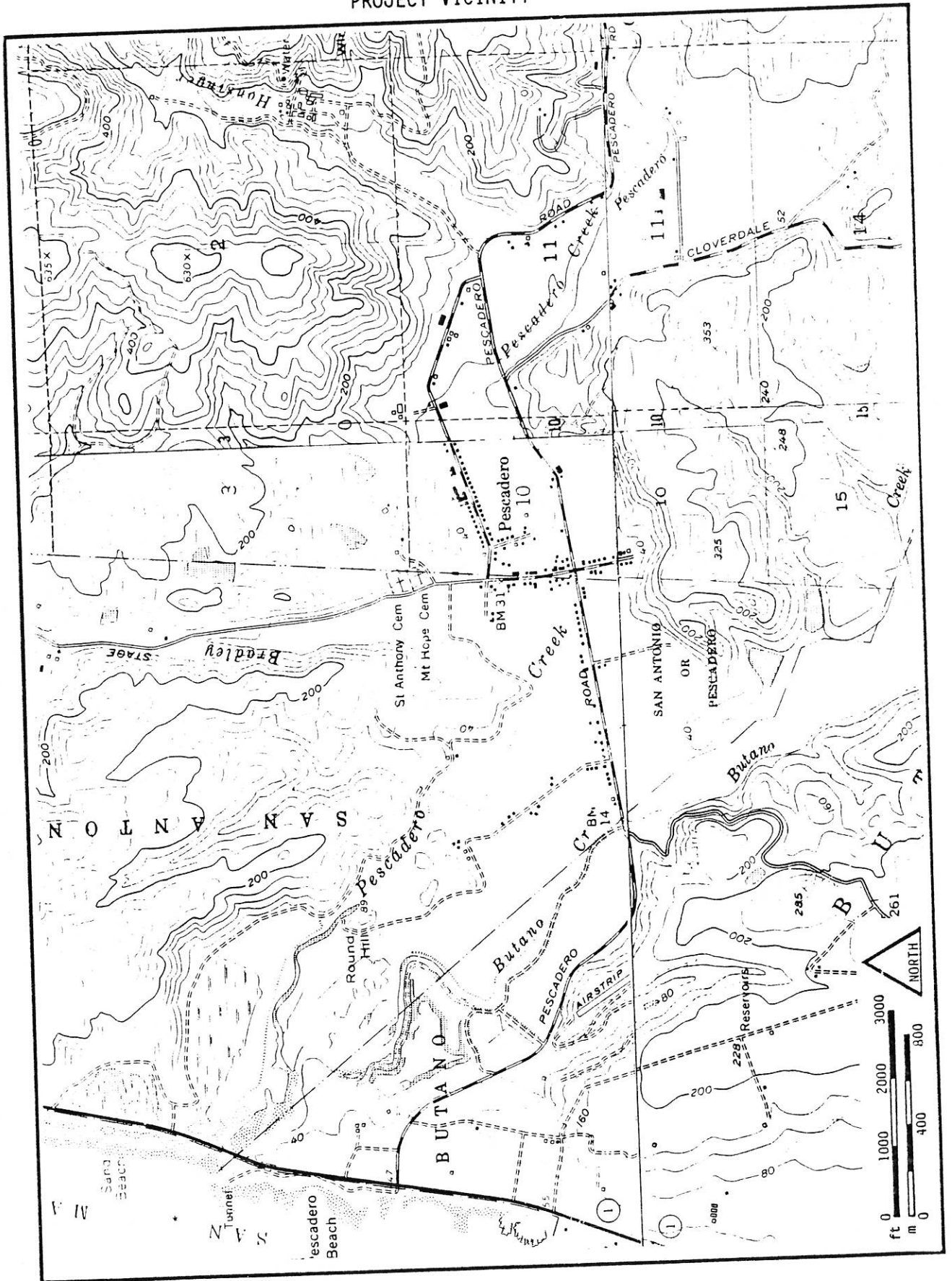
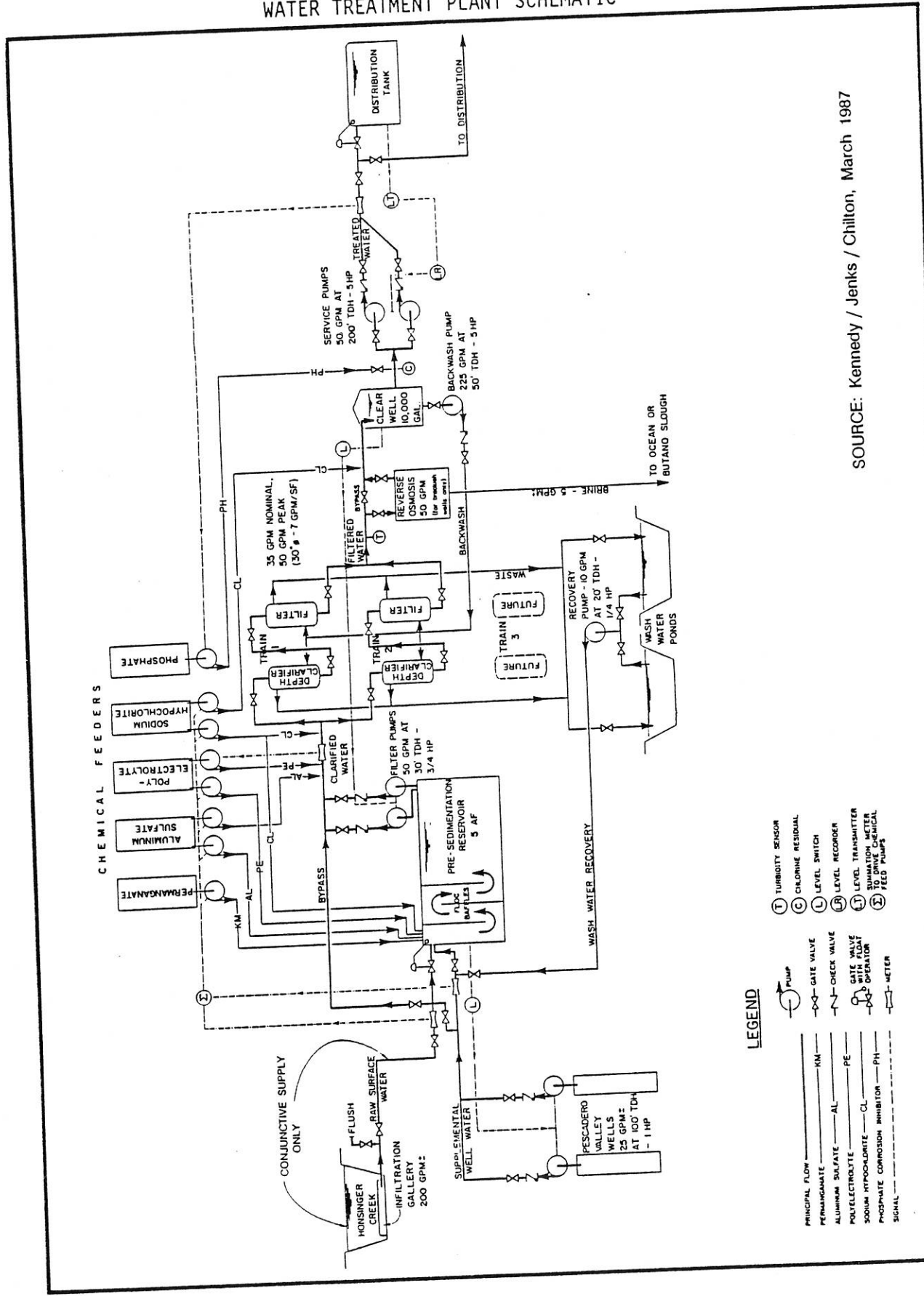


FIGURE 5
WATER TREATMENT PLANT SCHEMATIC



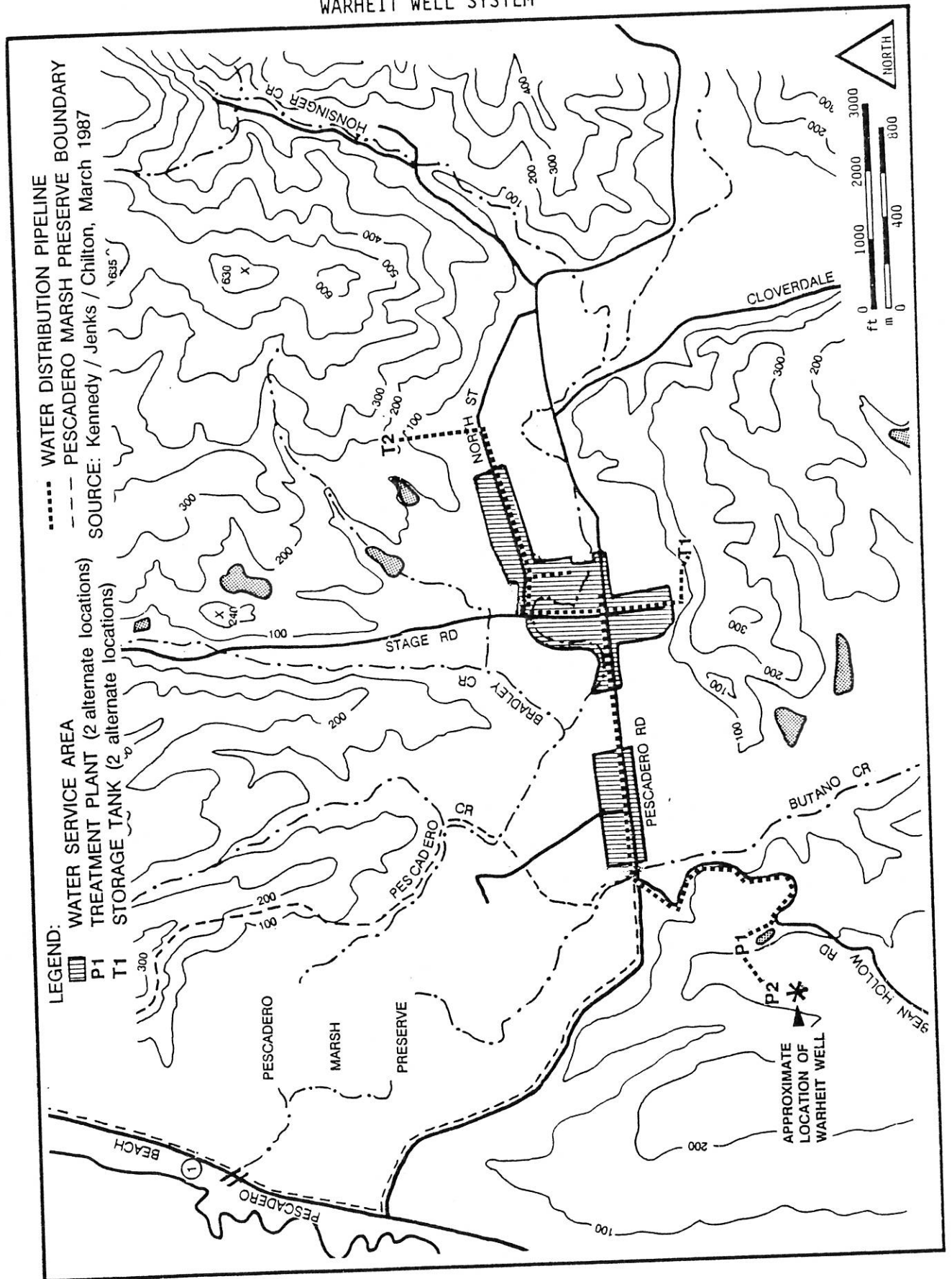
SOURCE: Kennedy / Jenks / Chilton, March 1987

LEGEND

- PRINCIPAL FLOW
- PERMANGANATE — KM
- ALUMINUM SULFATE — AL
- POLYELECTROLYTE — PE
- SODIUM HYPOCHLORITE — CL
- PHOSPHATE CORROSION INHIBITOR — PH
- SIGNAL
- ⊙ PUMP
- ⊗ GATE VALVE
- ⊘ CHECK VALVE
- ⊕ GATE VALVE OPERATOR
- ⊖ METER
- ⊕ TURBIDITY SENSOR
- ⊙ CHLORINE RESIDUAL
- ⊖ LEVEL SWITCH
- ⊕ LEVEL RECORDER
- ⊖ LEVEL TRANSMITTER
- ⊕ SUMMATION METER TO DRIVE CHEMICAL FEED PUMPS

10/9/87

FIGURE 6
WARHEIT WELL SYSTEM



10/9/87

FIGURE 7
WELL SITE SEARCH BOUNDARY

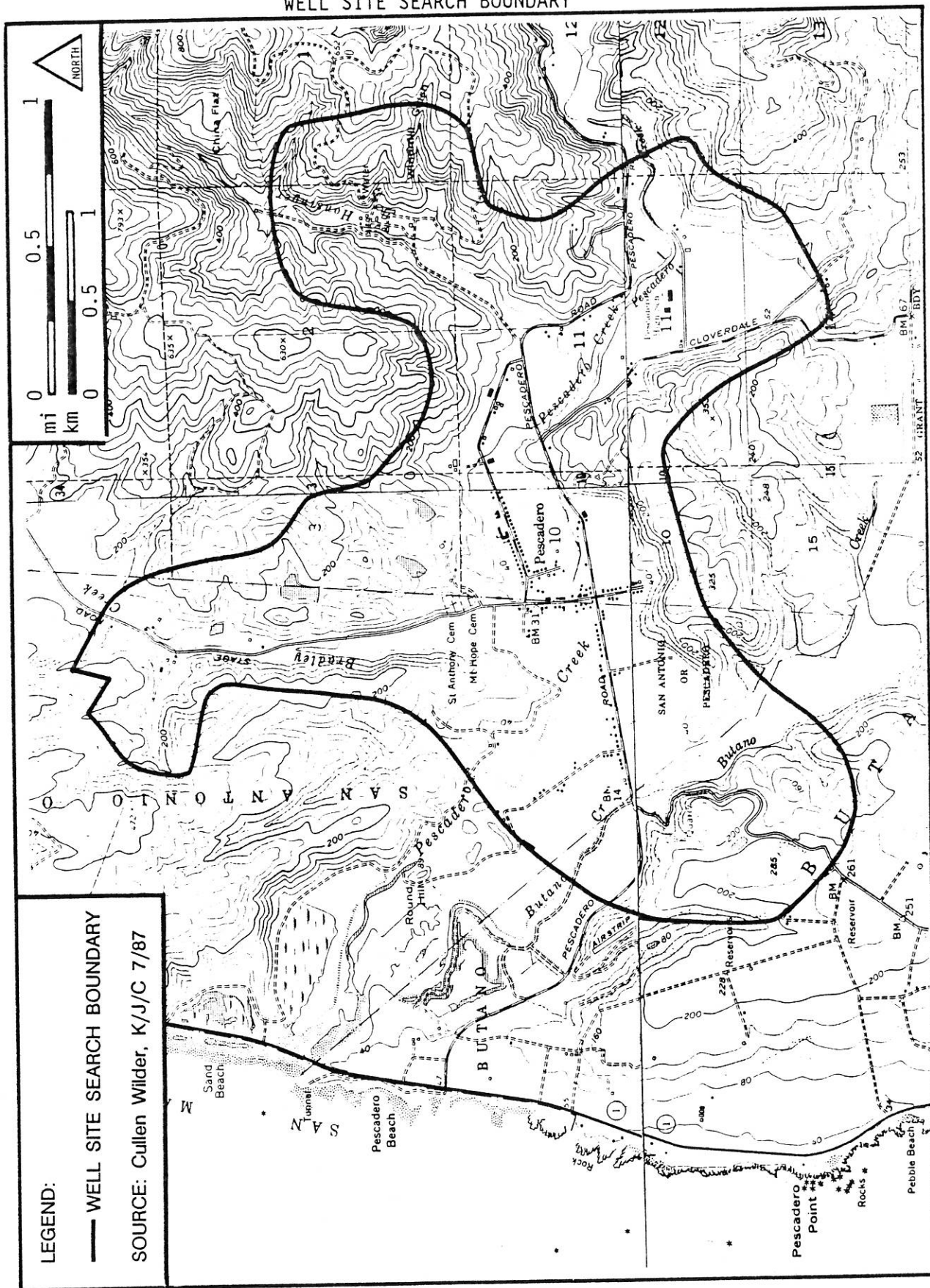
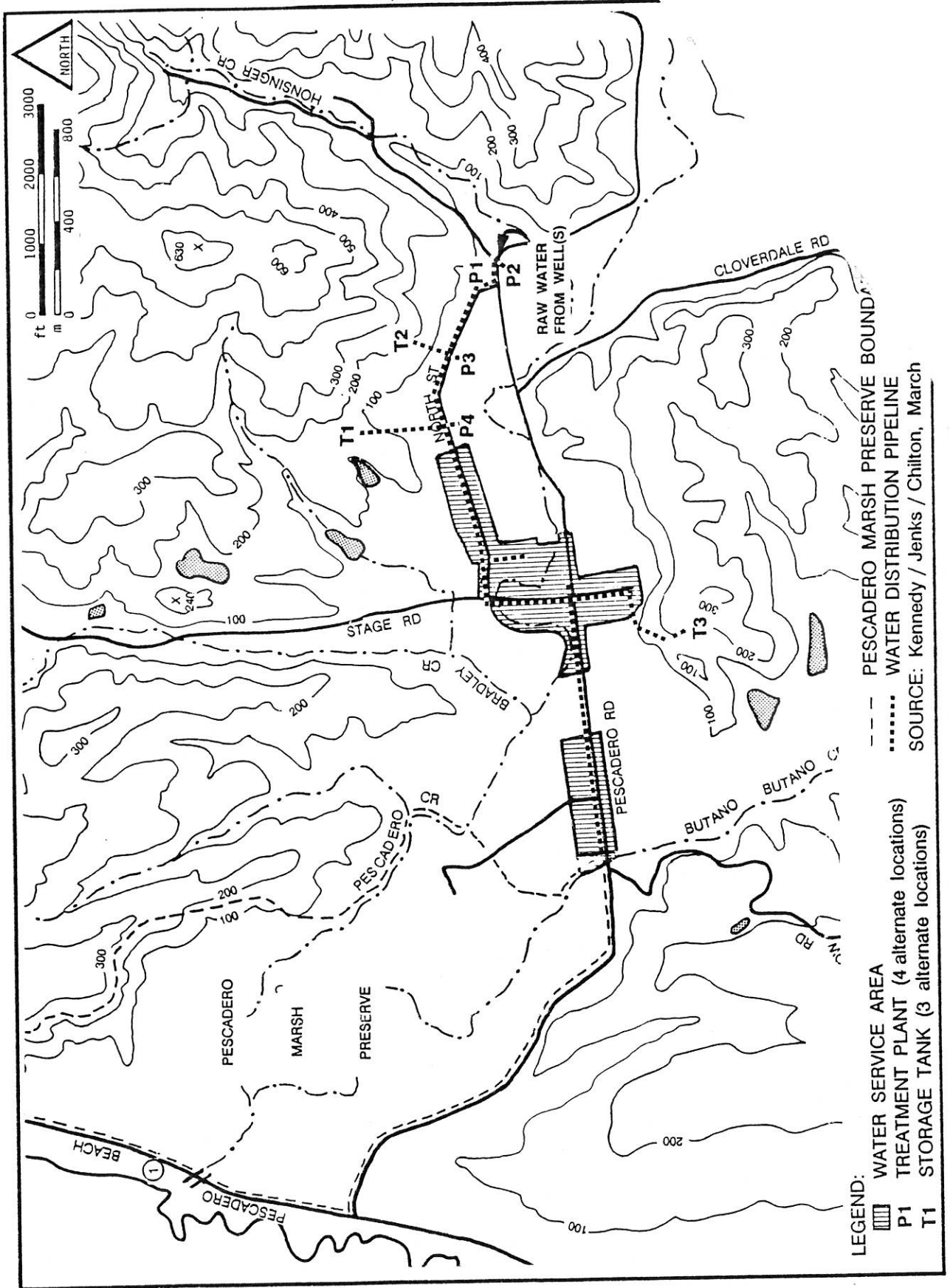


FIGURE 8
POTABLE QUALITY WELL SYSTEM



10/9/87

FIGURE 10
HONSINGER CREEK DIVERSION

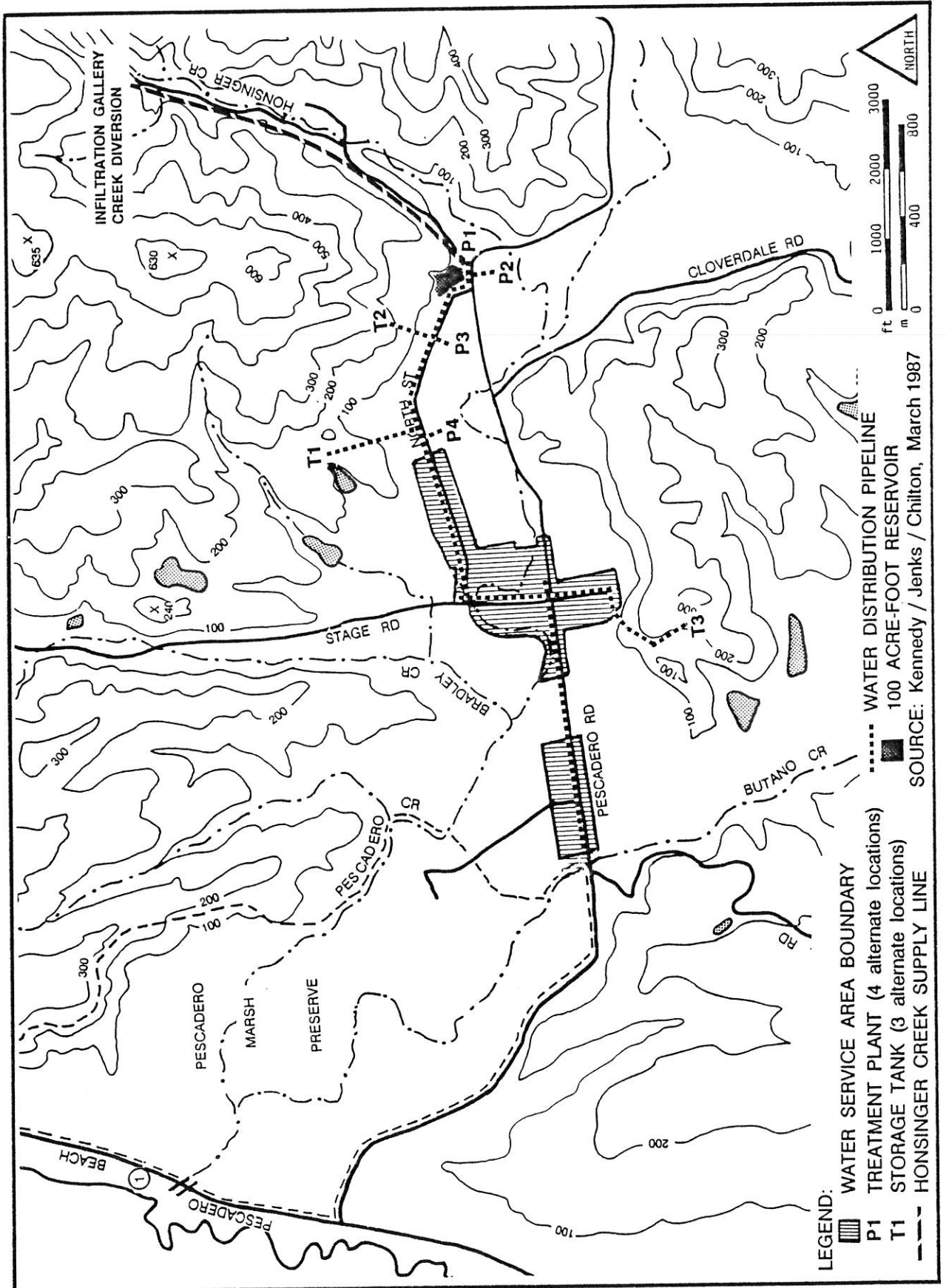
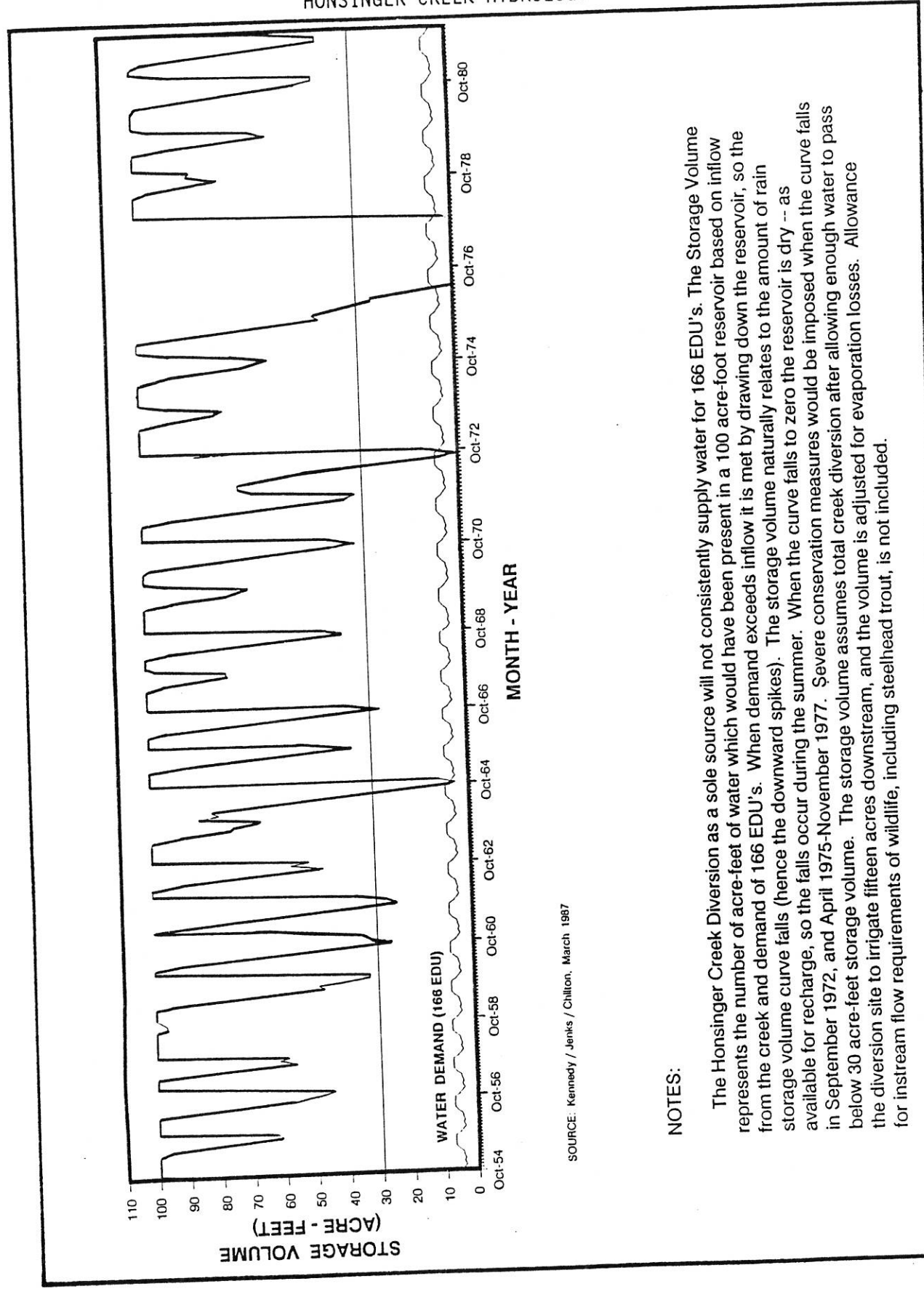


FIGURE 11
HONSINGER CREEK HYDROLOGY

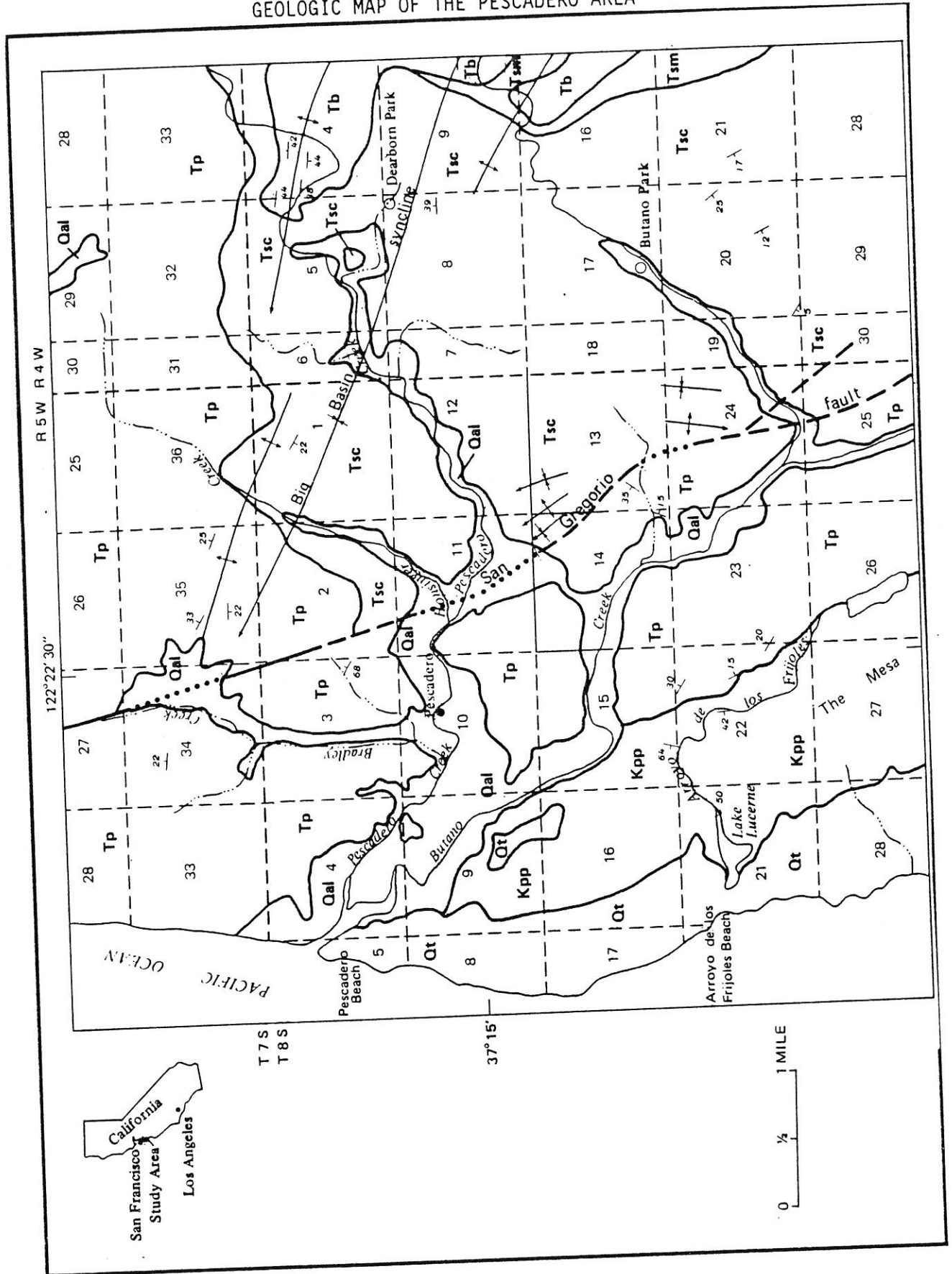


SOURCE: Kennedy / Jenks / Chilton, March 1987

NOTES:

The Honsinger Creek Diversion as a sole source will not consistently supply water for 166 EDU's. The Storage Volume represents the number of acre-feet of water which would have been present in a 100 acre-foot reservoir based on inflow from the creek and demand of 166 EDU's. When demand exceeds inflow it is met by drawing down the reservoir, so the storage volume curve falls (hence the downward spikes). The storage volume naturally relates to the amount of rain available for recharge, so the falls occur during the summer. When the curve falls to zero the reservoir is dry -- as in September 1972, and April 1975-November 1977. Severe conservation measures would be imposed when the curve falls below 30 acre-feet storage volume. The storage volume assumes total creek diversion after allowing enough water to pass the diversion site to irrigate fifteen acres downstream, and the volume is adjusted for evaporation losses. Allowance for instream flow requirements of wildlife, including steelhead trout, is not included.

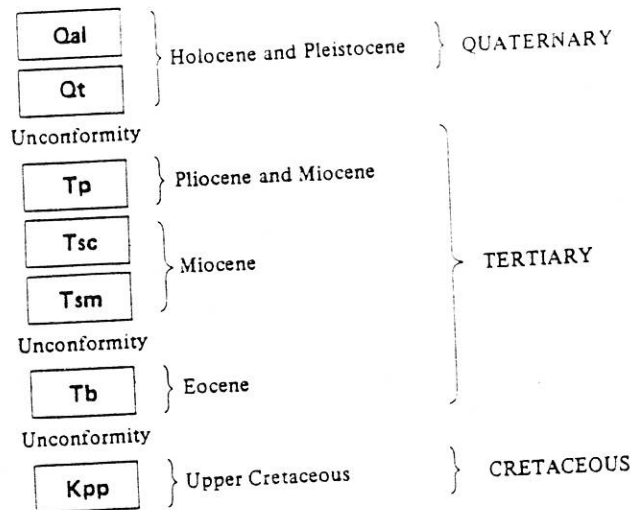
FIGURE 12
GEOLOGIC MAP OF THE PESCADERO AREA



PESCADERO WATER SUPPLY EA -- FIGURES

LEGEND TO FIGURE 12
GEOLOGIC MAP OF THE PESCADERO AREA

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

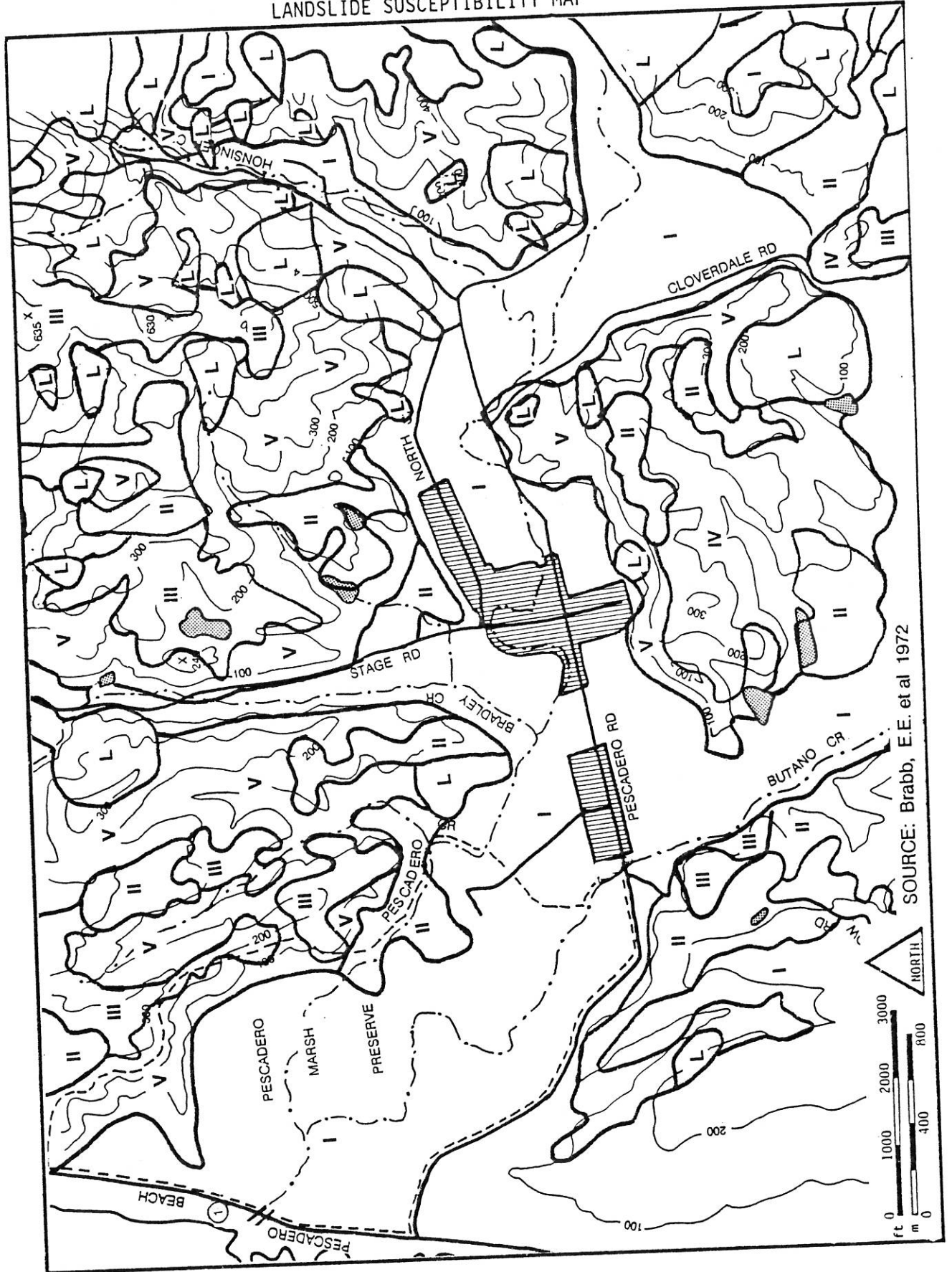
- Qal ALLUVIUM (HOLOCENE AND PLEISTOCENE)—Gravel, sand, silt, and clay
- Qt TERRACE DEPOSITS (HOLOCENE AND PLEISTOCENE)—Predominantly sand; some silt, clay, and gravel
- Unconformity
- Tp PURISIMA FORMATION (PLIOCENE AND MIOCENE)—Siltstone, mudstone, sandstone, and conglomerate
- Tsc SANTA CRUZ MUDSTONE (MIOCENE)
- Tsm SANTA MARGARITA SANDSTONE (MIOCENE)
- Unconformity
- Tb BUTANO FORMATION (EOCENE)—Predominantly sandstone, minor shale and conglomerate
- Unconformity
- Kpp PIGEON POINT FORMATION (UPPER CRETACEOUS)

EXPLANATION.

- Contact—Approximately located
- Fault—Dashed where approximately located; dotted where concealed
- $\frac{17}{-}$ Strike and dip of beds. Number is dip, in degrees
- Anticline—Showing direction of plunge
- Syncline—Showing direction of plunge

10/9/87

FIGURE 13
LANDSLIDE SUSCEPTIBILITY MAP



10/9/87

LEGEND TO FIGURE 13
LANDSLIDE SUSCEPTIBILITY MAP

Explanation of Map Units

Least



Most

I

Areas least susceptible to landsliding. Very few small landslides have formed in these areas. Formation of large landslides is possible but unlikely, except during earthquakes. Slopes generally less than 15%, but may include small areas of steep slopes that could have higher susceptibility. Includes some areas with 30% to more than 70% slopes that seem to be underlain by stable rock units. Additional slope stability problems; some of the areas may be more susceptible to landsliding if they are overlain by thick deposits of soil, slopewash, or ravine fill. Rockfalls may also occur on steep slopes. Also includes areas along creeks, rivers, sloughs, and lakes that may fail by landsliding during earthquakes. If area is adjacent to area with higher susceptibility, a landslide may encroach into the area, or the area may fail if a landslide undercuts it, such as the flat area adjacent to sea cliffs.

II

Low susceptibility to landsliding. Several small landslides have formed in these areas and some of these have caused extensive damage to homes and roads. A few large landslides may occur. Slopes vary from 5-15% for unstable rock units to more than 70% for rock units that seem to be stable. The statements about additional slope stability problems mentioned in I above also apply in this category.

III

Moderate susceptibility to landsliding. Many small landslides have formed in these areas and several of these have caused extensive damage to homes and roads. Some large landslides likely. Slopes generally greater than 30% but includes some slopes 15-30% in areas underlain by unstable rock units. See I for additional slope stability problems.

IV

Moderately high susceptibility to landsliding. Slopes all greater than 30%. These areas are mostly in undeveloped parts of the County. Several large landslides likely. See I for additional slope stability problems.

V

High susceptibility to landsliding. Slopes all greater than 30%. Many large and small landslides may form. These areas are mostly in undeveloped parts of the County. See I for additional slope stability problems.

VI

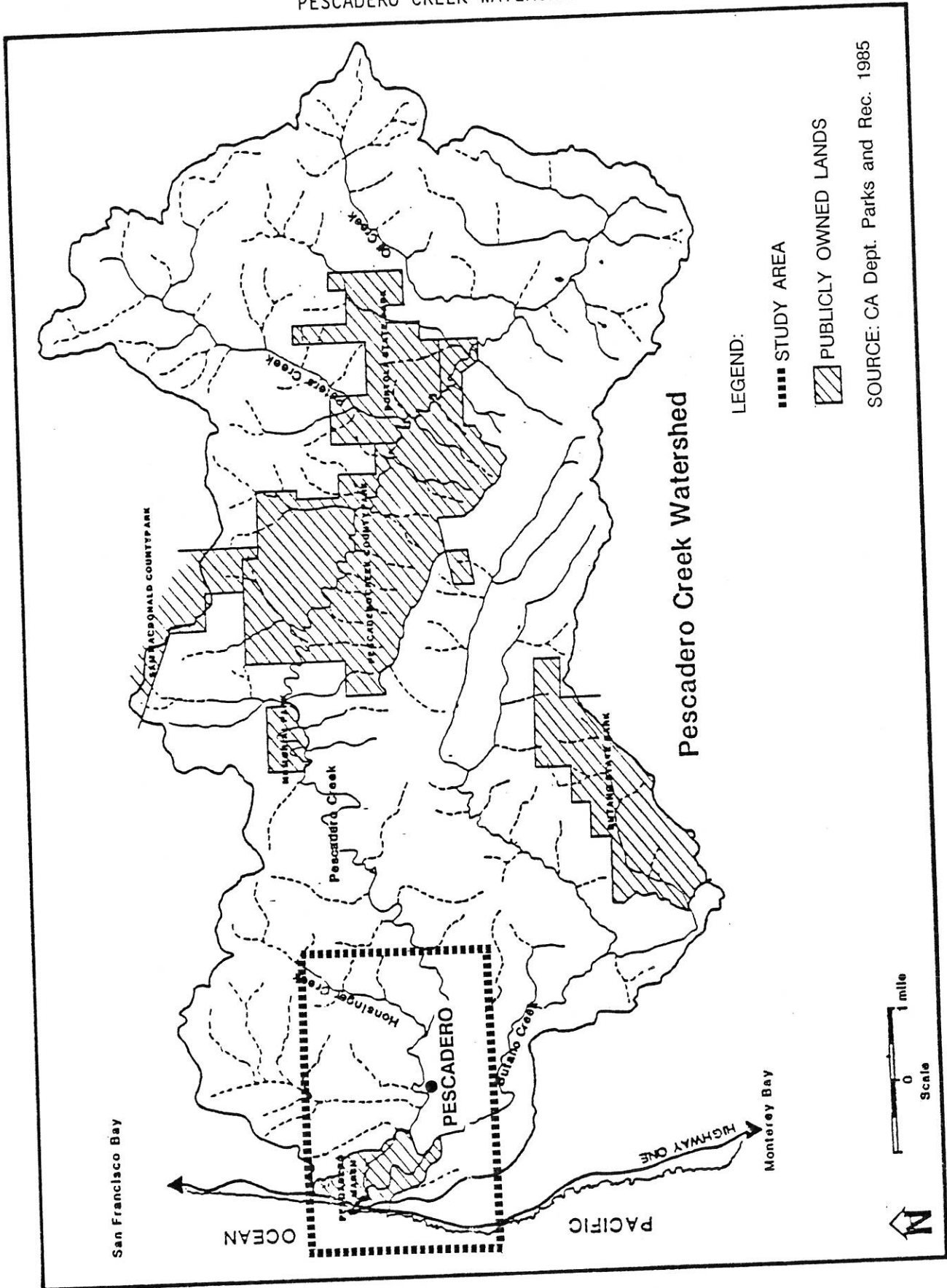
Very high susceptibility to landsliding. Slopes all greater than 30%. Development of many large and small landslides is likely. Slopes all greater than 30%. The areas are mainly in undeveloped parts of the County. See I for additional slope stability problems.

L

Highest susceptibility to landsliding. Consists of landslide and possible landslide deposits. No small landslide deposits are shown. Some of these areas may be relatively stable and suitable for development, whereas others are active and causing damage to roads, houses and other cultural features.

Definitions: Large landslide - more than 500 feet in maximum dimension
Small landslide - 50 to 500 feet in maximum dimension

FIGURE 14
PESCADERO CREEK WATERSHED



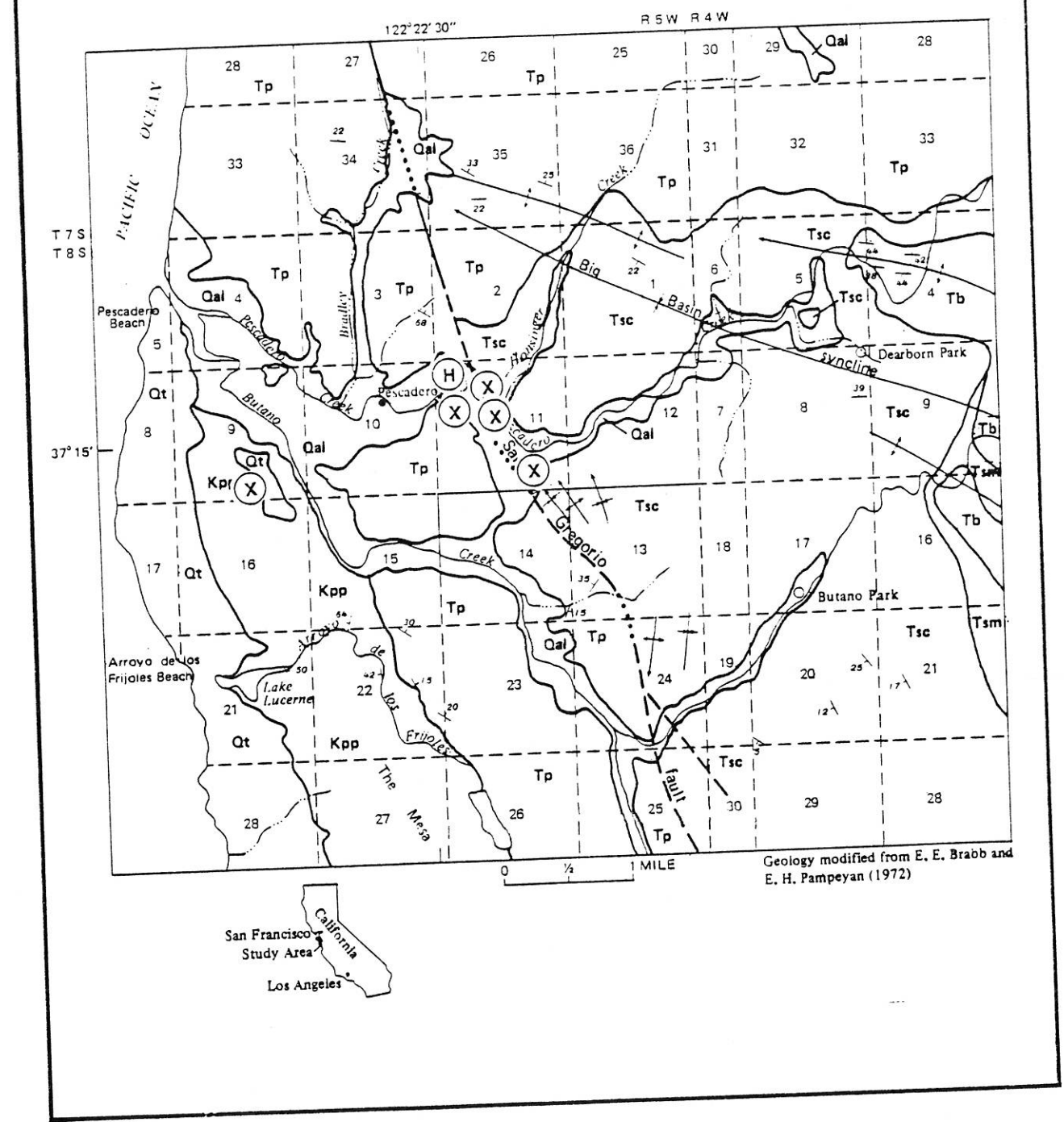
PESCADERO WATER SUPPLY EA -- FIGURES

FIGURE 15
 POTENTIAL FOR GROUNDWATER SUPPLIES, PESCADERO AREA

LEGEND:

- (H) U.S.G.S. SUGGESTED TEST WELL
- (X) COUNTY TEST WELL

SOURCE: Kennedy / Jenks / Chilton 1987



10/9/87

FIGURE 16
SENSITIVE BIOLOGICAL RESOURCES

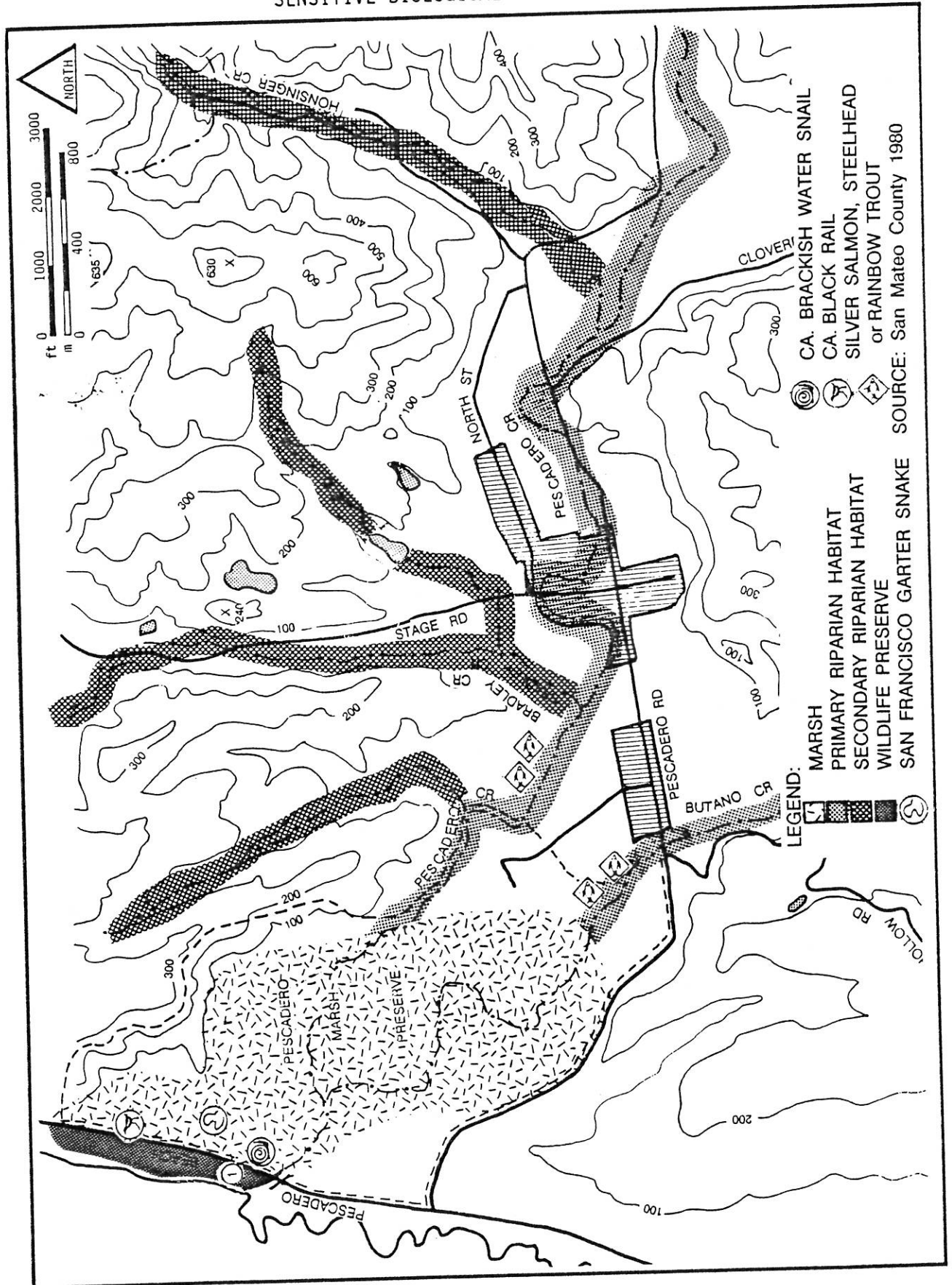


FIGURE 17
 BIOLOGICAL COMMUNITIES WITHIN WELL SITE SEARCH BOUNDARY

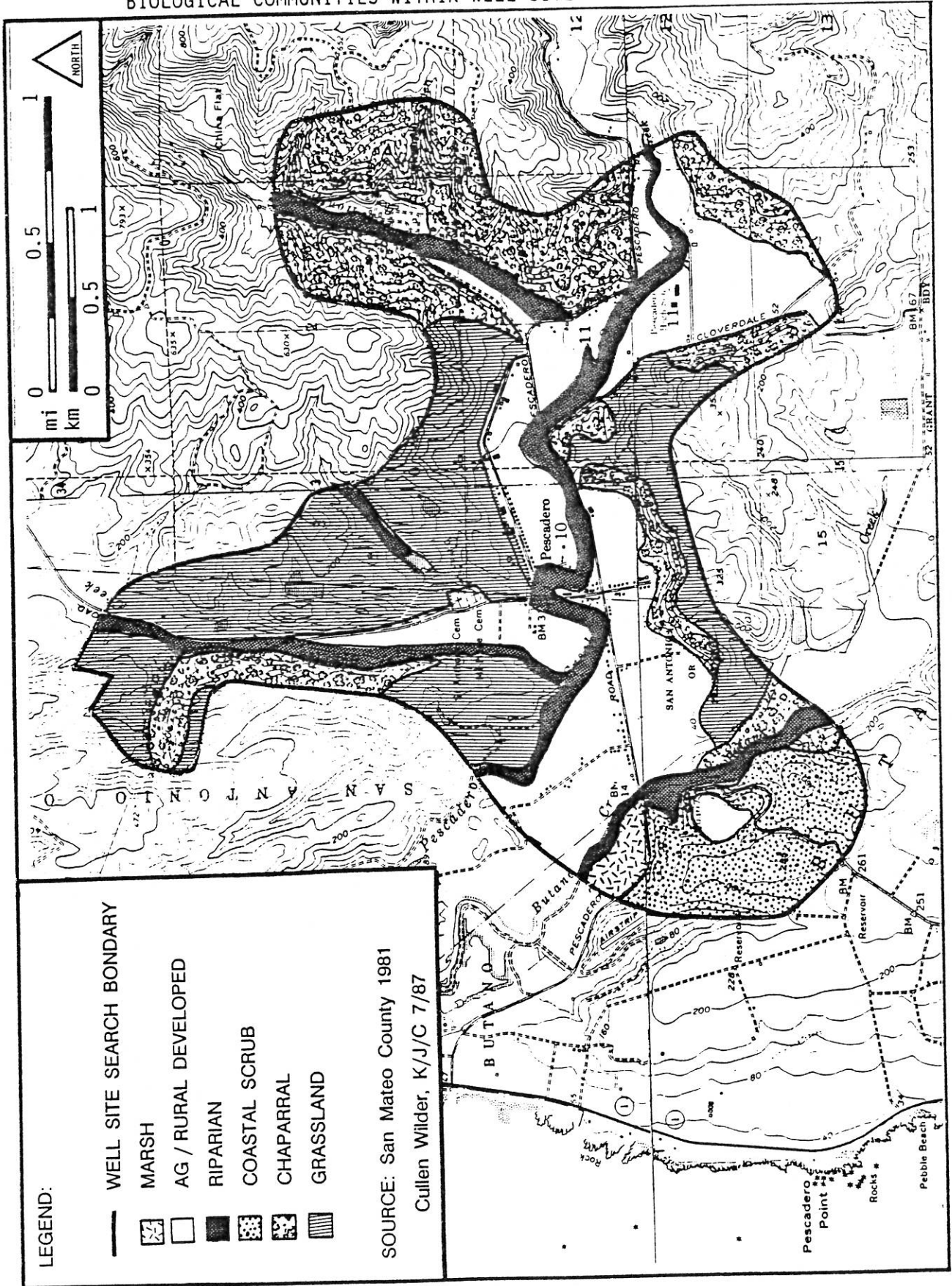


FIGURE 18
SOILS MAP

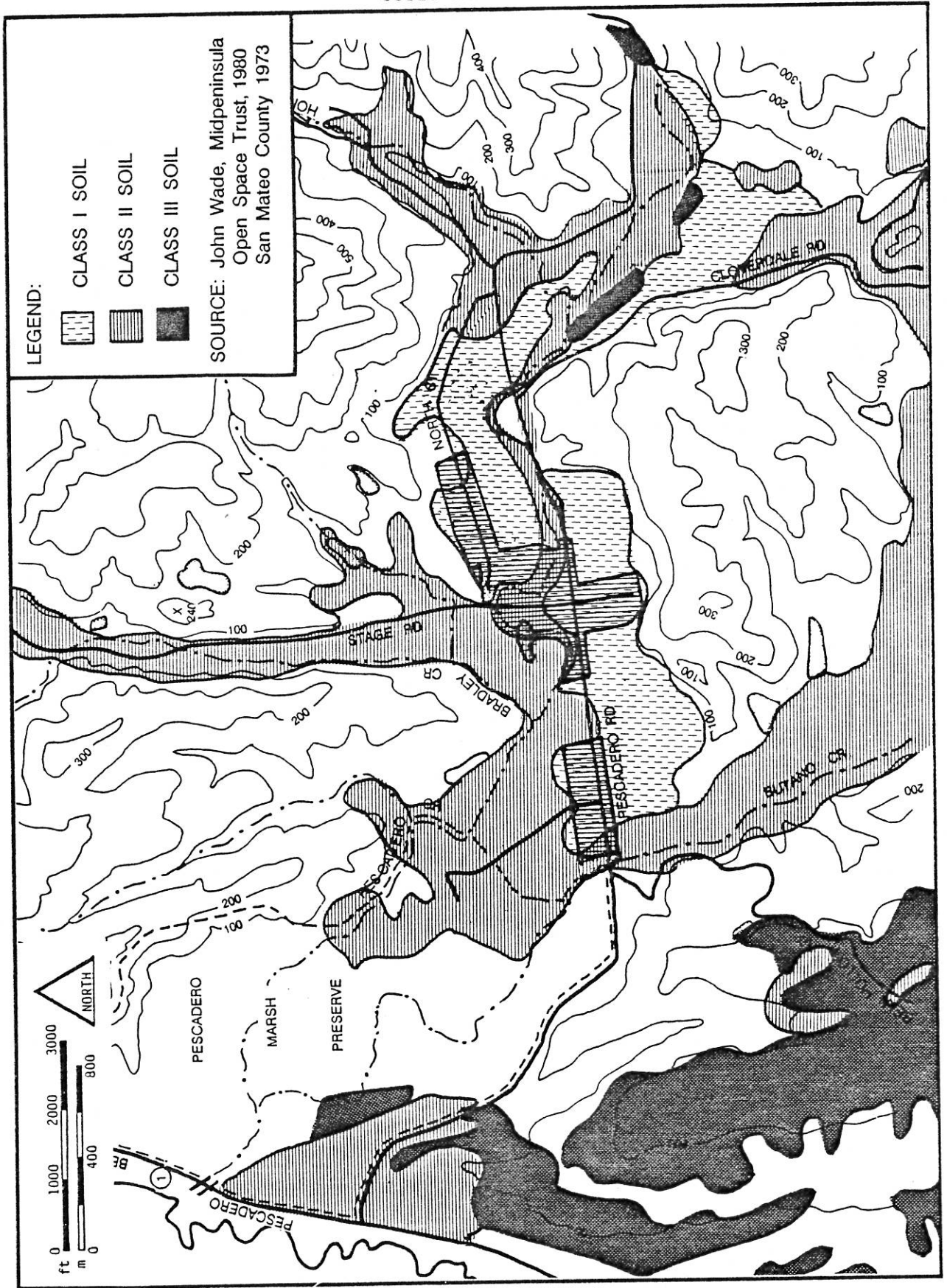


FIGURE 19
LAND USE

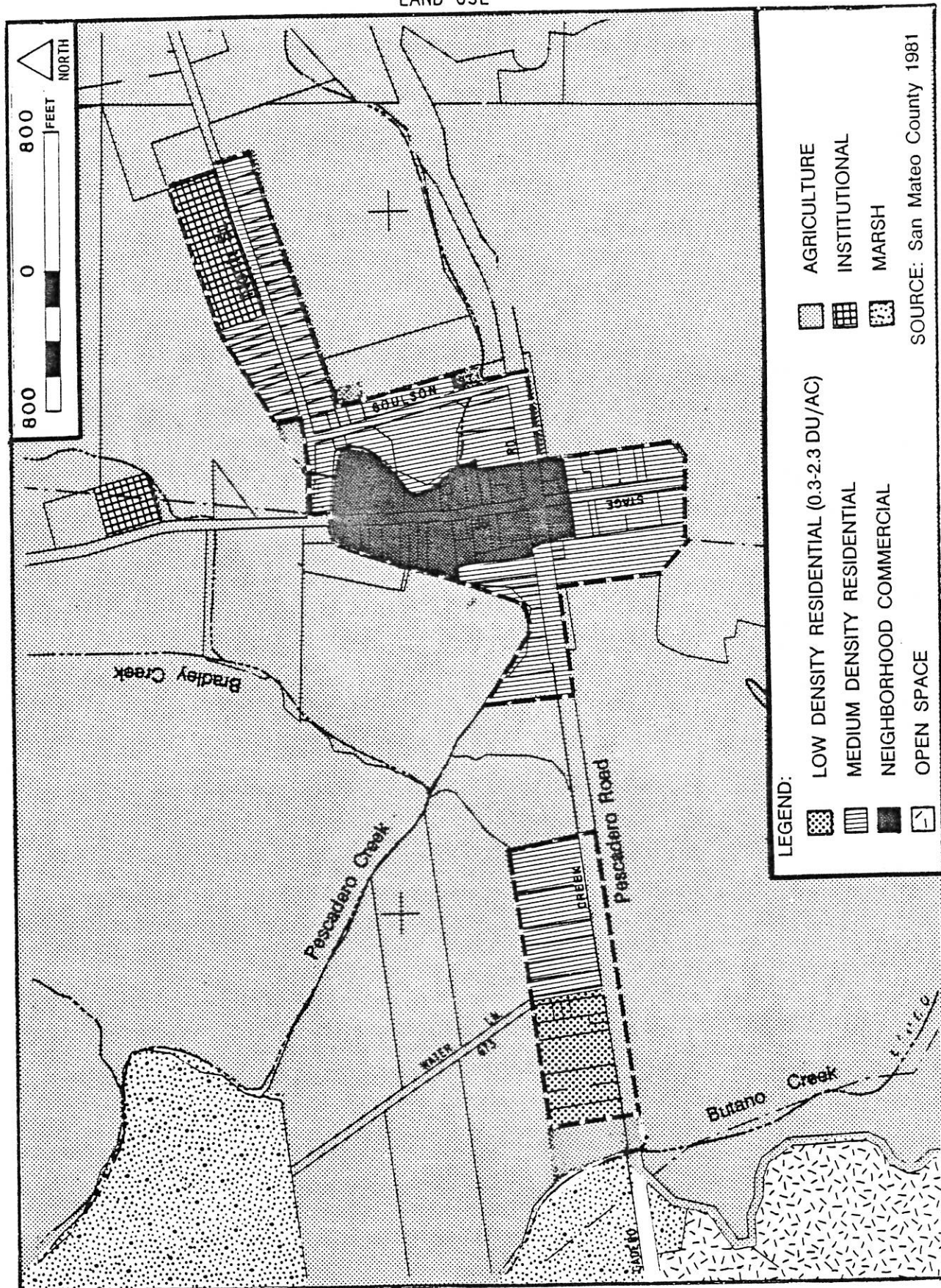


FIGURE 20
FLOOD AND FIRE HAZARDS

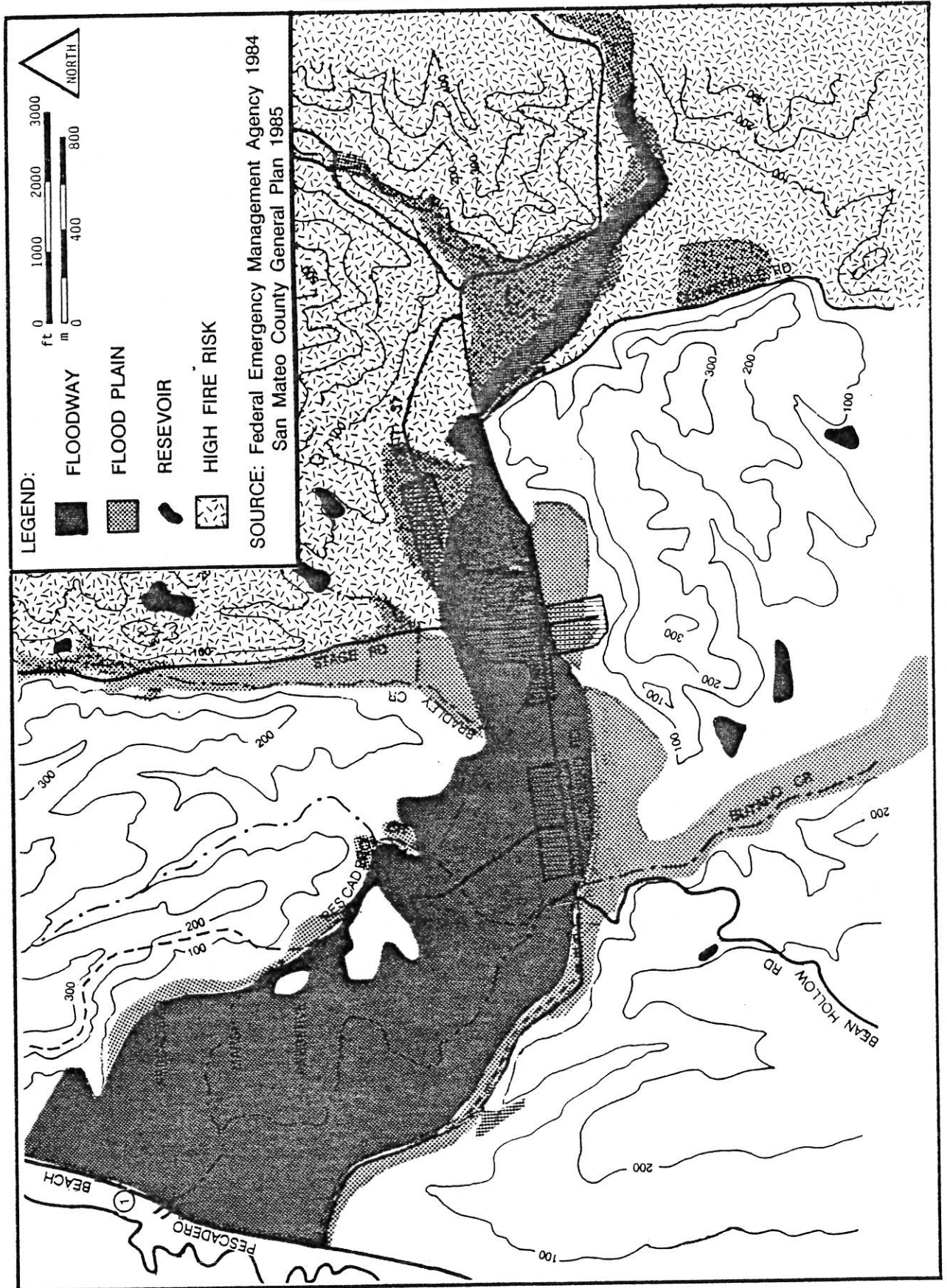
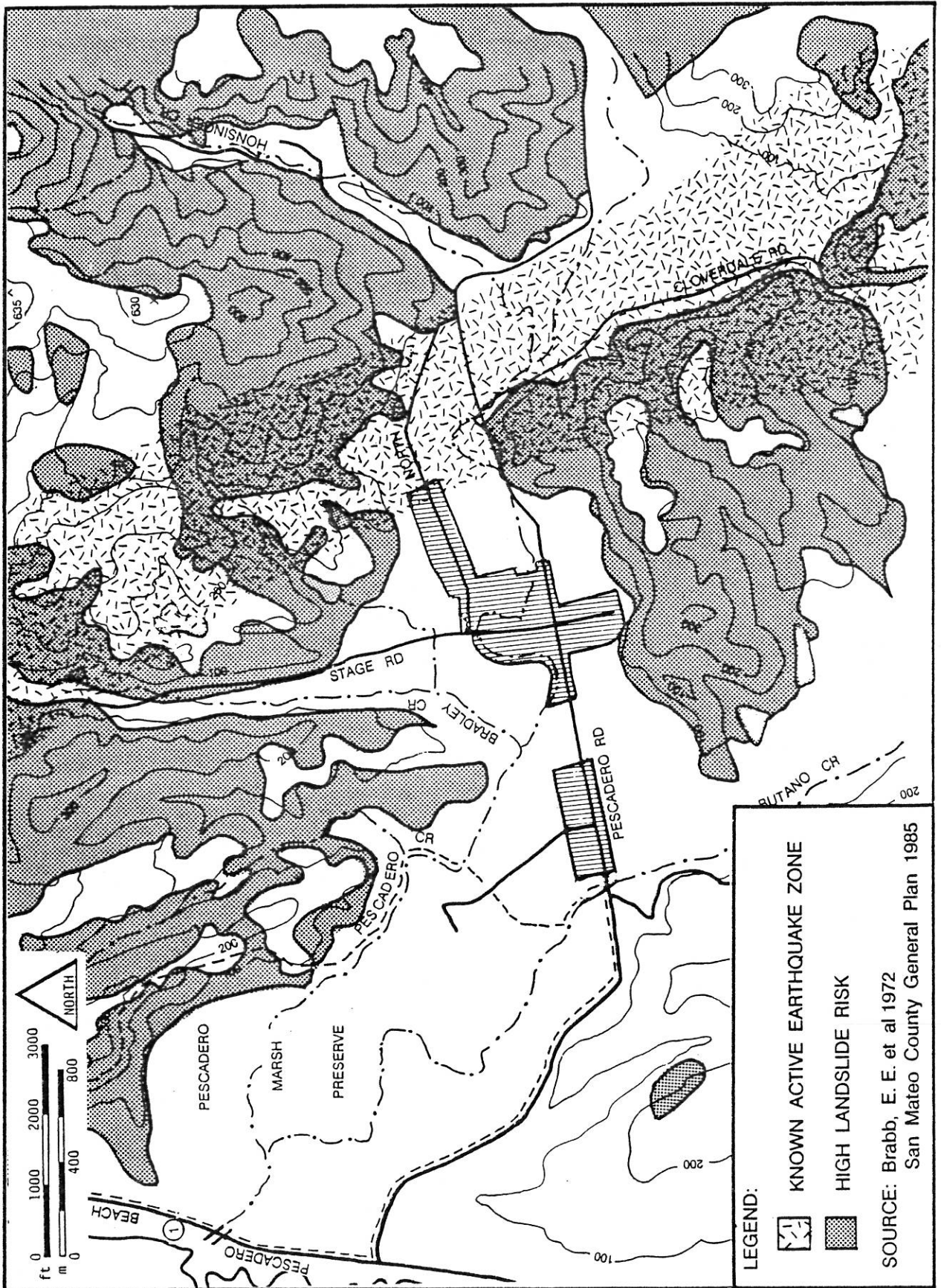


FIGURE 21
GEOLOGIC HAZARDS



LEGEND:

-  KNOWN ACTIVE EARTHQUAKE ZONE
-  HIGH LANDSLIDE RISK

SOURCE: Brabb, E. E. et al 1972
San Mateo County General Plan 1985

FIGURE 22
DESIGNATED SCENIC CORRIDORS

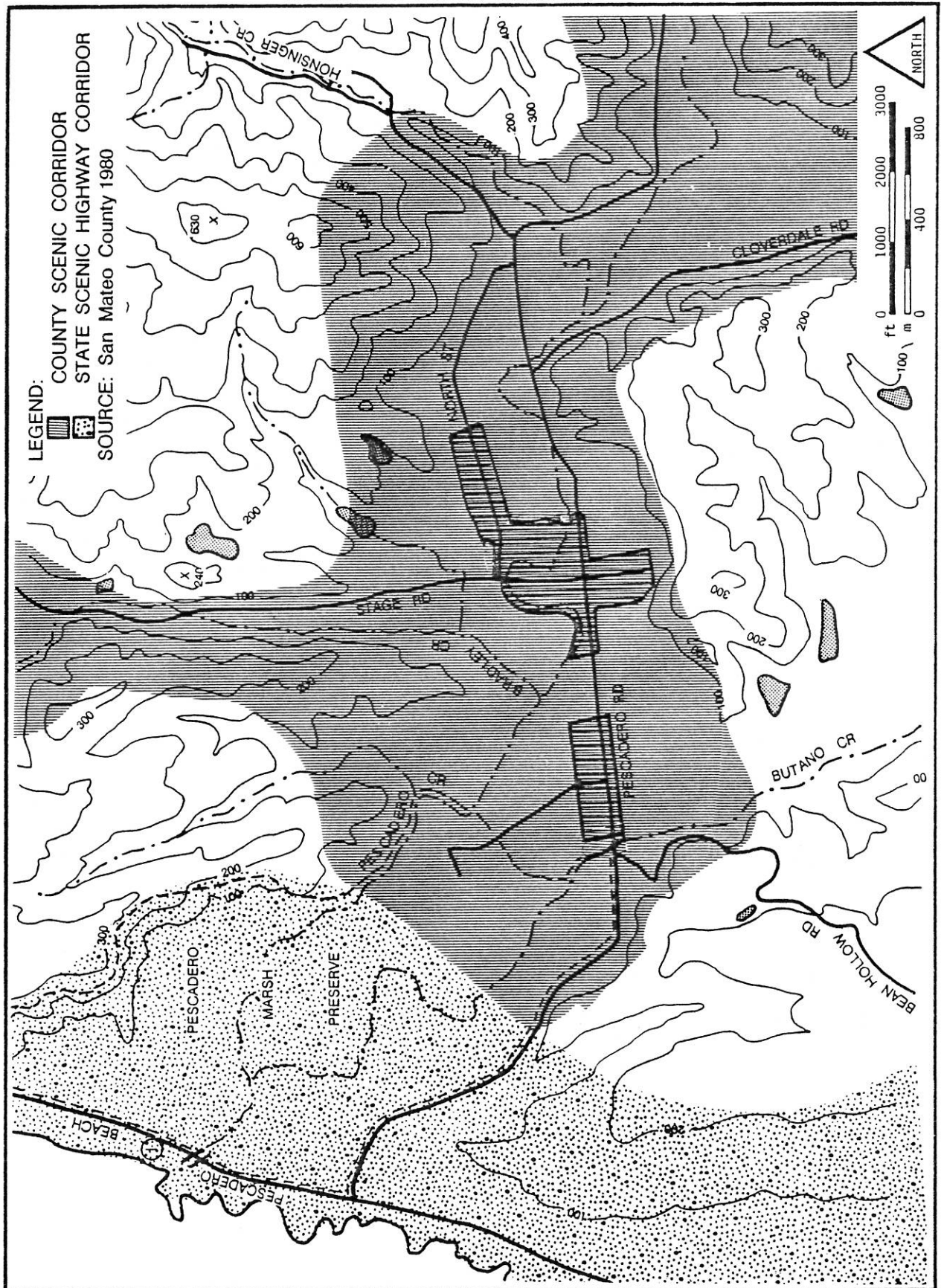


FIGURE 23
DAM SITES STUDIED BY USACE

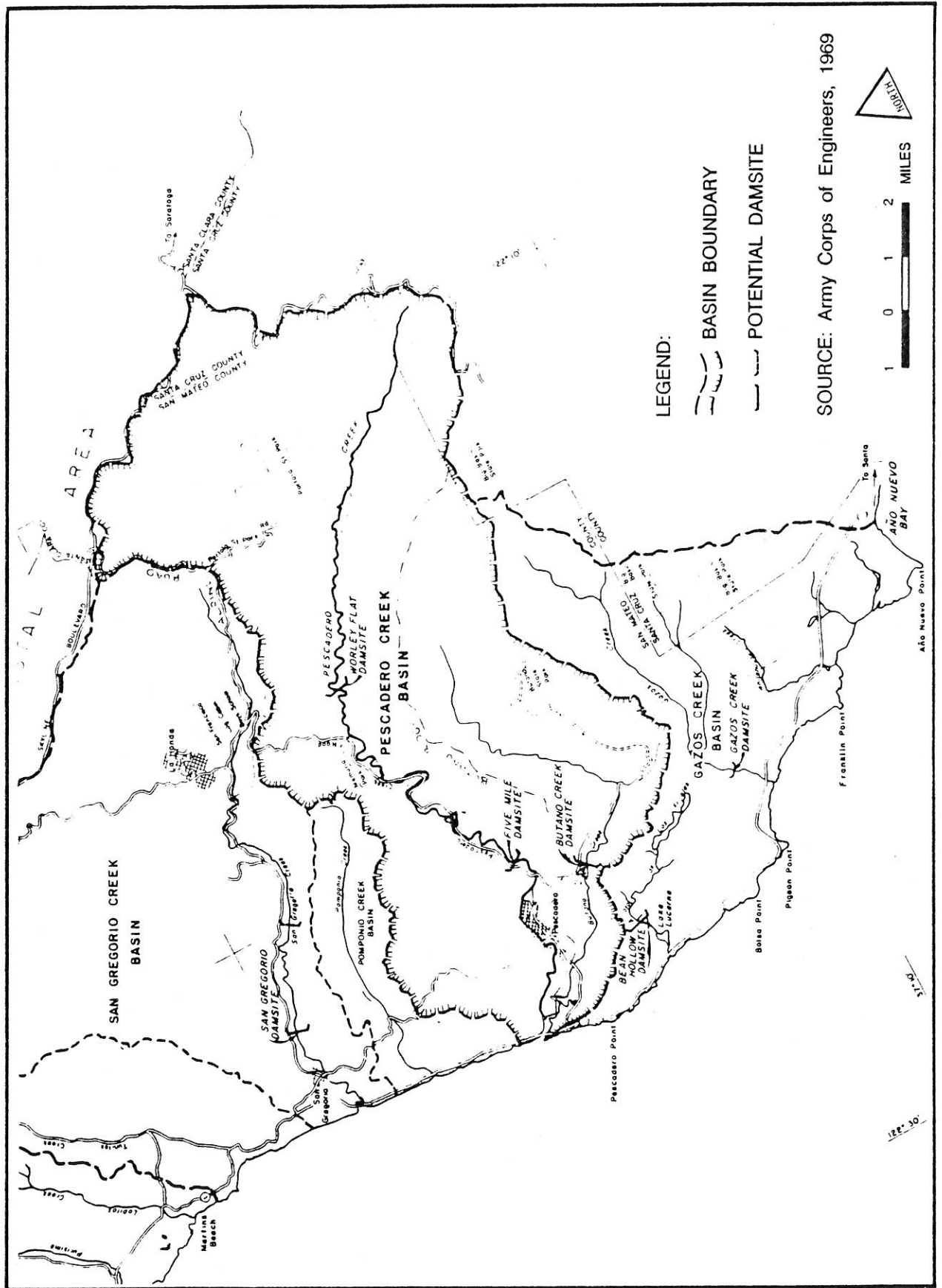
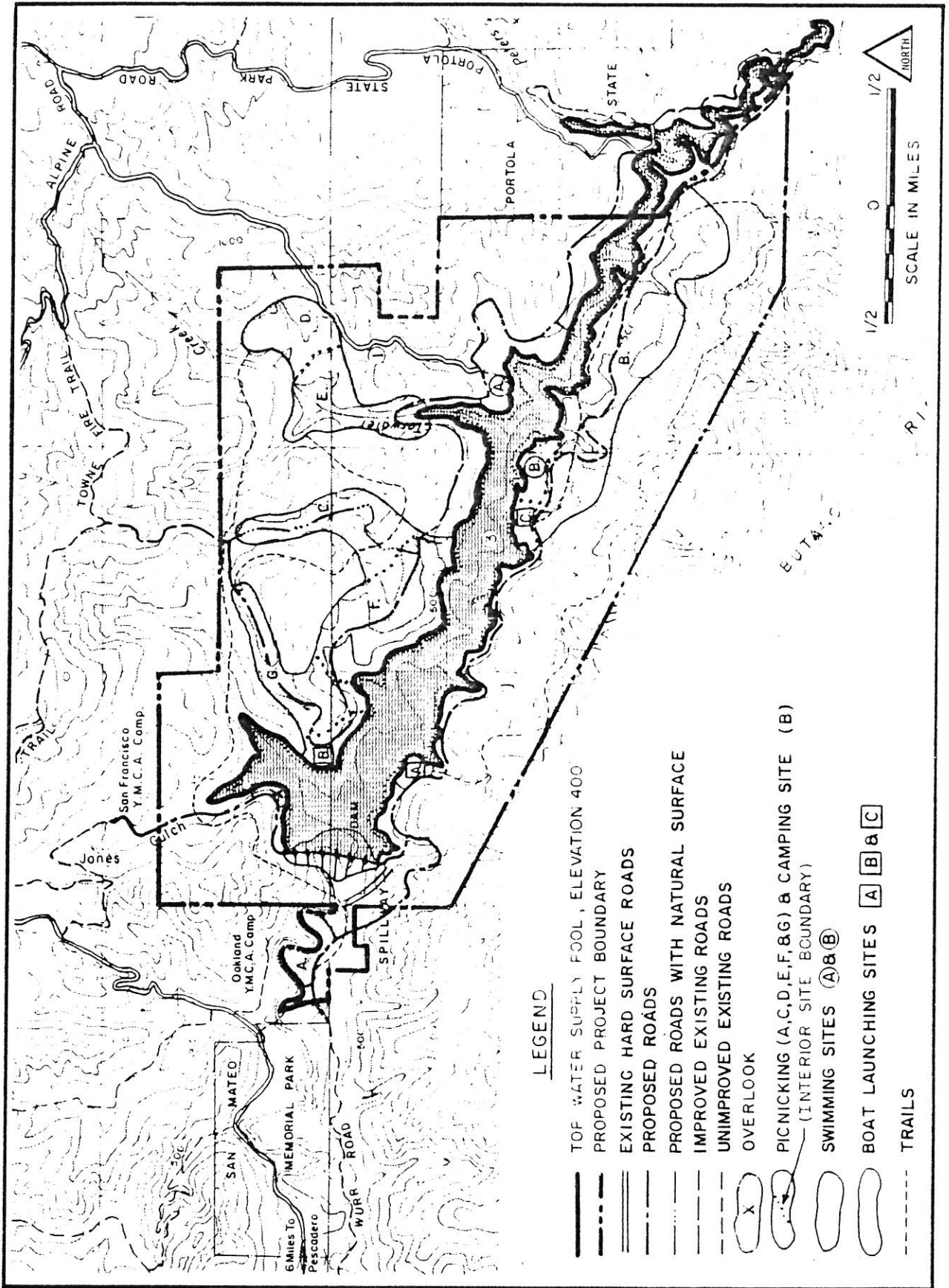


FIGURE 24
WORLEY FLAT RESERVOIR PROPOSAL



ENVIRONMENTAL ASSESSMENT OF
WATER SUPPLY ALTERNATIVES FOR THE
COMMUNITY OF PESCADERO, CALIFORNIA

- -
RESPONSE TO COMMENTS

LIST OF COMMENTORS

I. FEDERAL

A. US Army Corps of Engineers

II. STATE AND REGIONAL

A. Office of Planning and Research

B. Department of Health Services

C. California Coastal Commission Central Coastal District

D. California Department of Fish and Game

E. California Department of Parks and Recreation

F. State Water Resources Control Board

G. Regional Water Quality Control Board - San Francisco Bay Region

III. LOCAL

A. Pescadero Community Council

10/9/87

RESPONSES TO COMMENTS

The following responses refer to numbered paragraphs on the original comment letter. The comment is summarized for each response, but the reader is directed to the attached comment letters themselves for the full text.

I. FEDERAL

A. US Army Corps of Engineers

1. *COMMENT:* The proposed project appears to be within USACE jurisdiction and a permit may be required.

RESPONSE: According to the USACE, "all proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act". The Warheit Well, which is the County's preferred alternative, will not involve dredging, filling or other construction activities in wetland or stream areas. The well and facilities are in an upland location, and the water supply pipelines will be placed under or alongside existing roadways. The pipeline will span Butano Creek along the Pescadero Road bridge so that no disturbance of the creekbed or of downstream resources is expected.

The Conjunctive Supply alternative requires diversion of Honsinger Creek and a Section 404 permit would probably be necessary, depending on the results of USACE review.

The Potable Quality Wells alternative would require a Section 404 permit if the wells were located in a streambed or if the supply pipeline were placed along or across a streambed or through wetlands. This alternative would require additional review by the USACE if selected for the Pescadero's water supply.

II. STATE AND REGIONAL

A. Office of Planning and Research.

1. *COMMENT:* Transmittal letter of comments on the Environmental Assessment

RESPONSE: No response is required.

B. Department of Health Services

1. *COMMENT:* The term "complete treatment" rather than "conventional treatment" should be used for surface water sources, since surface water treatment differs from groundwater treatment.

RESPONSE: The following text is inserted on page 15 of the Environmental Assessment, second block of text, after the first sentence:

"Stringent potable water quality requirements have been set by the recent renewal of the Federal Safe Drinking Water Act. The Department

of Health Services will be adopting requirements equal to or more stringent than Federal requirements."

The following text is inserted on page 15 of the Environmental Assessment in place of the fifth block of text:

"Surface water sources will require complete treatment as defined by the Department of Health Services. This includes flocculation, coagulation, sedimentation, filtration, and disinfection, or its equivalent."

In Table 4, page 18, the treatment for the Conjunctive Supply is changed to read: "Conventional, complete, and reverse osmosis"

On page 22 of the Environmental Assessment the first sentence of the third block of text is changed to read:

"Treatment of water from Honsinger Creek will be complete, including flocculation, coagulation, sedimentation, filtration, and disinfection."

2. *COMMENT:* The Department of Health Services defines complete treatment of surface sources as flocculation, coagulation, sedimentation, filtration, and disinfection or its equivalent. This definition should be included in the final report.

RESPONSE: The appropriate text is inserted into the Environmental Assessment per the response to Comment 1.

3. *COMMENT:* If well water is pumped into a reservoir, the water then becomes a surface source and will require complete treatment or its equivalent.

RESPONSE: Please see the response to Comment 4., below.

4. *COMMENT:* The cost of a reservoir and necessary treatment facilities has not been included for the Warheit Well alternative.

RESPONSE: A reservoir for the Warheit Well is a contingency in the event that an extension of service is necessary or the well supply is reduced. The reservoir would serve to increase the capacity of the water system by increasing water storage. The reservoir is not considered to be a part of the Warheit Well alternative at this time since pump tests indicate that the well has adequate supply to serve the community. If the reservoir is subsequently needed its size, location and impacts would undergo separate or supplemental environmental review, including the need for a change from conventional to complete treatment, a biological survey with emphasis on the San Francisco garter snake and the California red-legged frog, an estimate of additional costs, and the potential for growth-inducement.

5. *COMMENT:* Funding for a domestic water system under the Safe Drinking water bond Law of 1984 is available in the form of a loan and/or a grant. Both forms of funding cannot be used to make improvements to meet fire protection standards.

RESPONSE: The text in Table 8 of the Environmental Assessment (page 30) is revised to omit the word "State".

6. *COMMENT:* The interest rate associated with the loan for the proposed project has been reduced from 8.5% to approximately 3.5-4%.

RESPONSE: The cost estimates presented in the Environmental Assessment assume the possibly conservative rate of 8.5%, based on the information obtained by KJC Engineers. A lower interest rate will reduce the cost of each alternative above the initial grant.

7. *COMMENT:* The Department of Health Services is not responsible for review and approval of water supply permits for small water systems, unless assistance is requested by the County Environmental Health Department.

RESPONSE: The third paragraph on page 33 should be replaced with the following text to clarify the role of the Department of Health Services:

"For public water systems with 200 or more service connections, the State Department of Health is responsible for carrying out the Act. The County Environmental Health Department is responsible for reviewing and permitting the small public water systems which supply fewer than 200 service connections. The Department is not responsible for review and approval of permits for small water systems, unless assistance is requested by the local health officer. The Pescadero water supply is less than 200 service connections.

The Department of Health Services is to act as the lead agency for review and approval of all projects funded under the Safe Drinking Water Bond Law regardless of size. The design and construction of the Pescadero Water Supply Project will be reviewed and approved by the Department of Health Services. The permits will be issued through the County Environmental Health Department."

8. *COMMENT:* A number of drinking water standards specified in Table 12 are incorrect.

RESPONSE: Table 12 (page 51) is revised as follows:

Under "General" the Drinking Water Criteria for Conductivity is revised to read "900 - 1600". This is the correct State Health standard.

Under "Heavy Metals" the Drinking Water Criteria for Lead is revised to read "0.05".

Under "Organics" the word "Methodychlor" is changed to "Methoxychlor", the word "2,4-0 Hardness" is changed to "2,4-D", the word "2,4,5-TP-Silvex" is changed to "2,4,5-TP Silvex", and the Units are all changed from milligrams/liter to micrograms/liter.

Under "Radioactivity" the Gross Alpha for Honsinger Creek is revised to read 1.30 plus or minus 1.53.

9. *COMMENT:* In Table 12 the gross alpha analysis for Honsinger Creek should be underlined as it exceeds the standard. The original laboratory

report should be reviewed to assure this number is correct. Which laboratory approved for radiochemistry analysis conducted this test?

RESPONSE: The alpha reported for radioactivity of water from Honsinger Creek in Table 12 is incorrect and should read 1.30 plus or minus 1.53. This alpha does not exceed the standard of 15.0. This and other corrections to Table 12 are provided under the response to comment 8. Kennedy/Jenks/Chilton Laboratory conducted the radiochemistry analysis.

10. *COMMENT:* Are the units for organics in Table 12 correct? Unless these are micrograms per liter rather than milligrams per liter it cannot be determined if standards are being met.

RESPONSE: The units in Table 12 for organics are revised to read micrograms/liter, not milligrams/liter, as noted in the response to Comment 8.

11. *COMMENT:* The first paragraph in Chapter 2, Item C3, "Water Treatment" should be revised to reflect information regarding the Department of Health Services requirements for complete treatment and the potable water quality requirements.

RESPONSE: The text suggested by the Department of Health Services is incorporated into the Environmental Assessment per the response to Comment 1.

12. *COMMENT:* Under "Treatment Residue" on page 16 the first paragraph identifies potassium as the oxidant used for iron and manganese removal. This should be potassium permanganate.

RESPONSE: The second sentence of the second block of text on page 16 is revised to read: "Potassium permanganate which is added to the water to remove iron and manganese acts as an oxidant which will result in a small amount of solid compound which requires disposal."

13. *COMMENT:* The fourth paragraph of Chapter 2, Item C5, "Treated Water Storage" should be revised as follows: "...the California Waterworks Standards designates 20 psi as the minimum allowable pressure at all service connections under the following demand conditions:

1. User maximum hour demand.
2. User average day demand plus design fire flow."

RESPONSE: The last paragraph on page 17 is replaced by the following text:

"In order to achieve adequate pressure in the distribution system it is necessary to place the water tank on a hill above the town. The minimum system pressure when demand is greatest (144 gpm) is 66 psi with the water tank at 180' elevation. Pressures above 40 psi under maximum consumptive demand are generally accepted as adequate; the California Waterworks Standards designates 20 psi as the minimum allowable pressure at all service connections to serve maximum hour demand and average day demand plus design fire flow. Experience has shown that the public will complain about inadequate pressures at 20 psi, hence KJC Engineers recommends a minimum water pressure of 35 psi for the system (Cullen Wilder, pers. comm.)."

14. *COMMENT:* The value of 81 in Table 2 of the Warheit Well Test Report (Appendix A), is incorrect and should be reported as less than 5 standard units.

RESPONSE: Commentor is correct and Table 2 of Appendix A is revised accordingly.

C. California Coastal Commission Central Coastal District

1. *COMMENT:* The close proximity of the proposed Warheit Well, and the elevation of the water bearing strata give rise to the concern regarding the potential for toxic leachate from the dump to penetrate to the level of the aquifer used to provide water for the community. Given the fact that the former solid waste facility was opened and operated before regulations requiring careful sealing off of waste were implemented, the potential for percolation should be explored. Staff notes that water quality tests performed on water from the Warheit well indicate good quality, however, it is not clear if the water was tested for chemical constituents which might be anticipated to be found in leachate from a Solid Waste Disposal site. In addition to this concern, the potential for any leachate to reach the aquifer sometime in the future should be looked into.

RESPONSE: The Pescadero Solid Waste Disposal Site was opened in 1975 under regulations stipulated by the California Solid Waste Management Board and the Regional Water Quality Control Board. The facility ceased operations in 1986, and its final closure will be supervised by the same agencies. There is an impermeable clay barrier placed beneath the solid waste fill material. The County is awaiting final approval from the above agencies for the necessary actions to finally close the facility. When complete, the waste fill will be entirely sealed. The potential for occurrence of leachate at all should be minimal (George Laakso, Department of Public Works). There is a test well in the landfill for monitoring leachate. The quality of water from the Warheit well would also be monitored as a part of normal operations. It is recommended that an additional, deeper monitoring well be placed between the landfill and the Warheit Well as one of the conditions on the final water supply project using this source. Tests of water quality of water samples from the Warheit well taken in August 1987 indicate that the well currently contains water of excellent quality (page 9 of Appendix A of the Environmental Assessment).

2. *COMMENT:* The San Mateo County LCP requires that the safe yield of the aquifer be determined prior to granting a permit for a water supply project for Pescadero. The (EA) does not provide a safe yield figure and indicates that the evaluation of hydrologic impacts to Butano Creek is, at this point, cursory. The (EA) would seem the appropriate document to provide the information of safe yield required by the LCP.

RESPONSE: The engineering studies of the capacity of this well indicate that there is a sufficient recharge area for the aquifer to sustain the required flow for the community water supply. In the event that the well proves to be too small to serve the community after continued use, the County may limit the water service with mandatory conservation and a moratorium on new permits. Safe yield cannot be absolutely measured until the well is put to use, however tests of the well and examination of the

10/9/87

recharge area indicate that the Warheit well will provide the yield to serve the community without significant effect on the aquifer.

In an effort to determine the worst-case hydrologic impacts on Butano Creek, the Environmental Assessment considers the effect of a direct connection between the well and Butano Creek. By comparing creek flow data collected by the US Geological Survey with the water needed from the well to serve the existing community during both average daily and peak demand, it is apparent that the community demand represents a very small portion of the average annual flow of Butano Creek.

As discussed on page 62 of the Environmental Assessment, the average annual flow of Butano Creek is 16,010 acre-feet. If the Warheit well was recharged solely by Butano Creek, the water demand (166 EDU's -- 67 acre-feet per year average demand), represents 0.4 percent of the average annual flow. At times when no flow occurs in Butano Creek pumping of the well may decrease the aquifer and increase the amount of time required for flows in Butano to return to normal. Zero to low flow occurs during drought conditions. The level of the aquifer will be monitored as part of operations. The County may impose water use restrictions during droughts to reduce potential impacts to Butano Creek.

During the pump test performed on the Warheit well in August (report dated September 2, 1987 and included in the Environmental Assessment as Appendix A), KJC Engineers estimated to the best of their ability the connection between Butano Creek and the well aquifer. The Environmental Assessment is based on both a worst-case analysis and the information which the engineers provided -- this being the best information that is at present available. According to the engineering report, the recharge for the Warheit well aquifer is primarily from precipitation, the groundwater flow is directed toward regional discharge areas including Butano Creek, and long-term pumping of the well would result in only a slight reduction of total recharge to the groundwater flow system.

Based on the worst-case analysis and the information provided by KJC Engineers, County Public Works and Planning staff believes that pumping of the well to serve the existing community will not have significant long-term effects on the local groundwater flow system or on the surface waters of Butano Creek. However, to assure that this is the case a monitoring program is recommended under the response to Comment 3, below.

3. *COMMENT:* The San Mateo County LCP requires a monitoring program of hydrologic/biologic conditions if a well is selected to provide a community water supply to Pescadero. This is also recommended in the Kennedy/Jenks/Chilton report (Appendix A). The (EA) does not, however, include a monitoring program in the mitigation recommendations (pg. 70-71).

RESPONSE: Hydrologic and biologic impacts of the well are determined by the relative withdrawal (pumping) and recharge rates for the aquifer. It is the engineer's opinion, based on pump tests and an analysis of the recharge area that this aquifer will support the well and that the well will have little impact on the aquifer. However, to assure that this is the case the aquifer will be monitored throughout the life of the well as a part of normal operations, and the five year monitoring requirement of LCP Policy 2.44 C. will be a condition of the Coastal Development Permit. Ways in which this

10/9/87

will be done for the Warheit well include observing the water level in the well, and observing the water level in the monitoring well to be drilled between the landfill and the Warheit well. Additional measures which could be used are measuring rainfall, and recording stream flow in Butano Creek. If, upon review of these data, the County finds that the pump rate is exceeding the recharge rate over time, the pump rate would need to be reduced to assure the long term viability of the well and to reduce the potential impacts to other resources dependent on the aquifer. If the pump rate is reduced the County may need to impose water use restrictions and/or place a moratorium on new service connections.

4. *COMMENT:* Staff suggests that, if the Warheit Well Site is selected, placement of the storage tank near the well site would likely reduce visual impacts, would not require any additional road construction and reduce the cost of pipeline.

RESPONSE: It is feasible to place the tank near the well, but if the water system is designed for fire flows, it is preferred for engineering, cost, and risk reasons that the tank be placed closer to the community. This reduces the length of fire flow capacity pipeline needed and the length at risk to failure (eg. rupture in a severe earthquake). Placing the water tank closer to the well and farther from the community would increase fire-flow pipeline costs since the larger diameter lines would have to run from the tank to the community.

However, the impacts of the tank siting can be mitigated in areas closer to the community by careful placement, construction, and revegetation. The exact location of the tank will be determined during the engineering design phase, after taking into consideration the necessary geologic, engineering and cost factors, including the costs of mitigation of any adverse visual impacts. Considering the size, location and mitigation measures available and recommended, the County concludes that there will be no significant visual impacts created by the water tank once it goes through final design review.

5. *COMMENT:* LCP Policy 2.46 indicates that an analysis of the existing method of sewage disposal in Pescadero should be undertaken when a new water source is developed. The (EA) does not address the issues raised by this policy.

RESPONSE: The assumption for LCP Policy 2.46 was that a groundwater source for the community water system would be from the Pescadero Basin, in a strata underlying the community, and therefore susceptible to contamination from septic system effluent. The Warheit well is a mile distant, on the average, from most of the properties to be served, and is uphill from the septic leach fields, making the well not subject to contamination from water users' septic system effluent.

The proposed water system will be metered. Customers will be paying a charge for the actual water used. The County believes that this results in more prudent use of water and reduces indiscriminant consumption practices, and therefore and increase in sewage generation is unlikely as a result of installing a new community water system.

At this time the County does not believe there is a need for a change in sewage practices in the Pescadero community.

D. California Department of Fish and Game

1. *COMMENT:* It is the opinion of the Department of Fish and Game that the EA is inadequate, under the California Environmental Quality Act (CEQA), in its discussion of impacts to fish and wildlife resources for all three alternatives.

RESPONSE: Comment acknowledged, however County staff disagrees. Based on thorough engineering and environmental study of the alternatives there is no evidence that the County's preferred alternative - the Warheit well with the mitigation measures described - will have significant adverse impacts on the environment.

2. *COMMENT:* Our first concern is the potential for long term impacts to surface flows in Butano Creek resulting from the Warheit well alternative. Butano Creek supports steelhead and coho salmon populations, and also provides freshwater inflows to Pescadero Creek lagoon.

RESPONSE: Please see the response to Comments II.C.2 and 3. Based on the limited draw on the aquifer relative to the recharge area and the flows in the creek it is not expected that the Warheit well will adversely affect the fishery in Butano Creek or the freshwater inflows to Pescadero marsh.

3. *COMMENT:* The connection between the proposed Warheit well site and Butano Creek must be determined prior to an assessment of impacts to fish and wildlife by the Department.

RESPONSE: Please refer to the response to Comments II.C.2 and 3. The engineering study and a worst case analysis indicate that even if the Warheit well and Butano Creek are connected that the reduction in flows would be insignificant relative to existing flows and the recharge area.

4. *COMMENT:* Hydrologic impacts must be quantified as to seasonal flow reductions with a full analysis of impacts and mitigation measures provided.

RESPONSE: Please see the responses to Comments II.C.2 and 3. The engineering study found no apparent connection between the well and Butano Creek and no significant effects on flows are expected.

5. *COMMENT:* Another concern with regard to the Warheit well alternative is the proposed enlargement of the existing pond. Sampling should be conducted to determine if the State-listed endangered San Francisco garter snake is present. If so, impacts upon this species should be addressed and mitigation measures provided.

RESPONSE: Please see the response to Comment II.C.4. If this pond is needed in the future it will undergo supplemental environmental review.

6. *COMMENT:* The location of the potable well(s) has not been determined for the Potable Wells alternative and so any effect on surface waters and the habitats supported by these flows cannot be adequately evaluated. The discussion of this alternative in the EA is clearly inadequate under CEQA.

RESPONSE: Because of cost restrictions any other well drilled for the Pescadero water supply would have to be within the Well Site Search Boundary depicted in Figure 17 in the Environmental Assessment. This would place the well in the watershed of Pescadero Creek, Bradley Creek, Honsinger Creek or Butano Creek. While it is true that the specific impacts of the well(s) cannot be determined until they are located and tested, it is possible to describe the sensitive resources which can be affected by wells placed in these various watersheds.

Pescadero Creek is the largest of the creeks, with a watershed of 81 square miles and an annual average flow at Pescadero Marsh of over 50,000 acre-feet. However, Pescadero Creek is heavily impacted by the cumulative uses of its water and its tributaries' water for agriculture. Withdrawal from an aquifer directly supplied by this creek would increase the burden and reduce the direct freshwater flows into Pescadero Marsh, affecting that sensitive habitat and the sensitive riparian habitat along the creek itself. If no other option were available the County may be able to justify an expensive search for an aquifer in the valley which is not connected with the hydrology of Pescadero Creek or the marsh.

Bradley Creek is designated as an intermittent stream by the USGS, even though the watershed is twice as large as that for Honsinger Creek which is designated as a perennial stream. If an aquifer large enough and with adequate recharge to support the well exists in this watershed, then the impacts will likely be less than from wells connected to Pescadero or Honsinger Creeks which are more heavily used for agriculture.

Honsinger Creek is a perennial tributary to Pescadero Creek. It is diverted upstream of the junction with Pescadero Creek to supply twenty acre-feet of irrigation to a local ranch. Without taking that into account the average annual flow of this creek is 794 acre-feet. The water supply demand for the existing community is 67 acre-feet per year based on average demand and 136 acre-feet per year based on peak demand. This represents 8 to 17 percent of the average creek flow (as presented in Table 14 of the Environmental Assessment, page 63). If a well placed in this watershed reduces the relatively low flows in Honsinger Creek it would affect the fishery and riparian resources on Honsinger Creek and would reduce the flow into Pescadero Creek.

Butano Creek is the largest tributary to Pescadero Creek, with an average annual flow of 16,010 acre feet and a watershed of 18.3 square miles. The water supply demand for the community of Pescadero is 0.4 percent of the average flow in Butano Creek. Butano Creek is less impacted by agriculture than either Honsinger or Pescadero Creeks. This watershed provides an important source of freshwater flow into Pescadero Marsh, and any significant reduction in the flows from this watershed to the marsh could affect the marsh's ecology. Butano Creek is also a salmon and trout fishery, and a significant reduction in surface flows would affect this resource. However, because of its size and relatively low agricultural use, this watershed is less biologically sensitive for a well site than Pescadero or Honsinger Creeks.

The County's preferred alternative is the Warheit well, located near Butano Creek. As discussed in the responses to Comments II.C.2 and 3,

10/9/87

studies made on the well indicate that it will not significantly affect the surface flows in Butano Creek.

7. *COMMENT:* With respect to the Conjunctive Supply alternative, a study based on the US Fish and Wildlife Service's Instream Flow Incremental Methodology (IFIM) will be needed to determine adequate flows for various life stages of salmon and steelhead. This type of study would take at least two years and would be required prior to any assessment of impacts to anadromous fish species. It is unclear how this is a feasible alternative when flows necessary to maintain a viable anadromous fishery in this tributary are unknown at this time. The combination of flows needed for fish and irrigation may preclude this alternative.

RESPONSE: The results of an IFIM study indeed may preclude the use of this alternative, and that is one of the considerations given by the County to this alternative in comparing it to the other possible water supply systems. The County is trying to determine the best way to solve a serious health problem in the community of Pescadero, and to do this they have examined a number of possible water supplies. The urgency for a safe water supply makes it necessary to compare this alternative with others "as-is" to determine if the additional long-term studies are warranted. At this time the County's preferred alternative is the Warheit well.

8. *COMMENT:* A permit from the State Water Resources control Board (SWRCB) will be required for the Conjunctive Supply alternative. CDFG has review authority for all appropriative water right applications. CDFG will strongly recommend to the SWRCB that studies be conducted by the County to assess impacts to fish and wildlife from reduced surface flows in Honsinger Creek, Pescadero Creek, and Pescadero Marsh prior to issuance of a permit. Also, this alternative would be subject to the requirements of Fish and Game Code Sections 5900 through 6100 regarding dams, conduits, and diversions. Selection of this alternative would require provisions for adequate fish flows, fish screens, ladders, fishways, etc.

RESPONSE: The full text of the above comment is added to the Environmental Assessment on page 34 after the fifth block of text.

9. *COMMENT:* Fish and Game staff believes that significant impacts to fish and wildlife and their habitats may occur under all of the proposed alternatives. Under CEQA the County of San Mateo must demonstrate how impacts are to be avoided or reduced to levels of insignificance. The information provided in the Draft EA is incomplete, resulting in an inadequate analysis of the alternatives. We recommend an Environmental Impact Report be prepared and include a full disclosure of alternative impacts and suitable fish and wildlife protection measures.

RESPONSE: The County proposes to adopt the Warheit well alternative which, with the proposed conditions of approval, would not have a significant adverse impact on the environment. The finding of a lack of impact is based on the analysis contained in the initial study, as expanded by the Environmental Assessment. That analysis is based on engineering study and field tests and on the opinion of registered professional engineers. In the course of public review and comment, no information has been brought forth to contradict the opinion of the County's engineering consultant. The County acknowledges CDFG's concern for the protection of fish and wildlife,

but does not see any substantial evidence advanced to support CDFG's belief that significant impacts will occur with the County's proposed Warheit well alternative.

E. California Department of Parks and Recreation

1. *COMMENT:* The proposed project will affect the Pescadero Marsh, which is Department of Parks and Recreation property.

RESPONSE: As explained in the Environmental Assessment, several alternatives studied have the potential for significant adverse effects on the Pescadero marsh. For these reasons and for reasons of lower cost and better water supply quality, the County is pursuing the Warheit well alternative. It is the County's conclusion that the Warheit well alternative will not have a significant adverse effect on Pescadero marsh either separately or cumulatively.

2. *COMMENT:* Numerous withdrawals and diversion of surface waters occur in the watershed above the marsh. Any further withdrawal -- even if classified as "insignificant" by itself -- will have a cumulative impact of severe adverse effects on vegetation, fish, and wildlife. This Department recommends a water source such as a confined aquifer, or a semi-confined aquifer that is not connected to the wetland hydrology.

RESPONSE: The County's preferred alternative is the Warheit well, which, based on a study conducted by KJC Engineers, is not expected to significantly affect the marsh hydrology. Please also see the responses to Comments II.C.2 and 3.

3. *COMMENT:* The Department of Parks and Recreation opposes the discharge of saline brines into receiving waters of the Marsh.

RESPONSE: Brine would result only from the Conjunctive Supply alternative. It is recommended in the EA that implementation of the Conjunctive Supply alternative require a pipeline so that brine would be disposed of in the ocean to mitigate impacts to the marsh (pages 69, 72). The County's preferred alternative is the Warheit well.

4. *COMMENT:* This Environmental Assessment does not address potential impacts on the Tidewater Goby, a Category II candidate species residing in the marsh.

RESPONSE: Please see the response to Comment 8, below.

5. *COMMENT:* The Pescadero lagoon factors critically in the life cycle of Steelhead from Pescadero Creek. No assessment of the project's effects on steelhead was made except as it related directly to Honsinger Creek.

RESPONSE: Honsinger Creek was given greater consideration as a fishery resource because of the Conjunctive Supply alternative which would require diversion of surface waters. The fishery resource provided by Pescadero Creek and Butano Creek are discussed in the Environmental Assessment on pages 52 and 62. Additional text regarding the importance of the marsh to the fishery has been inserted in the response to Comment 8, below. The County has selected the Warheit well as the preferred alternative.

6. *COMMENT:* While the Parks and Recreation Department does not have a legal right to the water of Pescadero Creek, it does have the responsibility as manager of the public trust, to protect the environmental quality of the marsh that depends on that water.

RESPONSE: The last sentence of the last block of text on page 35 is revised to read, "They can, however, review the project and make recommendations or file a protest in their role, as manager of the public trust, to protect the environmental quality of the marsh."

7. *COMMENT:* The paragraph on page 50 should be corrected to indicate that the San Francisco garter snake inhabits Pescadero Marsh and the surrounding area.

RESPONSE: The last sentence of the sixth block of text on page 50 is revised to read, "This species inhabits Pescadero Marsh and the surrounding area."

8. *COMMENT:* References to Silver Salmon throughout the text should be corrected to read Coho Salmon. The list of sensitive species should also include the Salt Marsh Yellowthroat, Tidewater Goby, and Red-legged Frog. Steelhead are valued for sport fishing; Coho Salmon are valued for commercial fishing.

RESPONSE: The text is revised to read "Coho salmon" wherever it now reads "Silver salmon".

The first block of text on page 52 of the Environmental Assessment is replaced as follows: "Steelhead Trout (Salmo gairdnerii gairdnerii), and Coho salmon (Oncorhynchus kisutch), use Pescadero Creek and its tributaries as spawning habitat. Pescadero Marsh is also used by Steelhead for rearing and smolting and is of critical importance in maintaining the run.

Steelhead are valued for sport fishing, and Coho salmon are valued for commercial fishing."

The following paragraphs are inserted to the Environmental Assessment on page 52 after the first block of text:

- "o The Tidewater Goby (Eucyclogogius newberryi) is restricted to fresh or brackish coastal lagoons. This fish is a Federal Candidate II species, and inhabits the Pescadero lagoon.
- o The Salt Marsh Yellowthroat is a Federal Candidate II bird species which inhabits the Pescadero marsh and surrounding area.
- o The California Red-legged frog (Rana aurora draytonii), is a Federal Candidate II species which lives in vegetated areas along bodies of slow-moving water."

9. *COMMENT:* The lists of plant species do not include those of the marsh community, which would be impacted by this project.

RESPONSE: The following list of plant species is added to Table 13, page 54 of the Environmental Assessment:

"SALT MARSH

Scientific Name	Common Name
<u>Triglochin striata</u>	Three-ribbed arrow grass
<u>Distichlis spicata</u> var. <u>stolonifera</u>	Salt grass
<u>Spartina foliosa</u>	California cord grass
<u>Monerma cylindrica</u>	Thin tail
<u>Salicornia pacifica</u>	Pickleweed
<u>Atriplex patula</u> var. <u>hastata</u>	Fat hen
<u>Chenopodium macrospermum</u> var. <u>farinosum</u>	Coast goosefoot
<u>Tetragonia expansa</u>	Sea spinach
<u>Potentilla egedii</u> var. <u>grandis</u>	Pacific silverweed
<u>Frankenia grandifolia</u>	Alkali heath
<u>Limonium californicum</u>	Sea lavender
<u>Cuscuta salina</u> var. <u>major</u>	Marsh dodder
<u>Plantago juncoides</u> var. <u>juncoides</u>	Pacific seaside plantain
<u>Grindelia latifolia</u>	Coastal gum plant
<u>Jaumea carnosa</u>	Fleshy jaumea
<u>Cotula coronopifolia</u>	Brass buttons

FRESHWATER MARSH

<u>Typha latifolia</u>	Broad-leaved cattail
<u>T. angustifolia</u>	Narrow-leaved cattail
<u>Sparganium eurycarpum</u>	Broad-fruited burreed
<u>Lilaea scillioides</u>	Flowering quillwort
<u>Alisma plantago-aquatica</u>	Common water plantain
<u>Sagittaria latifolia</u>	Broad-leaved arrowhead
<u>Polypogon monspeliensis</u>	Annual beard grass
<u>Carex spp.</u>	Sedge
<u>Cyperus eragrostis</u>	Tall cyperus
<u>Eleocharis macrostachya</u>	Wire grass
<u>Scirpus americanus</u>	Three square
<u>S. californicus</u>	California tule
<u>S. robustus</u>	Prairie bulrush
<u>Lemna spp.</u>	Duckweed
<u>Juncus effusus</u> var. <u>brunneus</u>	Bog rush
<u>Rumex crispus</u>	Curly dock
<u>R. conglomeratus</u>	Green dock
<u>Polygonum coccineum</u>	Swamp knotweed
<u>P. pesicaria</u>	Lady's thumb
<u>Ranunculus lobbii</u>	Lobb's water buttercup
<u>Rorippa curvisiliqua</u>	Yellow cress
<u>Lupinus polyphyllus</u> var. <u>grandifolius</u>	Large-leaved lupine
<u>Hypericum anagalloides</u>	Tinker's penny
<u>Lythrum hyssopifolia</u>	Loosestrife
<u>Jussiaea repens</u> var. <u>peploides</u>	Yellow water weed
<u>Epilobium franciscanum</u>	Willow herb
<u>E. adenocaulon</u> var. <u>occidentale</u>	Northern willow herb

Hydrocotyle verticillata
Allocarya chorisiana
Bidens laevis
Helenium puberulum

Spike marsh pennywort
 Artist's allocarya
 Bur marigold
 Sneezeweed"

10. *COMMENT:* Steelhead use the lagoon as rearing and smolting habitat. The lagoon is of critical importance in maintaining the run. Little is known about Coho salmon because of small populations.

RESPONSE: Text is revised per the response to Comment 8.

11. *COMMENT:* The section on Hydrology and Water Quality on page 59 should discuss the project's impacts on Pescadero Marsh during the annual dry season and during years of low rainfall.

RESPONSE: It is the County's intention with regard to any well which is developed for the water supply for Pescadero that the well be drilled into an aquifer large enough to support the demand without causing drawdown of surface waters and degradation of the aquifer. Impacts to surface waters during the dry season will be insignificant as long as this is the case. The aquifer should be able to recover in the rainy season. In periods of low rainfall the aquifer would have to be closely monitored to assure that pumping the well did not adversely reduce the level of the aquifer, and a reduction in pumping rate with concurrent water conservation measures would be implemented if warranted. It should also be noted that at least some of the well water will return to the valley hydrologic system through the septic leach fields.

12. *COMMENT:* The section on Biology on page 60 should discuss the impacts from drawdown of groundwater and effects on surface flows.

RESPONSE: The potential impacts are described for each alternative (pages 62, 64, and 66 of the Environmental Assessment). The discussion on page 60 refers only to portions of the water supply system which are common to all of the alternatives (in this case the pipeline system).

13. *COMMENT:* The production rate of the Warheit well should be controlled to prevent drawdown of surface water anywhere in the marsh. The well could impact wetland hydrology by eliminating groundwater flows into the wetland. The estimate made in the (EA) that the effects to surface waters is insignificant is unsubstantiated and requires further data for an adequate analysis of the environmental impacts.

RESPONSE: Please see the response to Comments II.C.2 and 3. The well may affect groundwater flows but will certainly not eliminate groundwater flows into the wetland.

14. *COMMENT:* The text on page 62 indicates that use of the well during times of zero flow in Butano Creek could increase the times for flows to return to normal; this is the time and situation when drawdown would be most severe in the creek and marsh.

RESPONSE: As discussed in the response to Comment II.C.3, the Warheit well will be monitored for effects to the aquifer and a reduction in pump rate will occur if warranted.

10/9/87

15. *COMMENT:* The pump test report concludes that "impacts to recharge of the local groundwater flow system will not be significant in comparison with the available regional recharge." The question remains: what are the local impacts expected to be?

RESPONSE: Please see the response to Comments II.C.2 and 3. The proposed draw on the Warheit well is very small relative to the expected recharge based on rainfall and watershed size.

16. *COMMENT:* Surface disposal of brine is unacceptable from an ecological standpoint. It would significantly alter the marsh and reduce the population of the Red-legged Frog, and important food source for the San Francisco Garter Snake.

RESPONSE: Brine would result only from the Conjunctive Supply alternative. It is recommended in the EA that brine be disposed of in the ocean to mitigate any and all impacts to the marsh (pages 69, 72). The County's preferred alternative is the Warheit well, which does not require brine disposal.

17. *COMMENT:* The salt would affect more than the garter snake as described on page 67; it would also affect sensitive species such as the Brackish Water Snails, Tidewater Goby, Steelhead, as well as vegetation. Although "the marsh is not entitled to water rights to protect these flows," this section should include discussion of the Public Trust Doctrine.

RESPONSE: Please see the response to Comments 6 and 16. The fifth block of text on page 67 is revised to read: "The net result of the Honsinger Creek diversion, as with any surface water diversion in the Pescadero Creek watershed, is that less freshwater will flow directly to Pescadero Marsh. Although the California Parks and Recreation Department does not have water rights to protect flows into the marsh it does have the responsibility of the public trust to protect the marsh, and a reduction in freshwater flows to the marsh can affect its ecological health. Part of this potential impact may be reduced when diverted water is returned to the hydrologic system through the septic leach fields."

F. State Water Resources Control Board

1. *COMMENT:* The State Water Resources Control Board has permitting authority over surface water and underflow use but not over groundwater use. Depending on which alternative water supply is chosen, the Board may or may not have permitting authority over the project.

RESPONSE: The County's preferred alternative is the Warheit Well which is a groundwater source. It does not appear that the State Water Resources Control Board would have permitting authority over this alternative. Only the Conjunctive Supply alternative includes the use of surface water.

2. *COMMENT:* Should the Conjunctive Supply alternative be pursued, the Board would become a Responsible Agency pursuant to the California Environmental Quality Act (CEQA). The Board would then require additional environmental documentation and impact analyses on Honsinger and Pescadero

Creeks due to the biological sensitivity of the instream and downstream habitats and associated endangered species.

RESPONSE: Comment acknowledged. Both the Conjunctive Supply and Other Potable Wells alternatives would require additional environmental review before final approval. The County's preferred alternative is the Warheit well.

3. *COMMENT:* An Environmental Impact Report (EIR) would be necessary to discuss the potential impacts and appropriate mitigation measures for the Conjunctive Supply alternative.

RESPONSE: Comment acknowledged. The Warheit well alternative is preferred by the County.

4. *COMMENT:* If the Conjunctive Supply alternative or any other project involving the diversion of surface or underflow waters is not pursued by the Pescadero Water District, then the District should notify the Board and request cancellation of the water right application on file.

RESPONSE: Comment acknowledged.

G. Regional Water Quality Control Board - San Francisco Bay Region

1. *COMMENT:* Unless handled properly, the hazardous chemicals and sludge and backwash water from the treatment process can cause water pollution.

RESPONSE: Operation of the treatment plant will be in accordance with OSHA rules and under the purview of the California Department of Health Services. These standards include measures to prevent chemical contamination.

2. *COMMENT:* We recommend that the environmental documents be expanded to include a detailed description of the facilities to be used to store hazardous chemicals and the safeguards to properly contain and dispose of any spillage and prevent vandalism.

RESPONSE: The specific facilities and safeguards to be used in the treatment process will be described in the final project design which will undergo additional review in the process of obtaining a Coastal Development Permit from the California Coastal Commission. The treatment plant must be operated in accordance with State (DOHS), Federal (OSHA), and local (County) rules.

3. *COMMENT:* We recommend that the environmental documents be expanded to include a detailed description of the content and quantity of the sludge and the method of disposal.

RESPONSE: The commentor is referred to the discussion of Treatment Residue on page 16 of the Environmental Assessment.

4. *COMMENT:* We recommend that the environmental documents be expanded to include a detailed description of the method for disposing or reusing the filter backwash water.

RESPONSE: Backwash water would result in the case where the water is treated for manganese and iron removal. Hence, the primary constituents of the backwash are iron and manganese. In the case of the County's preferred alternative, the Warheit well, the iron and manganese levels measured in the test of water quality from the well are below public health standards and would not need to be treated for unless the public requests it for aesthetic reasons (eg. to reduce rust stains in plumbing fixtures). In the event that the water from the Warheit well is treated for iron and manganese, the amount of backwash would amount to less than two pounds per day. This could be landspread or stored for disposal at a landfill. This will be specifically described in the final design stage and will undergo additional review at that time.

5. *COMMENT:* We recommend that the environmental documents be expanded to include a detailed description of the method for disposing of residual brine if reverse-osmosis treatment is required.

RESPONSE: Commentor is referred to the discussion under "Treatment Residue", paragraphs 3-5 on page 16 of the Environmental Assessment.

6. *COMMENT:* We recommend that the environmental documents be expanded to include a detailed description of the effects, if any, of the proposed alternatives on the steelhead trout and silver salmon in nearby creeks and the need for mitigation measures.

RESPONSE: The commentor is referred to the discussions on the following pages of the Environmental Assessment: 62, 64, 66, 68, 69, and 72. In the absence of specific questions the level of further detail requested by the commentor is unclear.

7. *COMMENT:* We recommend that the environmental documents be expanded to include a detailed description of the effects of the proposed alternatives on ground water quality and on any nearby wells and the need for mitigation measures.

RESPONSE: The commentor is referred to the discussions of ground water quality impacts in Sections A.2. on page 59, B.1. on page 61, and D.1. on page 65 of the Environmental Assessment. The mitigation proposed for potential ground water quality impacts is in Section A on page 70 and refers to Appendix A page 13.

8. *COMMENT:* We recommend that the environmental documents be expanded to include a detailed description of the need for erosion control measures.

RESPONSE: The potential for erosion and the measures recommended for erosion control are described in the Environmental Assessment on the following pages: 62, 64, 66, 68, and 71. The potential for erosion occurs wherever grading will take place on slopes; this includes the water tank sites and in some cases the proposed treatment plant sites, particularly where existing vegetation will be removed. Erosion control measures include revegetation, diversion of pavement runoff away from erosion prone slopes, and, if required, mechanical erosion control measures such as tarps, netting or soil sealants.

III. LOCAL

A. Pescadero Community Council

1. *COMMENT:* The Pescadero Community Council urges the Planning Commission to accept the Environmental Assessment of the Water Supply Alternatives for the Community of Pescadero, California.

RESPONSE: Comment acknowledged.

2. *COMMENT:* The Pescadero Community Council unanimously recommends the Warheit Well Alternative on the basis of quality, proven supply, and cost.

RESPONSE: Comment acknowledged. The Warheit Well is the County's preferred alternative.

3. *COMMENT:* The Council agrees that the location of the treated water storage should be sited elsewhere than the two locations recommended by Kennedy/Jenks/Chilton. The preferred location in our combined opinion would be in the vicinity of the Warheit well at about 200 feet above the Pescadero Rural Service Center, out of sight from either Highway 1 or Pescadero Creek Road.

RESPONSE: It is feasible to place the tank near the well, but if the water system is designed for fire flows, it is preferred for engineering, cost, and risk reasons that the tank be placed closer to the community. This reduces the length of fire flow capacity pipeline needed and the length at risk to failure (eg. rupture in a severe earthquake). The impacts of the tank siting can be mitigated in areas closer to the community by careful placement, construction, and revegetation. The placement and grading plan will be refined and finalized for the Coastal Development Permit.

4. *COMMENT:* The Council wants to take this opportunity to assure you that the community is overwhelmingly behind this project.

RESPONSE: Comment acknowledged.



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105 - 1908

F 1 OCT 1987

Regulatory Branch

SUBJECT: File No. 17137S91

Mr. Jim Sweeney
 San Mateo County
 Planning Division
 County Government Center
 Redwood City, California 94063

Dear Mr. Sweeney:

This is in reference to the proposed water development program for the town of Pescadero, San Mateo County, California.

① Your proposed work appears to be within our jurisdiction and a permit may be required. Application for Corps authorization should be made to this office using the application form in the enclosed pamphlet. The application must include plans showing the location, extent and character of the proposed activity, prepared in accordance with the requirements contained in this pamphlet. You should note, in planning your work, that upon receipt of a properly completed application and plans, we are required to advertise the proposed work by issuing a public notice for a period of 30 days.

All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344). Waters of the United States generally include tidal waters, lakes, rivers and streams (including intermittent streams), and their adjacent wetlands.

If an individual permit is required, it will be necessary for you to demonstrate to the Corps that your proposed fill is necessary because there are no practicable alternatives, as outlined in the U.S. Environmental Protection Agency's Section 404(b)(1) Guidelines. A copy is enclosed to aid you in preparation of this alternative analysis. Be aware that failure to satisfy the 404(b)(1) Guidelines will require denial of your application for a Corps permit.

However, our nationwide or regional permits have already authorized certain activities provided specified conditions are met. Your completed application will enable us to determine whether your activity is already authorized. You are advised to refrain from commencement of your proposed activity until a determination has been made that it is covered by an existing permit. Commencement of work before you received our notification may be interpreted as a violation of our regulations.

-2-

If you have any questions, please call Joyce Minjiras of our Regulatory Branch (telephone 415-974-0418). Please address correspondence to the District Engineer, Attention: Regulatory Branch, and refer to the file number at the head of this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Jack E. Farless". The signature is stylized and somewhat cursive, with a horizontal line underlining the name.

Jack E. Farless
Chief, Construction-Operations
Division

Enclosure

OFFICE OF PLANNING AND RESEARCH

400 TENTH STREET
SACRAMENTO, CA 95814

II.A



October 5, 1987

Jim Sweeney
San Mateo County
590 Hamilton Street
Redwood City, CA 94063

Subject: Pescadero Community Water Supply System Alternatives
SCH# 87090801

Dear Mr. Sweeney:

The State Clearinghouse submitted the above named proposed Negative Declaration to selected state agencies for review. The review period is closed and the comments of the individual agency(ies) is(are) enclosed. Also, on the enclosed Notice of Completion, the Clearinghouse has checked which agencies have commented. Please review the Notice of Completion to ensure that your comment package is complete. If the package is not in order, please notify the State Clearinghouse immediately. Your eight-digit State Clearinghouse number should be used so that we may respond promptly.

Please note that recent legislation requires that a responsible agency or other public agency shall only make substantive comments on a project which are within the area of the agency's expertise or which relate to activities which that agency must carry out or approve. (AB 2583, Ch. 1514, Stats. 1984.)

These comments are forwarded for your use in adopting your Negative Declaration. If you need more information or clarification, we suggest you contact the commenting agency at your earliest convenience.

Please contact Norma Wood at 916/445-0613 if you have any questions regarding the environmental review process.

Sincerely,

A handwritten signature in black ink, appearing to read "David C. Numenkamp".

David C. Numenkamp
Chief
Office of Permit Assistance

Enclosures

cc: Resources Agency

Memorandum

To : Terry Roberts
State Clearinghouse
1400 Tenth Street, Room 121

Date : September 29, 1987

RECEIVED Subject: Draft Environmental
DEPARTMENT OF PUBLIC WORKS Assessment of Water
COUNTY OF SAN MATEO Supply Alternatives
for the Community of
Pescadero, SCH #87090801
OCT 1 1987

From : Environmental Health Division
714 P Street, Room 692
3-6111

The Department of Health Services has reviewed the subject environmental document and offers the following comments:

- ① 1. The term conventional treatment has been used to describe treatment for groundwater and surface sources, although the treatment requirements are different. In order to differentiate between conventional treatment for groundwater and surface sources, the term complete treatment should be used for surface sources. This will be consistent with the Department of Health Services terminology.
- ② 2. Conventional (complete) treatment for surface sources has been defined as flocculation, clarification, filtration, and chlorination. The Department of Health Services defines complete treatment of surface sources as flocculation, coagulation, sedimentation, filtration, and disinfection, or its equivalent. This definition should be included in the final report.
- ③ 3. The project description for the Warheit well alternative and the potable quality well alternative as described in Chapter 1 proposes the use of a 5 acre-feet earthen reservoir for raw water storage. If well water is pumped into this reservoir, the water then becomes a surface source and will require complete treatment or its equivalent. Conventional treatment processes for groundwater sources is inadequate for a surface source.
- ④ 4. Clarification is needed concerning the inclusion of the 5 acre-feet raw water earthen reservoir for the Warheit well alternative and the potable quality well alternative.

For the Warheit well alternative, the reservoir has been included in the project as discussed in the project summary of Chapter 1, and in Chapter 2 and Table 4 of alternative systems component. However, the cost associated with treatment of a surface

source and the land needed for a treatment plant site has not been considered in Table 5 and 9, respectively.

For the potable quality well alternative, the reservoir has been included in the project as discussed in the project summary of Chapter 1, the cost evaluation of a surface water treatment plant of Table 6, and the land needed for a treatment plant site of Table 9. However, this component has been omitted from Table 4 and the detailed alternative systems component discussion of Chapter 2.

5. Funding for a domestic water system under the Safe Drinking Water Bond Law of 1984 is available in the form of a loan and/or a grant. Both forms of funding can not be used to make improvements to meet fire protection standards.
6. The interest rate associated with the loan for the proposed project has been reduced from 8.5% to approximately 3.5 - 4%. This reduction came into effect with the passing of the Safe Drinking Water Bond Law of 1986.
7. The responsibility of the Department of Health Services is to act as the lead agency for review and approval of projects funded under the Safe Drinking Water Bond Law. The Department is not responsible for review and approval of water supply permits for small water systems, unless assistance is requested by the County Environmental Health Department.
8. A number of drinking water standards specified in Table 12 are incorrect. The correct data is as follows:

<u>Constituent</u>	<u>Units</u>	<u>Standard</u>
Conductivity	umhos/cm	600 - 1600
Lead	mg/l	0.05
Endrin	mg/l	0.002
Lindane	mg/l	0.004
Methodxychlor	(misspelled)	
Methoxychlor	mg/l	0.1
Toxaphene	mg/l	0.005
2,4-0 Hardness	(misspelled)	
2,4-D	mg/l	0.1
2,4,5 - TP-Silvex	(misspelled)	
2,4,5 - TP Silvex	mg/l	0.01
TTHM's	mg/l	0.1

9. In Table 12, the gross alpha analysis for Honsinger Creek should be underlined as the result of 130 ± 1.53 c/L exceeds the standard. The original laboratory report should be reviewed to confirm that this value is correct. The original laboratory report should also be reviewed for the correct laboratory conducting the analysis, as Kennedy/Jenks/Chilton is not approved for radiochemistry analysis.

10. Based on the units expressed in Table 12, the organic chemical analysis of Honsinger Creek does not provide the sensitivity required to determine if standards are being met. The original laboratory report should be reviewed to determine if the data was initially reported in units of ug/l, and the data in Table 12 revised accordingly.

11. The first paragraph in Chapter 2, Item C3, "Water Treatment" should be revised to reflect the following information:

Utilization of a surface water source as the potable water supply for Pescadero will require complete treatment or its equivalent. The Department of Health Services defines complete treatment as flocculation, coagulation, sedimentation, filtration and disinfection. The degree of treatment required for a groundwater source will depend on the raw water quality. Stringent potable water quality requirements have been set by the recent renewal of the Federal Safe Drinking Water Act. As a primacy state, the Department of Health Services will be adopting requirements equal to or more stringent than the Federal requirements.

12. In Chapter 2, Item C3, "Water Treatment: Treatment Residue", the first paragraph identifies potassium as the oxidant used for iron and manganese removal. The chemical applied to the water is potassium permanganate, with the oxidant being permanganate.

13. The fourth paragraph of Chapter 2, Item C5, "Treated Water Storage" should be revised as follows:

"... the California Waterworks Standards designates 20 psi as the minimum allowable pressure at all service connections under the following demand conditions:

1. User maximum hour demand.
2. User average day demand plus design fire flow."

14

14. In Table 2 of the draft September 2, 1987 report in Appendix A, the result for color from the Warheit Well as sampled on August 13, 1987 has been incorrectly reported as 81 standard units. The value of 81 is the storet code used for data entry. The test result for color from the Warheit Well is <5 standard units.

If you have any questions or need further information concerning these comments, please contact Clifford L. Bowen at the Public Water Supply Branch at 2151 Berkeley Way, Room 458, Berkeley, CA 94704, Telephone (415) 540-2153.

Sincerely,

Clifford A. Sharpe

for Peter A. Rogers, Chief
Public Water Supply Branch

cc: Mr. Mark Kostielney
San Mateo County Health Department
Environmental Health
590 Hamilton Street
Redwood City, CA 94063

✓ Mr. George Zinckgraf
Department of Public Works
County of San Mateo
805 Veterans Boulevard, Suite 301
Redwood City, CA 94063

Mr. Daniel Corrigan
Department of Health Services
Public Water Supply Branch
714 P Street, OB - 8, Room 692
Sacramento, CA 95814

Ms. Barbara Cross
Department of Water Resources
Bond Financing and Administration
P.O. Box 942836
Sacramento, CA 94236

PAR:SMW:sw
870922.EIR/W41-000

CENTRAL COAST DISTRICT

101 OCEAN STREET, ROOM 310
SANTA CRUZ, CA 95060
(408) 426-7390



September 18, 1987

Jim Sweeney
San Mateo County Planning Department
County Government Center
590 Hamilton Street
Redwood City, CA 94063

Dear Jim:

Thank you for the opportunity to comment on the draft "Environmental Assessment of Water Supply Alternatives for the Community of Pescadero, California", September 1987, prepared by Thomas Reid Associates. I offer the following comments:

① Comment #1 Location of Warheit Well

The Warheit Well is located immediately adjacent to the recently abandoned Pescadero Solid Waste Disposal Site. This county dump served the rural coastside for many years. The close proximity of the proposed well, and the elevation of water bearing strata give rise to the concern regarding the potential for toxic leachate from the dump to penetrate to the level of the aquifer used to provide water for the community. Given the fact that the former solid waste facility was opened and operated before regulations requiring careful sealing off of waste were implemented, the potential for percolation should be explored.

Staff notes that water quality tests performed on water from the Warheit well indicate good quality, however, it is not clear if the water was tested for chemical constituents which might be anticipated to be found in leachate from a Solid Waste Disposal site. In addition to this concern, the potential for any leachate to reach the aquifer sometime in the future should be looked into.

② Comment #2 Safe Yield

The San Mateo County LCP requires that the safe yield of the aquifer be determined prior to granting a permit for a water supply project for Pescadero (LCP Policy 2.44(c)). The E.I.R. does not provide a safe yield figure and indicates that the evaluation of hydrologic impacts to Butano Creek is, at this point, cursory. The E.I.R. would seem the appropriate document to provide the information of safe yield required by the LCP.

3 Comment #3 Monitoring Program

The San Mateo County LCP requires a monitoring program of hydrologic/biologic conditions if a well is selected to provide a community water supply to Pescadero (LCP Policies 2.44(c) and (d)). The Kennedy/Jenks/Chilton report, attached as Appendix A to the E.I.R. also recommends a monitoring program, albeit more limited in scope than that required by the LCP. The E.I.R. does not, however, include a monitoring program in the mitigation recommendations (pg. 70-71).

4 Comment #4 Tank Location


The E.I.R. points out the potential for adverse aesthetic impacts associated with the construction of the 30,000 gallon water storage tank. Two sites for the tank are discussed in the E.I.R. Placement of a large tank, associated grading and road construction on either of these sites, will, as pointed out in the E.I.R., affect scenic resources. Staff suggests that, if the Warheit Well Site is selected, placement of the storage tank near the well site would likely reduce visual impacts, would not require any additional road construction and reduce the cost of pipeline.

5 Comment #5 Need for New Sewage System

LCP Policy 2.46 indicates that an analysis of the existing method of sewage disposal in Pescadero should be undertaken when a new water source is developed. The E.I.R. does not address the issues raised by this policy.

Thank you again for the opportunity to comment on this document.

Very truly yours,



DIANE LANDRY
Coastal Planner

DL/cm

cc: Norma Wood, State Clearinghouse, Sacto.
Joanne Cox, RWQCB, Oakland

2096A

Memorandum

Date : September 30, 1987

- 1. Projects Coordinator
Resources Agency
- 2. Jim Sweeny, Senior Planner
San Mateo County Planning Dept.
590 Hamilton Street
Redwood City, CA 94063

Department of Fish and Game

Subject: Pescadero Community Water Supply System Alternatives -
SCH 87090801, San Mateo County

Department of Fish and Game (Department) personnel have reviewed the Draft Environmental Assessment (EA) of Water Supply Alternatives for the Community of Pescadero.

The County of San Mateo is proposing to apply for State funding under the Drinking Water Bond Law to provide a reliable source of water for the town of Pescadero. The Draft EA discusses three possible alternatives to provide needed water; the Warheit Well Alternative, Potable Quality Well Alternative, and Conjunctive Supply Alternative. It is our opinion that the EA is inadequate, under the California Environmental Quality Act (CEQA), in its discussion of impacts to fish and wildlife resources for all three alternatives. Our specific comments on each alternative are discussed below.

1. Warheit Well Alternative

This alternative requires the development of a test well southwest of Pescadero and the enlargement of an adjacent existing earthen pond. Our first concern is the potential long-term impacts to surface flows in Butano Creek resulting from this alternative. Butano Creek supports steelhead trout and coho salmon populations, and also provides freshwater inflows to Pescadero Creek lagoon. During the summer months these inflows are critical to maintenance of the lagoon as a rearing habitat for juvenile steelhead trout and other resident fish and wildlife.

The feasibility study conducted by Kennedy/Jenks/Chilton, Consulting Engineers indicated that groundwater at this site may be contributing to the surface flow of Butano Creek and the Arroyo. They further state that the actual direction of groundwater flow in the vicinity of Warheit Well could not be determined with available data. The connection between the proposed well site and Butano Creek must be determined prior to an assessment of impacts to fish and wildlife by the Department.

The engineering feasibility report also stated that the evaluation of hydrologic impacts to Butano Creek was cursory and could not be quantified at this time. We are concerned



4 that a reduction in surface flows in Butano Creek and to Pescadero Marsh may occur during the critical low flow period (April-November) and result in significant adverse impacts to fish and wildlife. Hydrologic impacts must be quantified as to seasonal flow reductions with a full analysis of impacts and mitigation measures provided.

5 Our other concern regarding this alternative is the proposed enlargement of the existing pond. Sampling should be conducted to determine if the state-listed endangered San Francisco garter snake is present. If so, impacts upon this species should be addressed and mitigation measures provided.

2. Potable Quality Well

6 The discussion for this alternative provides little information on which to assess impacts to fish and wildlife. The location of the potable well(s) has not been determined and so any affect on surface waters and the habitats supported by these flows cannot be adequately evaluated. The discussion of this alternative in the EA is clearly inadequate under CEQA.

3. Conjunctive Supply Alternative

7 This alternative would require the diversion of Monsinger Creek and use of a supplemental brackish water supply during low flow conditions with a discharge of brine. The EA states "a sufficient flow will be left in the creek to provide 20-acre-feet of irrigation water and to provide for a steelhead and salmon fishery." A study based on the U. S. Fish and Wildlife Service's Instream Flow Incremental Methodology (IFIM) will be needed to determine adequate flows for various life stages of salmon and steelhead. This type of study would take at least two years and would be required prior to any assessment of impacts to anadromous fish species. It is unclear how this is a feasible alternative when flows necessary to maintain a viable anadromous fishery in this tributary are unknown at this time. The combination of flows needed for fish and irrigation may preclude this alternative.

8 A permit from the State Water Resources Control Board (SWRCB) will be required for this alternative. We have review authority for all appropriative water right applications. We will strongly recommend to the SWRCB that studies be conducted by the County to assess impacts to fish and wildlife from reduced surface flows in Monsinger Creek, Pescadero Creek, and Pescadero Marsh prior to issuance of a permit. Also, this alternative would be subject to the requirements of Fish and Game Code Sections 5900 through 6100 regarding dams, conduits, and diversions. Selection of this alternative would require provisions for adequate fish flows (as stated above), fish screens, ladders, fishways, etc.

9
In summary, we believe that significant impacts to fish and wildlife and their habitats may occur under all of the proposed alternatives. Under CEQA the County of San Mateo must demonstrate how impacts are to be avoided or reduced to levels of insignificance. The information provided in the Draft EA is incomplete, resulting in an inadequate analysis of the alternatives. We recommend an Environmental Impact Report be prepared and include a full disclosure of alternative impacts and suitable fish and wildlife protection measures.

If the Department can be of further assistance, please contact Mr. Ted Wooster, Environmental Services Supervisor, Region 3, (Yountville), (707) 944-2011.

Pete Bontadelli
Pete Bontadelli
Acting Director

cc: Diane Landry, California Coastal Commission
Tom Taylor, State Parks and Recreation - Sacramento
Armand Gonzalez, WLM - Santa Cruz
SWRCB

Memorandum

September 24, 1987

Gordon F. Snow, Ph.D.
Project Coordinator
Resources Agency

Department of Parks and Recreation - Richard G. Rayburn

Subject: Pescadero Community Water Supply System Alternatives
Negative Declaration
SCH# 87090801

The Department of Parks and Recreation has reviewed the subject document. The proposed project will affect our property, Pescadero Marsh Natural Preserve.

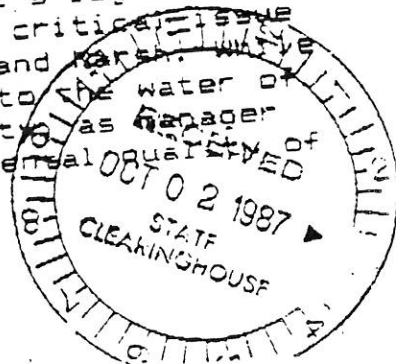
1 We are concerned about the project's effects on the Natural Preserve, particularly the ground and surface water hydrology and water quality of the marsh. Numerous withdrawals and diversions of surface waters occur in the watershed above the marsh. Any further withdrawal--even if classified as "insignificant" by itself--will have a cumulative impact of severe adverse effects on vegetation, fish, and wildlife. This Department recommends a water source such as a confined aquifer, or a semi-confined aquifer that is not connected to the wetland hydrology.

2 We oppose the discharge of saline brines into receiving waters of the marsh. Discharge of brines into Butano Creek (not Slough) could seriously threaten the health of existing freshwater vegetation, fish, and wildlife using the marsh.

3 This environmental assessment does not address potential impacts on the Tidewater Goby, a Category II candidate species residing in the marsh. Steelhead also depend upon the lagoon and creek channels for rearing and smolting habitat. The lagoon factors critically in the life cycle of Steelhead from Pescadero Creek. No assessment of the project's effects on Steelhead was made except as it related directly to Honsinger Creek.

4 We have specific comments for items on the following pages:

5 The EIR's statement regarding this Department's legal rights to diversion and use of the water evades the critical issue of the relationship between Pescadero Creek and Marsh. While this Department does not have a legal right to the water of Pescadero Creek, we do have the responsibility as Manager of the public trust, to protect the environmental quality of the marsh that depends on that water.



- 7 50 The paragraph should be corrected to indicate that the San Francisco Garter Snake inhabits Pescadero Marsh and the surrounding area.
- 8 52 References to Silver Salmon throughout the text should be corrected to read Coho Salmon. The list of sensitive species should also include the Salt Marsh Yellowthroat, Tidewater Goby, and Red-legged Frog. Steelhead are valued for sport fishing; Coho Salmon are valued for commercial fishing.
- 9 53-54 The lists of plant species do not include those of the marsh community, which would be impacted by this project. Other sources for information on plant communities are: Anderson, William & R. Morgan, CNPS Santa Cruz Chapter, A Flora of Pescadero Marsh, Santa Cruz City Museum, no date; Calif. Dept. Parks and Recreation, San Mateo Coast Area General Plan, 1979; and Calif. Dept. Parks and Recreation, Plant Communities of Pescadero Marsh Natural Preserve, 1984.
- 10 55 Steelhead use the lagoon as rearing and smolting habitat. The lagoon is of critical importance in maintaining the run. Little is known about Coho Salmon because of small populations.
- 11 59 The section on Hydrology and Water Quality should discuss the project's impacts on Pescadero Marsh during the annual dry season and during years of low rainfall.
- 12 60 This section on Biology should discuss the impacts from drawdown of groundwater and effects on surface flows.
- 13 61 The production rate of the Warheit well should be controlled to prevent drawdown of surface water anywhere in the marsh. The well could impact wetland hydrology by eliminating groundwater flows into the wetland. The EIR dismisses "the effect of continuous pumping of Warheit well on the surface waters...." by estimating it to be insignificant. The estimate is unsubstantiated and requires further data for an adequate analysis of the environmental impacts.
- 14 62 San Francisco Garter Snakes are known to occur at ponds near the project site. Pescadero Marsh is an important fishery resource as a rearing and smolting habitat. The text indicates that use of the well during times of zero flow in Butano Creek could increase the time for flows to return to normal; this is the time and situation when drawdown would be most severe in the creek and marsh.

Gordon Snow, Ph.D.
September 24, 1987
Page 3

- 15 64 The pump test report concludes that "impacts to recharge of the local groundwater flow system will not be significant in comparison with the available regional recharge." The question remains: what are the local impacts expected to be?
- 16 65 Surface disposal of brine is unacceptable from an ecological standpoint. It would significantly alter the marsh and reduce the population of the Red-legged Frog, an important food source for the San Francisco Garter Snake.
- 17 67 The salt would affect more than the garter snake; it would also affect sensitive species such as the Brackish Water Snails, Tidewater Goby, Steelhead, as well as vegetation. Although "the marsh is not entitled to water rights to protect these flows," this section should include discussion of the Public Trust Doctrine.

Please keep us apprised of the progress of the project. Our contact is Mr. James M. Doyle, Supervisor, Environmental Review Section, P.O. Box 942896, Sacramento, CA 94296-0001, telephone (916) 324-6421.

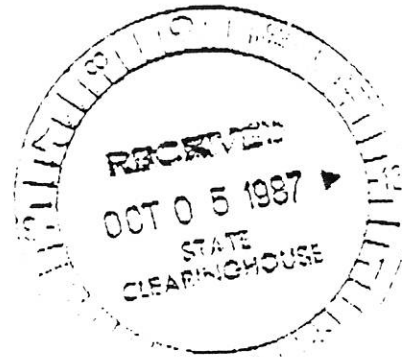


Richard G. Rayburn, Chief
Resource Protection Division

Memorandum

State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

Date : 10/05/87 EIR 12 15



Heidi Bratovich

Heidi Bratovich
Environmental Specialist
Environmental Unit

From : DIVISION OF WATER RIGHTS
STATE WATER RESOURCES CONTROL BOARD

Subject: ENVIRONMENTAL ASSESSMENT OF WATER SUPPLY ALTERNATIVES FOR THE COMMUNITY OF PESCADERO, SAN MATEO COUNTY (SCH 87090801); WATER RIGHT APPLICATION 28566 OF PESCADERO WATER DISTRICT TO APPROPRIATE WATER FROM HONSINGER CREEK TRIBUTARY TO PESCADERO CREEK THENCE THE PACIFIC OCEAN

The State Water Resources Control Board (Board) has reviewed the Environmental Assessment of Water Supply Alternatives for the Community of Pescadero. The document explores the options for a potable water supply for the community of Pescadero including at least three projects: The Warheit Well System, the Potable Well System, and the Conjunctive Supply, in which surface water would be used in conjunction with well water at different times of the year.

1 The Board has permitting authority over surface water and underflow use but not over groundwater use. Depending on which alternative water supply is chosen, the Board may or may not have permitting authority over the project.

2 The Conjunctive Supply alternative examines the option of surface water diversion from Honsinger Creek. The Pescadero Water District has water right Application 28566 on file with the Board for direct diversion and storage on Honsinger Creek. Should this alternative be pursued, the Board would become a Responsible Agency pursuant to the California Environmental Quality Act (CEQA). The Board would then require additional environmental documentation and impact analyses on Honsinger and Pescadero Creeks due to the biological sensitivity of the instream and downstream habitats and associated endangered species. The flows in Honsinger Creek support anadromous salmonids, riparian vegetation, a coastal marsh and three endangered species inhabiting the marsh. An instream flow study would be necessary to determine the range of flows required to sustain the fish and wildlife habitats and species. An Environmental Impact Report (EIR) would be necessary to discuss the potential impacts and appropriate mitigation measures for such a project. Enclosed is an "Outline for Environmental Impact Report Involving Water Development" which contains pertinent issues which should be discussed.

3

4 If the Conjunctive Supply alternative or any other project involving the diversion of surface or underflow waters is not pursued by the Pescadero Water District, then the District should notify the Board and request cancellation of the application on file. If the District wants to pursue such a project in the future, then the District should notify the Board and request an extension of time for processing the application.

Please notify the Board as soon as possible of the preferred course of action.

If you have any questions regarding these comments, please call me at (916) 324-5714.

cc: Mr. R. George Zinckgraf
Department of Public Works
County of San Mateo
805 Veterans Boulevard, Suite 301
Redwood City, CA 94063

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

1111 JACKSON STREET, ROOM 6040

OAKLAND 94607

Phone: Area Code 415
464-1255

September 18, 1987

File No. 2178.05 (JMJ)

Ms. Norma Wood
State Clearinghouse
1400 Tenth St., Room 121
Sacramento, CA 95814

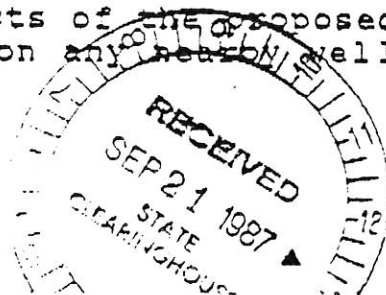
SUBJECT: Comments on the Environmental Assessment (EA) for Water
Supply Alternatives for the Community of Pescadero,
SCH #87090801

Dear Ms. Wood:

The EA reports that hazardous chemicals may be stored on site and that the water treatment may include coagulation, flocculation, sedimentation, filtration, and disinfection. Unless handled properly, the hazardous chemicals and sludge and backwash water from the treatment process can cause water pollution.

We recommend that the environmental documents be expanded to include a detailed description of the following:

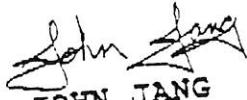
1. The facilities to be used to store hazardous chemicals and the safeguards to properly contain and dispose of any spillage and prevent vandalism;
2. The content and quantity of the sludge and the method of disposal;
3. The method for disposing or reusing the filter backwash water;
4. The method for disposing of residual brine if reverse-osmosis treatment is required;
5. The effects, if any, of the proposed alternatives on steelhead trout and silver salmon in nearby creeks and the need for mitigation measures;
6. The effects of the proposed alternatives on ground water quality and on any nearby wells and the need for mitigation measures; and



8 7. The need for erosion control measures.

If you have any questions, please contact me at (415) 464-0554.

Sincerely,



JOHN JANG
Area Engineer

PESCADERO COMMUNITY COUNCIL
P.O. BOX 249
PESCADERO, CA 94060
September 18, 1987

Attention: Mr. James Sweeney
San Mateo County Planning Commission
County Office Building
Redwood City, Ca 94063

Dear Mr. Sweeney,


① At our regular Council meeting on September 17, a resolution was passed to advise you and the Planning Commission that the Council approves the EIR report by Thomas Reid Associates dated September, 1987. We urge the Planning Commission to accept this Environmental Assessment of the Water Supply Alternatives for the Community of Pescadero, California.

② The Pescadero Community Council unanimously recommends the Warheit Well Alternative on the basis of quality, proven supply, and cost. We agree that the location of the treated water storage should be sited elsewhere than the two locations recommended by Kennedy/Jenks/Chilton. The preferred location in our combined opinion would be in the vicinity of the Warheit well at about 200 feet above the Pescadero Rural Service Center, out of sight from either Highway 1 or Pescadero Creek Road. This site would have the advantage of easy access as well as a more suitable location in respect to landslides and earthquake potential.

④ We want to take this opportunity to assure you that the community is overwhelmingly behind this project. In March of 1986, the council circulated a petition among the property owners of the Pescadero Rural Service Center. Out of a total of 108 parcels, we obtained signatures of owners of 96 parcels without a single turndown. These signatures were intended to demonstrate to Mr. Robert Sans, Department of Public Works, County of San Mateo, that these property owners were willing to financially support the development of a Pescadero water system as outlined. Attached are copies of that petition.

We expect to be present at your Planning Commission meeting on September 23, to support our position as outlined above.

Respectfully yours,


Oak Russell
Chairman, Pescadero Water Committee