

CALIFORNIA COASTAL COMMISSION

NORTH COAST DISTRICT OFFICE

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Staff: Eric Oppenheimer
Staff Report: December 17, 1999
Hearing on Rev. Findings January 14, 1999
Commission Action on Findings:

REVISED STAFF REPORT: REVISED FINDINGS

APPEAL NO.: A-1-MEN-99-26

APPLICANT: ROSEMARIE KLUTE

AGENT: Ed McKinley

LOCAL GOVERNMENT: County of Mendocino

DECISION: Approval with Conditions

PROJECT LOCATION: 29950 South Highway One, Gualala, Mendocino County;
APN 142-031-03.

PROJECT DESCRIPTION: (1) Construction of a 17.75-foot-high, 2,146-square-foot single-family residence with a 22-foot-high, 1,152-square-foot attached garage and guest cottage, septic system, well, and crushed rock driveway; and (2) Use of a temporary trailer during construction.

APPELLANTS: Friends of Schooner Gulch; Mendocino Coastwatch;

AGENTS FOR APPELLANTS: Peter Reimuller, Roanne Withers

COMMISSIONERS ON THE PREVAILING SIDE:
(DE NOVO REVIEW) Commissioners Desser, Dettloff, Estolano, Flemming, Kruer, McClain-Hill, Rose, and Chairman Wan.

SUBSTANTIVE FILE DOCUMENTS: Mendocino County LCP; Mendocino County CDP #52-98; Earth Science Consultants' Geotechnical Investigations 1/22/98 and 6/4/99.

1. Procedure.

At the Commission meeting of July 16, 1999, the Commission found the appeal raised a substantial issue with regard to the project's conformance with the County of Mendocino's certified LCP, and went immediately into a de novo hearing. At the conclusion of the de novo hearing, the Commission approved the project with conditions. However, the Commission directed that revised findings be prepared to reflect the Commission's expanded discussion of the reasons why the Commission attached Special Condition No. 3 to the approval, the condition requiring that the applicant record a deed restriction concerning the geologic hazards associated with developing the blufftop parcel and prohibiting the future installation of bluff or shoreline protective devices. Accordingly, staff has prepared the following set of revised findings for the Commission's consideration as the needed findings to support its action. These findings reflect the action taken by the Commission at the meeting of July 16, 1999 on the de novo portion of the hearing. As the Commission found substantial issue, consistent with staff's written recommendation dated June 25, 1999, and made no revisions to those recommended findings, the Substantial Issue portion of the report is not attached, but is incorporated by reference.

2. Continued Hearing.

The public hearing on the revised findings was opened on November 5, 1999 at which time the Commission continued the hearing to a future meeting.

3. Limited Public Comment.

The purpose of the hearing is to consider whether the revised findings accurately reflect the Commission's previous action rather than to reconsider whether the appeal raised a substantial issue or to reconsider the merits of the project or the appropriateness of the adopted conditions. Public testimony will be limited accordingly.

STAFF RECOMMENDATION:

The staff recommends that the Commission adopt the following revised findings in support of the Commission's action on July 16, 1999, approving the project with conditions.

Motion:

I move that the Commission adopt the revised findings dated December 17, 1999, in support of the Commission's action on July 16, 1999 approving Coastal Development Permit No. A-1-MEN-99-26.

The staff recommends a YES vote. Pursuant to section 30315.1 of the Coastal Act, adoption of findings requires a majority vote of the members from the prevailing side present at the July 16, 1999 hearing, with at least three of the prevailing members voting. Only those Commissioners on the prevailing side on the Commission's action on the permit are eligible to vote. See the list on Page 1. Approval of the motion will result in the adoption of revised findings as set forth in this staff report.

COMMISSION ACTION:

The adopted resolution, conditions, and findings in support of the Commission's July 16, 1999 action are provided below.

DE NOVO ACTION ON APPEAL: REVISED FINDINGS

I. ADOPTED RESOLUTION OF APPROVAL

The Commission hereby grants, subject to the conditions below, a permit for the proposed development on the grounds that the development, as conditioned, is in conformance with the certified County of Mendocino LCP, is located between the sea and the nearest public road to the sea and is in conformance with the public access and public recreation policies of Chapter 3 of the Coastal Act, and will not have any significant adverse impacts on the environment within the meaning of the California Environmental Quality Act.

II. Standard Conditions: See attached.

III. Special Conditions:

1. Future Development:

PRIOR TO ISSUANCE of the Coastal Development Permit, the permittee shall execute and record a deed restriction, subject to the review and approval of the Executive Director, stating that the subject permit is only for the development herein described in

the coastal development permit and that any future additions or other development on APN 142-031-03 as defined in Mendocino County Zoning Code Section 20.308.035(D), including the construction of fences, gates, additions, or outbuildings that might otherwise be exempt under Zoning Code Section 20.532.020(C), will require an amendment to this permit or will require an additional coastal development permit from Mendocino County.

This document shall run with land, binding all successors and assigns, and shall be recorded free of prior liens that the Executive Director determines may affect the enforceability of the restriction. This deed restriction shall not be removed or changed without a Coastal Commission-approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required because the change is not substantive in nature.

2. Second Structure:

PRIOR TO ISSUANCE of the Coastal Development Permit, the permittee shall submit for the review and approval of the Executive Director and shall subsequently record, a deed restriction stating that the guest cottage shall be without kitchen or cooking facilities and shall not be separately rented, let, or leased, whether compensation be direct or indirect.

This deed restriction shall be recorded with the deed to parcel APN 142-031-03 as a covenant running with the land, binding all successors and assignees of the permittee, and shall be recorded free of prior liens that the Executive Director determines may affect the enforceability of the restriction. This deed restriction shall not be removed or changed without a Coastal Commission-approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required because the change is not substantive in nature.

3. Assumption of Risk, Waiver of Liability Indemnification Agreement, and Landowner Obligations and Responsibilities:

PRIOR TO THE ISSUANCE of the Coastal Development Permit, the applicant as landowner shall execute and record a deed restriction, in a form and content acceptable to the Executive Director, which shall provide that:

- (a) The landowner understands that the site may be subject to extraordinary geologic and erosion hazard and the landowner assumes the risk from such hazards;
- (b) The landowner unconditionally waives any claims of liability against the California Coastal Commission, its successors in interest, advisors, officers, agents, and employees for any damage from such natural hazards or arising out of any work performed in connection with the permitted project;

- (c) The landowner agrees to indemnify and hold harmless the California Coastal Commission, its successors in interest, advisors, officers, agents and employees against any and all claims, demands, damages, costs, and expenses of liability (including without limitation attorneys' fees and costs of suit) arising out of the design, construction, operation, maintenance, existence or failure of the permitted project, including without limitation any and all claims made by any individual or entity or arising out of any work performed in connection with the permitted project;
- (d) The landowner agrees that any adverse impacts to property caused by the permitted project shall be fully the responsibility of the applicant;
- (e) The landowner shall not construct any bluff or shoreline protective devices to protect the subject single-family residence, guest cottage, garage, septic system, or other improvements in the event that these structures are subject to damage, or other natural hazards in the future, and shall waive all rights to construct such devices that may exist under LCP Policy 3.4-12 and Zoning Code Section 20.500.020(E)(1);
- (f) The landowner shall remove the house and its foundation when bluff retreat reaches the point where the structure is threatened. In the event that portions of the house, garage, foundations, leach field, septic tank, or other improvements associated with the residence fall to the beach before they can be removed from the blufftop, the landowner shall remove all recoverable debris associated with these structures from the beach and ocean and lawfully dispose of the material in an approved disposal site. The landowner shall bear all costs associated with such removal;
- (g) That any changes to the proposed project or other development as defined in Coastal Act Section 30106 shall require an amendment to this permit or an additional coastal development permit from the California Coastal Commission or its successor agency.

The document shall run with the land, bind all successors and assigns, and shall be recorded free of all prior liens and encumbrances, except for tax liens.

4. Final Foundation and Drainage Plans:

PRIOR TO ISSUANCE of the Coastal Development Permit, the permittee shall submit for the Executive Director's review and approval, final foundation and site drainage plans that incorporate all the recommendations included in the geotechnical report dated January 22, 1998 prepared by Earth Science Consultants and addendum dated June 4, 1999, included with the County application, regarding site grading, foundations, and site drainage. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. Proposed changes to the approved final plans shall not occur without

a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

5. Landscaping Plan:

PRIOR TO ISSUANCE of the Coastal Development Permit, the applicant shall submit, for the Executive Director's review and approval, a landscaping plan prepared by a qualified professional with expertise in the field of landscaping, such as a landscape architect. The plan shall provide for the following:

- (a) Trees shall be planted along the eastern and southern boundaries of the proposed residence to soften the view of the residence from the public view turnout to the north and from Highway One to the east. In addition to the five proposed cypress trees indicated on the site plan, a minimum of three additional trees shall be planted to the west of the proposed driveway.
- (b) Specifications shall be included to indicate species, size at planting, height at maturity, and establishment techniques (e.g., irrigation, fertilization, etc.)
- (c) The plan shall also specify that all existing trees within the construction area that screen the residence from Highway One and the public view area shall be protected during the construction phase with construction fencing, and all screening trees shall be retained.
- (d) The plan shall include a tree maintenance program (e.g., pruning, fertilizing, watering, etc.) for newly planted trees and shrubs and a replacement program for the mature trees and shrubs on a one-to-one or greater ratio for the life of the project. The new trees and shrubs shall be planted, and all necessary irrigation equipment shall be installed, within 60 days of completion of the project, and in any case prior to occupancy of the site.
- (e) The plan shall also indicate the location of all existing trees/shrubs on the property that will serve as landscape screening for the proposed structures and that shall remain undisturbed. Except as provided for in the approved Landscaping Plan, and any vegetation that must be removed for fire safety as required by the California Department of Forestry and Fire Protection, no existing vegetation on the site outside the building envelope shall be removed. Any existing trees or vegetation providing screening that do not

survive must be replaced on a one-to-one or higher ratio for the life of the project. Any future removal of trees shall require a new coastal permit or an amendment to Coastal Permit No. 1-1-MEN-99-26, unless the Executive Director determines that no amendment is required.

- (f) The site shall be monitored for the first five years following planting, and a monitoring report shall be submitted by September 1 of each year for the review and approval of the Executive Director of the Coastal Commission. The monitoring report will document the health of the planted and existing trees and recommend any needed corrective actions to achieve compliance with the requirements of this condition.

The permittee shall undertake development in accordance with the approved final landscaping plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. Proposed changes to the approved final plans shall not occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

The applicant shall notify the Executive Director in writing when the trees and shrubs have been planted, and Commission staff shall verify the planting via a site visit or by examining photographs submitted by the applicant.

6. Design Restrictions:

- (a) All exterior siding of the proposed structures shall be composed of natural or natural appearing materials, and all siding and roofing of the proposed structures shall be composed of materials of dark earthtone colors only. The current owner or any future owner shall not repaint or stain the house with products that will lighten the color the house as approved. In addition, all exterior materials, including roofs and windows, shall be non-reflective to minimize glare.
- (b) Further, all exterior lights, including any lights attached to the outside of the buildings, shall be the minimum necessary for the safe ingress and egress of the structures, and shall be low-wattage, non-reflective, shielded, and have a directional cast downward such that no light will shine beyond the boundaries of the subject parcel.
- (c) All fencing north of the residence shall be eliminated. The trash enclosure area and the propane tank shall be relocated to the area around the water tanks.

IV. FINDINGS AND DECLARATIONS

The Commission hereby finds and declares as follows:

1. Project and Site Description:

The proposed development consists of construction of a 17.75-foot-high, 2,146-square-foot single-family residence with a 22-foot-high, 1,152-square-foot attached garage and guest cottage, wood decking, screening fences around the water tanks, propane tank and trash area, septic system, well, and crushed rock driveway; and (2) use of a temporary trailer during construction. (See Exhibits 2-4).

The subject site is a one-acre blufftop lot located approximately five miles south of Point Arena, on the west side of Highway One, near the intersection with Iversen Road. The site consists of a former ancient wave cut marine terrace that slopes slightly towards the west.

The parcel is located within a designated Highly Scenic Area. There is no sensitive habitat on the property.

2. Planning and Locating New Development:

Policy 3.9-1 of the Mendocino County Land Use Plan states that new development shall be located within or near existing developed areas able to accommodate it or in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. The intent of this policy is to channel development toward more urbanized areas where services are provided and potential impacts to resources are minimized.

Policy 3.8-1 states that Highway 1 capacity, availability of water and sewage disposal system and other know planning factors shall be considered when considering applications for development permits.

Zoning Code Section 20.376.025 provides for one dwelling unit per residentially designated parcel.

Zoning Code Section 20.458.010 states that the creation and/or construction of a second residential unit is prohibited, except for such things as farm employee housing, farm labor housing, and family care units.

The subject property is zoned in the County's LCP as Rural Residential-5 acre minimum [Rural Residential-1 acre minimum conditional with proof of water] (RR:L-5 [RR]), meaning that there may be one parcel for every five acres, or one parcel for every acre with proof of water. The subject parcel, which is approximately one acre in size and which will be served by an existing well and proposed septic system, is a legal, conforming lot.

At the time the County approved the project, no well had been drilled, but since that time, a test well providing adequate water (2 gpm) to serve the development has been drilled. The proposed septic system is a sand filter system approved by the Mendocino County Department of Environmental Health.

The proposed development includes a single-family residence plus a 576-square-foot guest cottage over a 576-square-foot attached garage.

To ensure that the proposed guest cottage will not be used at any time as a second residential unit, Special Condition No. 2 is attached to this permit, requiring recordation of a deed restriction stating that the guest cottage shall be without kitchen or cooking facilities, and shall not be separately rented, let, or leased.

The Commission finds, therefore, that the proposed development, as conditioned, is consistent with LUP Policies 3.9-1 3.8-1, and with Zoning Code Sections 20.368.025 and 20.458.010, because Special Condition No. 2 of this permit will ensure that there will be only one residential unit on the parcel, and because there will be adequate services on the site to serve the proposed development.

3. Geologic Hazards and Seawalls:

LUP Policy 3.4-7 states that:

The County shall require that new structures be set back a sufficient distance from the edges of bluffs to ensure their safety from bluff erosion and cliff retreat during their economic life spans (75 years). Setbacks shall be of sufficient distance to eliminate the need for shoreline protective works. Adequate setback distances will be determined from information derived from the required geologic investigation and from the following setback formula:

$$\text{Setback (meters)} = \text{Structure life (years)} \times \text{Retreat rate (meters/year)}$$

The retreat rate shall be determined from historical observation (e.g., aerial photographs) and/or from a complete geotechnical investigation.

All grading specifications and techniques will follow the recommendations cited in the Uniform Building Code or the engineering geologist's report.

This language is reiterated in Zoning Code Section 20.500.020(B).

LUP Section 3.4-8 states that:

Property owners should maintain drought-tolerant vegetation within the required blufftop setback. The County shall permit grading necessary to establish proper drainage or to install landscaping and minor improvements in the blufftop setback.

LUP 3.4-9 states that:

Any development landward of the blufftop setback shall be constructed so as to ensure that surface and subsurface drainage does not contribute to the erosion of the bluff face or to the instability of the bluff itself.

Zoning Code Section 20.500.010 states that development shall:

- (1) *Minimize risk to life and property in areas of high geologic, flood and fire hazard;*
- (2) *Assure structural integrity and stability; and*
- (3) *Neither create nor contribute significantly to erosion, geologic instability or destruction of the site or surrounding areas, nor in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

Zoning Code Section 20.500.020(B) states that "Construction landward of the setback shall not contribute to erosion of the bluff face or to instability of the bluff."

LCP Policy 3.4-12 and Zoning Code Section 20.500.020(E)(1) state that "Seawalls, breakwaters, revetments, groins, harbor channels and other structures altering natural shoreline processes or retaining walls shall not be permitted unless judged necessary for the protection of existing development, public beaches or coastal dependent uses."

A geotechnical investigation was conducted and a report dated January 22, 1998 prepared for the site by Earth Science Consultants; an addendum dated June 4, 1999 was also prepared, after the County acted on the project (see Exhibits 5 and 6). Based on the results of its geotechnical investigation, Earth Science Consultants concludes that the

proposed development is feasible from the geotechnical engineering standpoint if performed and maintained in accordance with its recommendations.

The geotechnical report indicates that the base of the bluff at the Klute property is moderately well sheltered by the adjacent protruding land points to the south and north that are of the harder Iversen basalt. The report goes on to state that the base of the bluff is further protected by the abundant large sea rocks and sea mounts moderately close to the base of the bluff area, varying from about 40 feet to 75 feet across that tend to significantly dissipate wave energy before waves reach the rocky beach area at the base of the bluff.

The report concludes that no apparent bluff regression has been noted during the past 31 years, and bases this conclusion on a review of a 1967 aerial photo of the area, plus observation and measuring of site features, likely due to the harder bedrock and favorable bedding of the bedrock and reasonably well sheltered location. The consultant goes on to state that during his 32 years of coastal experience, bluff recession may remain dormant for many years, then a significant local amount may occur during a severe storm or severe winter or earthquake. Therefore, for planning purposes, the consultant recommends a maximum local bluff recession rate to be equal to or less than 3.16 inches per year for a 75-year local maximum bluff regression amount of 19.7 feet. The report further makes specific recommendations regarding site grading, foundations, and drainage.

The addendum to the geotechnical report, dated June 4, 1999 (see Exhibit No. 6), clarifies certain geotechnical considerations with respect to the proposed residence, in response to allegations by the appellants of inadequacy of the original geotechnical report. The addendum contains a more complete discussion of the rate of bluff erosion and regression, including the use of aerial photos. The addendum specifically states that the subject site will not require a seawall due to the fact that the underlying bedrock materials are older, harder, and relatively well protected.

The proposed development is sited 20 feet from the bluff edge, the minimum distance recommended by the geotechnical report.

To ensure that the project will not create any geologic hazards, the Commission has attached to the permit several Special Conditions. Special Condition No. 1 requires recordation of a deed restriction stating that all future development on the subject parcel that might otherwise be exempt from coastal permit requirements requires an amendment or an additional coastal development permit. This condition will allow future development to be reviewed to ensure that the project will not be sited where it might result in a geologic hazard. Special Condition No. 4 requires submittal of final foundation and site drainage plans that incorporate all recommendations of the

geotechnical report and addendum intended to avoid creating a geologic hazard. Special Condition No. 4 also requires development to proceed consistent with the certified plans.

The Commission also attaches Special Condition No. 3, which requires recordation of a deed restriction whereby the landowner assumes the risks of extraordinary erosion and geologic hazards of the property and waives any claim of liability on the part of the Commission and agrees that no bluff or shoreline protective devices shall be constructed on the subject site.

This requirement is consistent with LUP Policy 3.4-7 and Section 20.500.010 of the Mendocino County Coastal Zoning Ordinance, which states that new development shall minimize risk to life and property in areas of high geologic, flood, and fire hazard, assure structural integrity and stability, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding areas, nor in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. The Commission finds that the proposed development could not be approved as being consistent with LUP Policy 3.4-7 or Zoning Code Section 20.500.010 if projected bluff retreat would affect the proposed house and necessitate construction of a seawall to protect it.

In addition, LUP Policy 3.4-12 and Zoning Code Section 20.500.020(E)(1) allow the construction of shoreline protective devices only for the protection of existing development. The construction of a shoreline protective device to protect new residential development is not permitted by the LCP. In addition, as discussed further below, the construction of a protective device to protect new residential development would also conflict with the visual policies of the certified LCP.

The applicant is proposing to construct a new house. The new development can only be found consistent with the above-referenced provisions if a protective device will not be needed in the future. The applicant has submitted information from a geologist which states that the proposed development will not require any devices to protect the proposed development during its economic life. If not for the information provided by the applicant that the site is safe for development, the Commission could not conclude that the site is safe for development without the need for the construction of protective devices.

However, it has been the experience of the Commission that in some instances, even when a thorough professional geotechnical analysis of a site has concluded that a proposed development will be safe from bluff retreat hazards, unexpected bluff retreat episodes that threaten development during the life of the structure sometimes still do occur. Examples of this situation include:

- The Kavich Home at 176 Roundhouse Creek Road in the Big Lagoon Area north of Trinidad (Humboldt County). In 1989 the Commission approved the construction of a new house on a vacant blufftop parcel (Permit 1-87-230). Based on the geotechnical report prepared for the project it was estimated that bluff retreat would jeopardize the approved structure in about 40 to 50 years. In 1999 the owners applied for a coastal development permit to move the approved house from the blufftop parcel to a landward parcel because the house was threatened by 40 to 60 feet of unexpected bluff retreat that occurred during a 1998 El Nino storm event. The Executive Director issued a waiver of coastal development permit (1-99-066-W) to authorize moving the house in September of 1999.
- The Denver/Canter home at 164/172 Neptune Avenue in Encinitas (San Diego County). In 1984 the Commission approved construction of new house on a vacant blufftop lot (Permit 6-84-461) based on a positive geotechnical report. In 1993, the owners applied for a seawall to protect the home (Permit Application 6-93-135). The Commission denied the request. In 1996 (Permit Application 6-96-138), and again in 1997 (Permit Application 6-97-90) the owners again applied for a seawall to protect the home. The Commission denied the requests. In 1998, the owners again requested a seawall (Permit Application 6-98-39) and submitted a geotechnical report that documented the extent of the threat to the home. The Commission approved the request on November 5, 1998.
- The Bennett home at 265 Pacific Avenue, Solana Beach (San Diego County). In 1995, the Commission approved a request to construct a substantial addition to an existing blufftop home (Permit 6-95-23). The minimum setback for the area is normally 40 feet. However, the applicants agreed to waive future rights to shore/bluff protection if they were allowed to construct 25 feet from bluff edge based on a favorable geotechnical report. The Commission approved the request on May 11, 1995. In 1998, a substantial bluff failure occurred, and an emergency permit was issued for a seawall. The follow-up regular permit (#6-99-56) was approved by Commission on May 12, 1999. On August 18, 1999, the Commission approved additional seawall and upper bluff work on this and several other properties (Permit #6-99-100).
- The McAllister duplex at 574 Neptune Avenue, Encinitas (San Diego County). In 1988, the Commission approved a request to construct a duplex on a vacant blufftop lot (Permit #6-88-515) based on a favorable geotechnical report. By October 1999, failure of the bluff on the adjoining property to the south had spread to the bluff fronting 574 Neptune. An application is pending for upper bluff protection (Permit #6-99-114-G).

- The Arnold project at 3820 Vista Blanca in San Clemente (Orange County). Coastal development permit (Permit # 5-88-177) for a blufftop project required protection from bluff top erosion, despite geotechnical information submitted with the permit application that suggested no such protection would be required if the project conformed to 25-foot blufftop setback. An emergency coastal development permit (Permit #5-93-254-G) was later issued to authorize blufftop protective works.

The geotechnical report submitted with the permit application states that, "...we have found during our 32 years of coastal experience that bluff recession may remain dormant for many years, then a significant local amount may occur during a severe storm or severe winter or earthquake." In the Commission's experience, geologists have no way of absolutely predicting if or when bluff erosion on a particular site will take place, and cannot predict if or when a house or property may become endangered. Geologic hazards are episodic, and bluffs that may seem stable now may not be so in the future. Therefore, the Commission finds that the subject lot is an inherently hazardous piece of property, that the bluffs are clearly eroding, and that the proposed new development may result in a geologic hazard or may someday require a bluff or shoreline protective device, inconsistent with Zoning Code Section 20.500.010. The Commission further finds that due to the inherently hazardous nature of this lot, and the fact that no geology report can conclude with any degree of certainty that a geologic hazard does not exist, it is necessary to attach Special Condition No. 3 requiring a deed restriction prohibiting the construction of seawalls and waiving liability.

As noted above, some risks of an unforeseen natural disaster, such as an unexpected landslide, massive slope failure, erosion, etc. could result in destruction or partial destruction of the house or other development approved by the Commission. When such an event takes place, public funds are often sought for the clean up of structural debris that winds up on the beach or on an adjacent property. As a precaution, in case such an unexpected event occurs on the subject property, the Commission attaches Special Condition No. 3(f), which requires the landowner to accept sole responsibility for the removal of any structural debris resulting from landslides, slope failures, or erosion on the site, and agree to remove the house should the bluff retreat reach the point where the structure is threatened.

The Commission finds that Special Condition No. 3 is required to ensure that the proposed development is consistent with the LCP and that recordation of the deed restriction will provide notice of potential hazards of the property and help eliminate false expectations on the part of potential buyers of the property, lending institutions, and insurance agencies that the property is safe for an indefinite period of time and for further development indefinitely into the future, or

that a seawall could be constructed to protect the development. Only as conditioned is the proposed development consistent with the LCP policies on geologic hazards.

The Commission thus finds that the proposed development, as conditioned, is consistent with the policies of the certified LCP regarding geologic hazards, including LUP Policies 3.4-7, 3.4-8, and 3.4-9, and Zoning Code Sections 20.500.010 and 20.500.020, as the proposed development will not result in the creation of any geologic hazards, will not have adverse impacts on the stability of the coastal bluff or on erosion, and the Commission will be able to review any future additions to ensure that development will not be located where it might result in the creation of a geologic hazard.

4. Visual Resources:

LUP Policy 3.5-1 and Zoning Code Section 20.504.010 state that the scenic and visual qualities of Mendocino County coastal areas shall be considered and protected as a resource of public importance, and that permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas and, where feasible, to restore and enhance visual quality in visually degraded areas.

LUP Policy 3.5-3 and Zoning Code Section 20.504.015(C)(2) state that new development west of Highway One in designated Highly Scenic Areas is limited to one story (above natural grade) unless an increase in height would not affect public views to the ocean or be out of character with surrounding structures.

LUP Policy 3.5-4 and Zoning Code Section 20.504.015(C) state that buildings and building groups that must be sited within the highly scenic area shall be sited near the toe of a slope, below rather than on a ridge, or in or near the edge of a wooded area. Visual impacts on terraces should be minimized by (1) avoiding development in large open areas if an alternative site exists; (2) minimizing the number of structures and clustering them near existing vegetation, natural landforms or artificial berms; (3) providing bluff setbacks for development adjacent to or near public areas along the shoreline; and (4) designing development to be in scale with the rural character of the area.

LUP Policy 3.5-5 states that providing that trees will not block coastal views from public areas such as roads, parks, and trails, tree planting to screen buildings shall be encouraged.

Zoning Code Section 20.504.015(C)(1) states that any development permitted in highly scenic areas shall provide for the protection of coastal views from public areas including

highways, roads, coastal trails, vista points, beaches, parks, coastal streams, and waters used for recreational purposes.

Zoning Code Section 20.504.015(C)(3) states that new development shall be subordinate to the natural setting and minimize reflective surfaces. In highly scenic areas, building materials including siding and roof materials shall be selected to blend in hue and brightness with their surroundings.

Zoning Code Section 20.504.035(A)(2) states that where possible, all lights shall be shielded or positioned in a manner that will not shine light or allow glare to exceed the boundaries of the parcel on which it is placed.

Zoning Code Section 20.376.045 requires a height of 18 feet above natural grade for Rural Residential parcels in designated Highly Scenic Areas west of Highway One unless an increase in height would not affect public views to the ocean or be out of character with surrounding structures.

The subject parcel is located on a headland west of Highway One in a designated "Highly Scenic Area" south of the town of Point Arena. The visual impact of any development in this area is of primary concern because of the extraordinary beauty of the setting.

The proposed development includes a one-story, 17.75-foot-high, 2,146-square-foot residence with an attached 1,152-square-foot garage and guest cottage. According to County staff, earlier designs for the house were proposed that included a two-story structure that was higher than surrounding structures and was highly visible from the public viewing area to the north. Another proposed design spread the structures out across the site, which resulted in the development appearing to dominate the view from the highway. The currently proposed development maintains a low building height with the residence at 17.75 feet, and the guest cottage, which is above the garage, at 22 feet. The project blends fairly well into its surroundings due to the low profile design, natural materials, and dark colors that are proposed. The proposed structure is also approximately the same size and height as other residences on Iversen Point and is thus in character with surrounding development.

However, the project as proposed would not be completely subordinate to the character of the area as the house would still be very visible from Highway 1.

The proposed project includes a proposal to plant three cypress trees between the residence and the highway, and two more cypress trees at the southwest end of the building. To reduce the impacts of the proposed development on visual resources, the Commission attaches Special Condition No. 5, which requires that the applicant submit a landscaping plan that provides for the

additional planting of trees along the eastern and southern boundaries of the proposed residence to soften the view of the residence from Highway 1 and from the public view turnout to the north. The submitted plan must include a tree maintenance program (e.g., pruning, fertilizing, watering, etc.) for newly planted trees and a tree replacement program on a one-to-one or greater ratio for the life of the project.

Since the existing trees on the site provide some softening effects and/or backdrop to minimize visual impacts, this condition also requires that any existing trees or vegetation providing screening shall remain undisturbed, except for those required to be removed to meet the fire safety regulations of the California Department of Forestry and Fire Protection or those required to be removed for any development permitted by this permit, and must be replaced on a one-to-one or higher ratio for the life of the project. Therefore, Special Condition No. 5 ensures that the project is consistent with LUP Policy 3.5-5.

The Commission also attaches Special Condition No. 6, which imposes design restrictions, including a requirement that all exterior siding and roofing of the proposed structure shall be of natural or natural-appearing materials of dark earthtone colors only; that all exterior materials, including the roof and the windows, shall be non-reflective to minimize glare; and that all exterior lights, including any lights attached to the outside of the house, shall be low-wattage, non-reflective, and have a directional cast downward. These requirements are consistent with the provisions of Zoning Code Sections 20.504.020(C) and 20.504.035(A)(2).

The Commission also attaches Special Condition No. 1, which requires recordation of a deed restriction stating that all future development on the subject parcel that might otherwise be exempt from coastal permit requirements requires an amendment or coastal development permit. This condition will allow future development to be reviewed to ensure that the project will not be sited where it might have significant adverse impacts on visual and scenic resources.

Finally, the Commission attaches Special Condition No. 3, which requires recordation of a deed restriction stating that the landowner shall not construct any bluff or shoreline protective devices to protect the residence, guest cottage, garage, septic system, or other improvements in the event that these structures are subject to damage, or other natural hazards in the future. This condition will ensure that in the future, no seawall will be constructed that would have significant adverse impacts on visual resources in this Highly Scenic Area.

In conclusion, although the proposed development will be somewhat visible from Highway 1 and the public view area to the north, visibility has been minimized by requiring additional landscaping, requiring dark earthtone colors for the structure, and requiring lighting restrictions. The proposed development also will not break the horizon when viewed from the north, and will blend in with its surroundings. Furthermore,

Special Condition No. 3 will ensure that a seawall that would dominate the appearance of the bluff as seen from the beach and other public vantage points will not be constructed in the future. The Commission thus finds that the proposed development, as conditioned, is consistent with LUP Policies 3.5-1, 3.5-3, 3.5-4, and 3.5-5, and with Zoning Code Sections 20.376.045, 20.504.015, 20.504.020, 20.504.035, and 20.504.040, as the project has been sited and designed to minimize visual impacts, will be subordinate to the character of its setting, will be visually compatible with the character of surrounding areas, and will provide for the protection of coastal views.

5. Public Access:

Projects located within the coastal development permit jurisdiction of a local government are subject to the coastal access policies of both the Coastal Act and the LCP. Coastal Act Sections 30210, 30211, and 30212 require the provision of maximum public access opportunities, with limited exceptions. Section 30210 states that maximum access and recreational opportunities shall be provided consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse. Section 30211 states that development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation. Section 30212 states that public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, adequate access exists nearby, or agriculture would be adversely affected.

The Mendocino County LUP includes a number of policies regarding standards for providing and maintaining public access. Policy 3.6-9 states that offers to dedicate an easement shall be required in connection with new development for all areas designated on the land use plan maps. Policy 3.6-28 states that new development on parcels containing the accessways identified on the land use maps shall include an irrevocable offer to dedicate an easement. LUP Policy 3.6-27 states that:

No development shall be approved on a site which will conflict with easements acquired by the public at large by court decree. Where evidence of historic public use indicates the potential for the existence of prescriptive rights, but such rights have not been judicially determined, the County shall apply research methods described in the Attorney General's "Manual on Implied Dedication and Prescriptive Rights." Where such research indicates the potential existence of prescriptive rights, an access easement shall be required as a condition of permit approval.

This language is reiterated in Zoning Code Section 20.528.030.

In its application of these policies, the Commission is limited by the need to show that any denial of a permit application based on these sections, or any decision to grant a permit subject to special conditions requiring public access, is necessary to offset a project's adverse impact on existing or potential public access.

The subject site is located west of the first public road and sits atop a steep coastal bluff. The County's land use maps do not designate the subject parcel for public access, and there does not appear to be any safe vertical access to the rocky shore down the steep bluffs. According to the County, there is no evidence of public prescriptive use of the subject site, and so the County did not instigate a prescriptive rights survey. Since the proposed development will not increase significantly the demand for public access to the shoreline and will have no other impacts on existing or potential public access, the Commission finds that the proposed project, which does not include provision of public access, is consistent with the public access policies of the Coastal Act and the County's LCP.

6. Environmentally Sensitive Habitat Areas:

LUP Policy 3.1-7 and Zoning Code Section 20.496.020(A) state that a buffer area shall be established adjacent to all environmentally sensitive habitat areas to provide for a sufficient area to protect the environmentally sensitive habitat from significant degradation resulting from future developments. The width of the buffer area shall be a minimum of 100 feet...measured from the outside edge of the environmentally sensitive habitat areas.

A botanical survey of the property was conducted by Mary Rhyne on June 28, 1998. Ms. Rhyne concluded that there was no evidence of rare plants or wetlands on the subject site.

The Commission thus finds that the proposed development is consistent with LUP Policy 3.1-7 and Zoning Code Section 20.496.020, as there is no sensitive habitat on the property that needs to be protected.

7. California Environmental Quality Act (CEQA):

Section 13096 of the California Code of Regulations requires Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as conditioned by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant adverse effect that the activity may have on the environment.

The proposed project has been conditioned to be found consistent with the policies of the Mendocino County LCP and the public access and recreation policies of the Coastal Act. Mitigation measures, which will minimize all adverse environmental impacts, include the following requirements:

- (1) that a deed restriction shall be recorded stating that the subject permit is only for the development herein described in the coastal development permit and that any future additions or other development that might otherwise be exempt under Zoning Code Section 20.532.020(C), will require an amendment to this permit or will require an additional coastal development permit from Mendocino County;
- (2) that a deed restriction shall be recorded stating that the guest cottage shall be without kitchen or cooking facilities and shall not be separately rented, let, or leased, whether compensation be direct or indirect;
- (3) that the applicant shall record a deed restriction regarding assumption of risk and waiver of liability, and stating that no bluff or shoreline protective devices shall be constructed, and also stating that the applicant shall remove the house and its foundation when bluff retreat reaches a point where the structure is threatened and that the applicant accepts sole responsibility for the removal of any structural debris resulting from landslides, slope failures, or erosion on the site;
- (4) that final foundation and site drainage plans shall be submitted that incorporate all the recommendations included in the geotechnical report and addendum letter;
- (5) that a landscaping plan shall be submitted, including a maintenance and monitoring program, to provide permanent landscape screening for the project; and
- (6) that design restrictions be imposed regarding color and materials of structures, and lighting.

As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impact that the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act and to conform to CEQA.

Exhibits

1. Location Map
2. Vicinity Map
3. Site Plan
4. Elevations
5. Geotechnical Report (29 pages)
6. Geotechnical Addendum (15 pages)

ATTACHMENT A

Standard Conditions

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. Compliance. All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions set forth below. Any deviation from the approved plans must be reviewed and approved by the staff and may require Commission approval.
4. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.
5. Inspections. The Commission staff shall be allowed to inspect the site and the development during construction, subject to 24-hour advance notice.
6. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
7. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

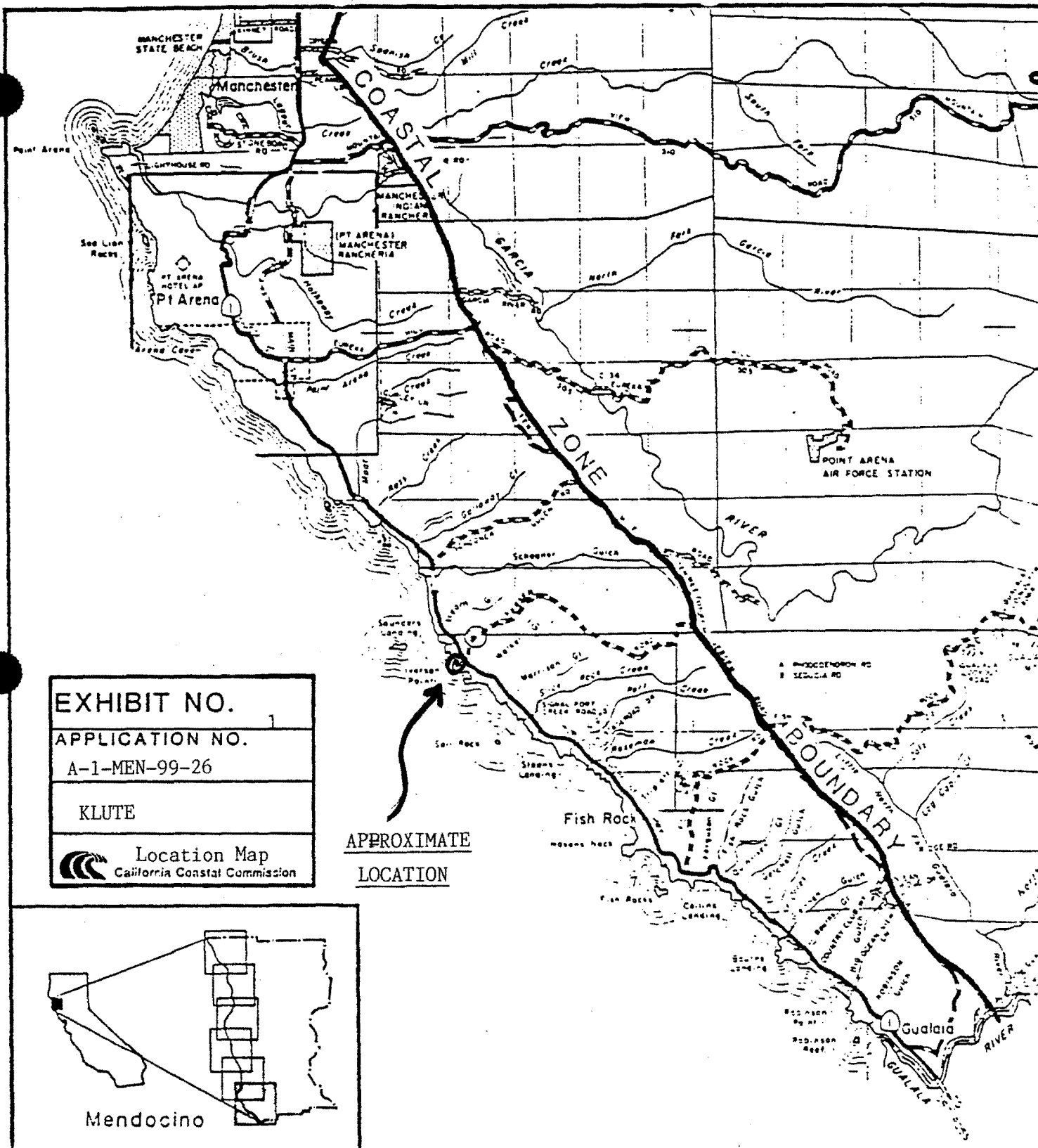



EXHIBIT NO.	1
APPLICATION NO.	A-1-MEN-99-26
KLUTE	
 Location Map California Coastal Commission	

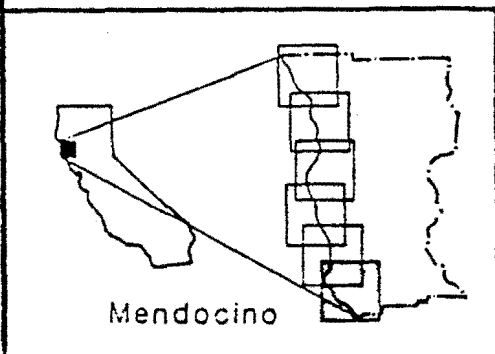


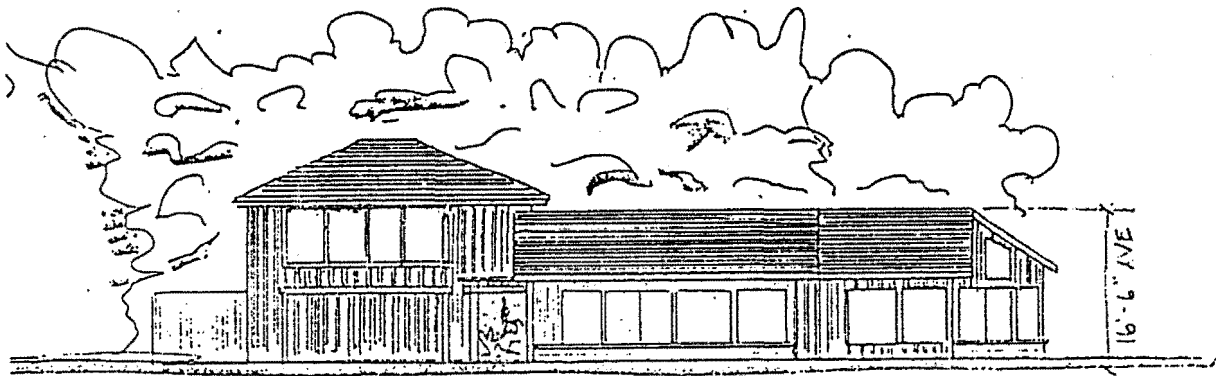
EXHIBIT NO. 3

APPLICATION NO.
A-1-MEN-99-26

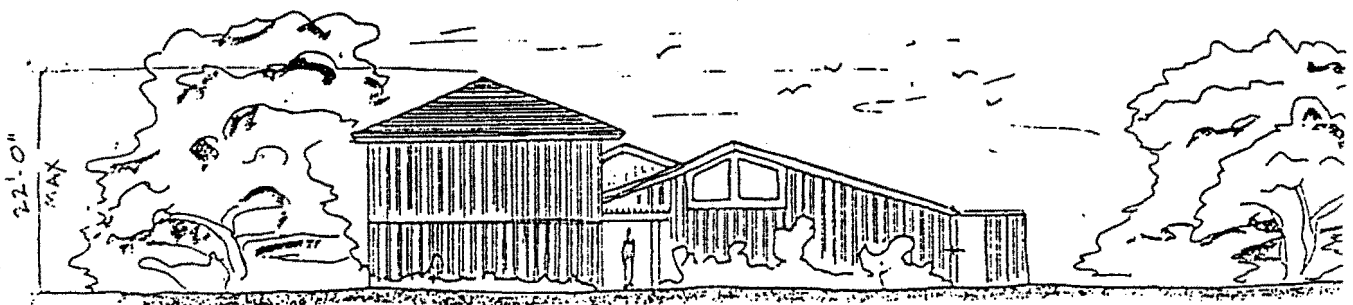
KLUTE

Site Plan

SITE PLAN



NORTH ELEVATION



EAST ELEVATION

EXHIBIT NO. 4

APPLICATION NO.
A-1-MEN-99-26

KLUTE

Elevations

ELEVATIONS

EARTH SCIENCE CONSULTANTS

SOIL • FOUNDATION AND GEOLOGICAL ENGINEERS

P. O. BOX 3410/SAN RAFAEL/CALIFORNIA 94912-3410/ (415) 383-0935

January 22, 1998

Job No. 983357

William Klute
Rosemarie Jones
P. O. Box 69
Trinity City, CA 96091

Geotechnical Investigation
Proposed Klute Residence
A.P. 142-031-03-05
Iversen Landing Subdivision
Iversen Point
Mendocino County, California

EXHIBIT NO.	5
APPLICATION NO.	A-1-MEN-99-26 KLUTE
Geotechnical Report Minus Appendices	
Page 1 of 29	

INTRODUCTION

This report presents the results of the geotechnical investigation we recently performed at the above site.

We understand that it is desired to construct a medium-sized, two story, single family residence with wood joist floors in the southeastern portion of the site as indicated to us by the owner and David Cooke-COBA. We also understand a detached two-car garage with studio above is planned. We understand the building plans are still in the preliminary phase of design.

The purpose of our work was to perform a visual site observation and reconnaissance of exposed surface features, review existing soil and geologic data of the area, log representative exploration test pits and provide our opinion in the form of conclusions and recommendations as they relate to our specialty field of practice, geotechnical engineering.

Our scope of work was oriented towards meeting the requirements of the California Coastal Commission and the County of Mendocino. During the last 20 years we have performed numerous studies along the California coast in the area of the San Andreas fault and ocean bluff areas under the jurisdiction of the California Coastal Commission, including studies at Big Sur, Muir Beach, Stinson Beach, Inverness, Point Reyes, Marshall, Tomales Bay, Dillon Beach, Bodega Bay, Jenner, Gualala, Anchor Bay, Point Arena, Irish Beach, Albion, Elk, Little River, Mendocino, Caspar, and Fort Bragg.

Our scope of work included only subsurface conditions within the actual proposed structures and did not include accessory areas such as sidewalks, porches, decks, landscaping, garden and yard areas.

SITE CONDITIONS

The modest-sized parcel of land is located adjacent to and southwest of Highway 1, about 325 feet northwest of the intersection of Iversen Road with Highway 1 as shown on the Site Location Map, Plate 1, and Site Plan, Plate 2.

The site consists of a former ancient wave cut marine terrace sloping slightly towards the west with an inclination of about 5 degrees. The site appears to be at natural grade and contour that mostly consisted of dense grass cover with some local areas of medium-sized to small Monterey cypress trees adjacent to Highway 1 and also in the southeastern portion of the property.

Located in the western portion of the property is the somewhat irregular top-of-ocean bluff line, generally trending in a northeasterly direction. The top of the bluff is about 78 feet from the front northern property corner and is about 225 feet or more from the front southeastern property corner. The slope and steepness of the bluff is somewhat variable ranging from as gentle as 38 degrees in the northern portion of the site to 59 degrees in the southern portion of the site as shown on the plotted bluff profiles, Plates 6, 7 and 8. The bluff generally exposes about 3 feet to 8 feet of surficial soils and marine terrace alluvium underlain by primarily sandstone bedrock materials. Most of the bluff bedrock consists of massive light gray and locally light brown sandstone that is generally hard and is medium hard where surface weathering has occurred. The slope of the bluff is governed by the strike and dip of the sandstone bedding with the inclination of the bluff being the same as the angle of inclination of the dip-strike of the sandstone beds.

A 7.5 minute geologic map of the Saunders reef quadrangle has not been prepared by the California Division of Mines and Geology. However, the nearby geologic map of the Gualala Quadrangle prepared by the California Division of Mines and Geology in 1984 by C. Davenport that begins about 1 mile to the east and 1 mile to the southeast and extrapolation of the geologic data therein would infer that the site is underlain by sedimentary bedrock materials of the German Rancho Formation (Pgr) of Paleocene-Eocene geologic age that is described as: "Consolidated, moderately hard, coarse grain sandstone interbedded with minor mudstone and less common conglomerate; overlain in many places by undifferentiated marine terrace sands." The geologic map indicates that the overlying soil materials above the underlying bedrock is plotted as consisting of marine terrace deposits (Qmts) of Quaternary geologic age.

Observation of the "Geologic Map of the Santa Rosa Quadrangle, Regional Geologic Map Series," compiled by D. Wagner and E. Bortugno of the California Division of Mines and Geology in 1982, indicates that the site is plotted as being underlain by sedimentary bedrock materials of the German Rancho Formation (Pgr) of Paleocene geologic age consisting of marine sandstone and mudstone with the outer portions of the protruding points and land in the general area plotted as consisting of the Iversen basalt (Mib) of Miocene geologic age.

The base of the bluff at the Klute property is moderately well sheltered by the adjacent protruding land points to the south and north that are of the harder Iversen basalt and also is further protected by the abundant large sea rocks and sea mounts moderately close to close to the base of the bluff area varying from about 40 feet to 75 feet across that tends to significantly

dissipate wave energy prior to reaching the rocky beach area at the base of the bluff. On the Site Location Map, Plate 1 that is a copy of a portion of the U.S. Geological Survey topographical map of the Saunders Reef 7.5-Minute Quadrangle, the abundant sea mounts and sea rocks are plotted.

The subsurface conditions were investigated by one deeper backhoe excavated exploration test pit performed at the location shown on the site plan, Plate 2. The test pit was logged by our geotechnical engineer who recorded the various materials encountered. The log of the exploration test pit is presented on Plate 3 and the Unified Soil Classification Chart which was used to describe the various materials encountered is presented on Plate 4. Due to the wet winter conditions and soft upper soils, the backhoe was able to only gain access to Test Pit 1. However, the subsurface conditions in other portions of the site can be extrapolated as the adjacent bluff generally exposes about 6 feet to 8 feet of surficial soils and marine terrace alluvium, except for the bluff area in the outer southwestern portion of the property where as little as 3 feet of marine terrace alluvium is exposed and then sandstone bedrock with 2 areas of surface bedrock outcrop within the site present moderately nearby that location.

The exploration test pit encountered about 2 feet of sandy silt surficial soil materials underlain by about 3 feet of sandy clay soil materials. Below a depth of about 5 feet sandy silt marine terrace alluvium was encountered that became sandy by a depth of about 9 feet with the surface of the underlying siltstone bedrock materials encountered at a depth of about 12.5 feet that were dark gray, massive, weathered and of medium hardness. The dark surface soils were wet and the underlying soils were only medium stiff to just barely stiff even at depths of 3 feet to 4 feet below the

ground surface. The perched ground water level was encountered at a depth of about 4.6 feet below the ground surface and moderate caving of the test pit occurred below 2 feet from the ground surface.

In order to help evaluate the expansion potential of the plastic clayey site soils, a Uniform Building Code expansion test was performed, as shown on Plate 5. The expansion test revealed an expansion index of 0, which is classified as very low expansion potential under Table 18-I-B of the Uniform Building Code.

CONCLUSIONS

Based on the results of our geotechnical investigation, our principal conclusions in the form of geotechnical engineering opinions are as follows:

1. It is our opinion that the proposed development is feasible from the geotechnical engineering standpoint if performed and maintained in accordance with our recommendations.
2. We recommend that in general the proposed development be built to conform with the existing site grade as much as practical, and cutting and filling generally be minimized as much as practical so as not to upset the existing gross site equilibrium.
3. Based upon our review of a 1967 aerial photo of the area, and the current observed and measured site features, we observed that no apparent bluff regression has occurred during the past 31 years, likely due to the harder bedrock and favorable bedding of the bedrock and reasonably well sheltered location. However, we have found during our 32 years of coastal experience that bluff recession may remain dormant for many years, then a significant local amount may occur during a severe storm or severe winter or earthquake. Therefore, for planning purposes we would recommend a maximum local bluff recession rate to be equal to or less than 0.0263 feet per year or 3.16 inches per year or 0.080 meters per year for a 75 year local maximum bluff regression amount of 19.7 feet or 6.0 meters.
4. The site soils at the time of our investigation were generally soft and weak in the upper portions and then below that only of modest strength. In general, the surface of the underlying sandstone bedrock formation appears to vary from about 6 feet to 12.5 feet over the site with the bedrock as shallow as 0 to 3 feet in the outer southwestern portion of the site.

5. It is our opinion that the proposed new house and garage-studio may be placed upon drilled pier and grade beam foundations gaining their support from the underlying sandstone bedrock formation or by the use of stiffened and deepened continuous spread footings arranged in a grid type pattern.

Specific recommendations are presented in the remainder of this report.

RECOMMENDATIONS

Development Scheme - We recommend that the proposed development generally be built in conformity with the existing site grade so as not to upset the existing site equilibrium. Generally all site grading, including cutting and filling, should be avoided or minimized as much as possible. We recommend that the existing site vegetation should generally be left in an "as is" condition and should not be disturbed.

It is especially important that no site disturbance of any sort be performed within about 20 feet of the bluff top location. It is also especially important that no waste fill materials or anything of any sort be performed within 20 feet of the existing bluff top.

Bluff Set-Back and Rate of Bluff Recession - Based upon our observation of a 1967 aerial photograph of the area obtained from Pacific Aerial Surveys, Photo No. AV-784-12-06, flown on February 20, 1967, and comparison with the existing site topographical features, we observed no regression of the top of the bluff during that time. However, for planning purposes, we are recommending an average maximum local bluff recession rate to be equal to or less than 0.263 feet per year or 3.16 inches per year or 0.08 meters per year, for a 75-year estimated bluff recession rated amount of about 19.7 feet, or 6 meters.

We have found that aerial photos obtained from Pacific Aerial Surveys are taken closer to the ground and are more readily available with respect to time as compared to U.S. Geological Survey photos, which are taken from higher altitudes and, thus, show less detail.

Based upon our site observation, review of an older aerial photo of the area as well as our 32 years of geotechnical engineering experience along the northern California coast, we are recommending a minimum bluff set-back of at least 20 feet for a minimum 75 year structure life so as to fulfill the intent of the requirements of the California Coastal Commission. However, so as to take advantage of the wind sheltering effect of the trees, the owner plans to place the house in the southeastern portion of the property much more removed from the bluff area than required.

Foundations - Our foundation recommendations are based on the assumption that the proposed house and garage-studio will be located in the southeastern portion of the property, moderately close to the road area and well removed from the bluff area as indicated to us in the field. However, if the proposed house is located in closer proximity to the 75 year minimum bluff set-back, then only deeper and stronger drilled pier and grade beam foundations may be used in that area.

In the two following sections of this report we have provided foundation recommendations for deeper drilled pier and grade beam foundations bottoming well into the underlying sedimentary bedrock materials that we have indicated as Foundation Alternate I, and the use of deepened and stiffened spread footing foundations as Foundation Alternate II.

Because the site soils are quite soft and weak in the upper several feet, we recommend that habitable portions of the proposed house be provided with wood joist floors.

In the following two portions of this report we are providing foundation recommendations for Foundation Alternate I and Foundation Alternate II.

Foundation Alternate I. Drilled Piers Into Bedrock - The proposed structure may be placed upon drilled pier and grade beam foundations extending into the underlying sandstone bedrock. In general, the bluff area exposes about 6 to 8 feet of soil materials, including marine terrace alluvium, underlain by sandstone bedrock materials. Test Pit 1 encountered up to about 12.5 feet of soil materials consisting mostly of marine terrace alluvium underlain by siltstone bedrock materials at a depth of 12.5 feet.

The drilled piers should be at least 16 inches in diameter and drilled at least 6 feet into harder and competent well-confined bedrock materials.

For vertical loading, only the portion of the drilled pier within the underlying bedrock materials should be counted in design calculations. The portion of the drilled pier within the bedrock may be designed for total design loads of 800 pounds per square foot, skin friction.

For resistance to transitory lateral loads such as wind or seismic, the soil materials may be assumed to provide a lateral passive resistance of 100 pounds per cubic foot, equivalent fluid weight, acting upon 1.5 pier diameters with the top 1 foot of the soil materials neglected. This value may be increased to 400 pounds per cubic foot, equivalent fluid weight, acting upon 2 pier diameters, once the surface of the underlying bedrock is reached.

For vertical uplift loading, a value of 400 pounds per square foot, skin friction, may be used only for the portion of the drilled pier within the underlying bedrock. No downward or upward vertical load design allowance should be allowed for the portion of the drilled pier within the soil zone.

Wood joist floors should be used.

It is important that the pier holes be promptly poured after they are drilled. If the pier holes are not promptly poured after they are drilled, then the skin friction between the piers and the adjacent earth materials could be adversely affected resulting in a pier of lesser capacity than designed and the contractor and the owner would have to accept the fact that such not promptly poured piers could be of less than 100 percent of design effectiveness.

Minimum recommended foundation details are shown on Plate 9. However, the actual house foundation details will have to be determined by your structural civil engineer with our consultation.

The preceding drilled pier and grade beam recommendations are based upon the assumption that the proposed house and garage-studio will be located within Foundation Zone A that is well removed from the bluff set-back area. However, if portions of the proposed house are in closer proximity to the estimated maximum bluff recession location in 75 years, then the drilled pier foundation should be deeper and stronger so as to help mitigate lateral soil creep effects and conform with the minimum requirements as shown on Plate 10 for Foundation Zone B.

For Foundation Zone B, the drilled piers should be at least 18 inches in diameter and drilled at least 10 feet into harder and competent well-confined bedrock materials. The drilled piers should also be designed for lateral soil creep forces of at least 50 pounds per cubic foot, equivalent fluid weight, acting upon the top 8 feet of the piers upon 2 pier diameters. The portion of the drilled piers within the underlying bedrock may be assumed to provide a design passive lateral resistance of 400 pounds per cubic foot, equivalent fluid weight, acting upon 2 pier diameters.

All drilled piers should be connected with grade beams in both the upslope-downslope direction and the side-to-side direction.

The main advantage of the drilled pier and grade beam foundation system is that the pier holes will bottom well into the underlying sandstone bedrock formation and no or negligible settlement would occur to the house foundation. The main disadvantage of the drilled pier and grade beam foundation system is that during our investigation, the perched ground water table was encountered at a depth of about 4.5 feet and the test pit encountered moderate caving below a depth of 2 feet. If the subsurface conditions remain wet in the summer season, when we anticipate the proposed drilled pier foundation will be drilled and poured, the presence of a locally perched higher ground water table and wet conditions would require that the pier holes be promptly poured after each pier is drilled and casing might be required in the caving zone.

Foundation Alternate II, Stiffened and Deepened Continuous Spread Footings - The proposed house may be placed upon stiffened and deepened continuous spread footing foundations bottoming a minimum of 3 feet below the existing ground surface and also a minimum of 3 feet below the final ground surface. The minimum 3 foot depth is necessary so as to penetrate through the soft and medium stiff upper soils and bottom in at least just stiff soils.

Wood joist floor should be used.

Minimum recommended foundation details are shown on Plate 11. However, the actual house foundation details will have to be determined by your structural civil engineer with our consultation.

The grid type footings should be a minimum of 36 inches in depth and a minimum of 24 inches in width. The grid type footings should be very well reinforced so as to span over and help tolerate and distribute possible slight differential performance and differential settlement effects. The grid type footing should be located upon a mutually perpendicular grid pattern of no more than about 20 foot centers. The bottoms of the footings may be designed for a bearing capacity of 1,000 pounds per square foot. For resistance to transitory lateral loads, such as wind or seismic, a passive pressure resistance of 100 pounds per cubic foot, equivalent fluid weight, may be used.

The advantage of the deepened and stiffened continuous spread footings of Foundation Alternate II is that the construction excavation should not extend below the temporary perched ground water level and the foundation costs and construction procedures can be more easily estimated in advance. The disadvantage of the stiffened grid type foundation system is that some slight differential settlement and differential performance may occur. However, we believe the mitigating measure of providing significant greater than average steel reinforcement in the grid type foundation should result in a level of performance compatible with contemporary residential construction.

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Drainage - Site drainage water should be dispersed in as natural a manner as possible and not concentrated and discharged adjacent to or near the bluff area.

Additional general drainage discussion is provided in Appendix 1.

Seismicity and Earthquake Hazards - Review of the state of California Division of Mines & Geology Fault Map of California (1975 and 1994) and the Alquist-Priolo Special Fault Study Zone Maps for the Gualala and Point Arena Northeast Quadrangles prepared by the California Division of Mines & Geology in 1974 indicates that the site is located about 4 miles west of the San Andreas fault and about 33 miles west of the Maacama Fault, as well as being within the zone of influence of other active faults in the greater northern California area.

Therefore, it is our opinion that the site could be subjected to strong earthquake vibrations at least once during its useful life. We recommend that all structural, architectural and mechanical details be designed to resist earthquake ground shaking. The design engineer should emphasize the principles of continuity, ductility and high energy absorption.

We trust this report provides the information you require. Please call if you have further questions.

The following are attached and complete this report:

- Plate 1 - Site Location Map
- Plate 2 - Site Plan
- Plate 3 - Log of Test Pit
- Plate 4 - Soil Classification Chart
- Plate 5 - Expansion Test Results
- Plates 6 thru 8 - Bluff Profiles
- Plates 9 thru 11 - Foundation Details
- Appendix 1 - Site Drainage
- Appendix 2 - Subdrain Details
- Appendix 3.1 - House Appendages
- Appendix 6 - Construction Safety
- Appendix 7.1 - Wind Loading

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Appendix 9 - Limitations

Appendix 10 - Construction Observation

Appendix A - General Recommendations, Risks, Material Notes,
Responsibility, Limitations and Related Items

Appendix C - Concrete Slabs

Appendix G - General Foundation Notes

Appendix S - Sidewalks, Curbs, Patios, Etc.

Appendix V - Vegetation Erosion Control

Yours very truly,

EARTH SCIENCE CONSULTANTS

Jay A. Nelson

Principal Geotechnical Engineer

Civil Engineer - 19738, expires 9/30/01

Geotechnical Engineer 630



1 copy submitted

2cc: David Cooke/COBA

P. O. Box 652

Forest Falls, CA 92339

cc: David R. Miller, REHS

D&C Consulting Services

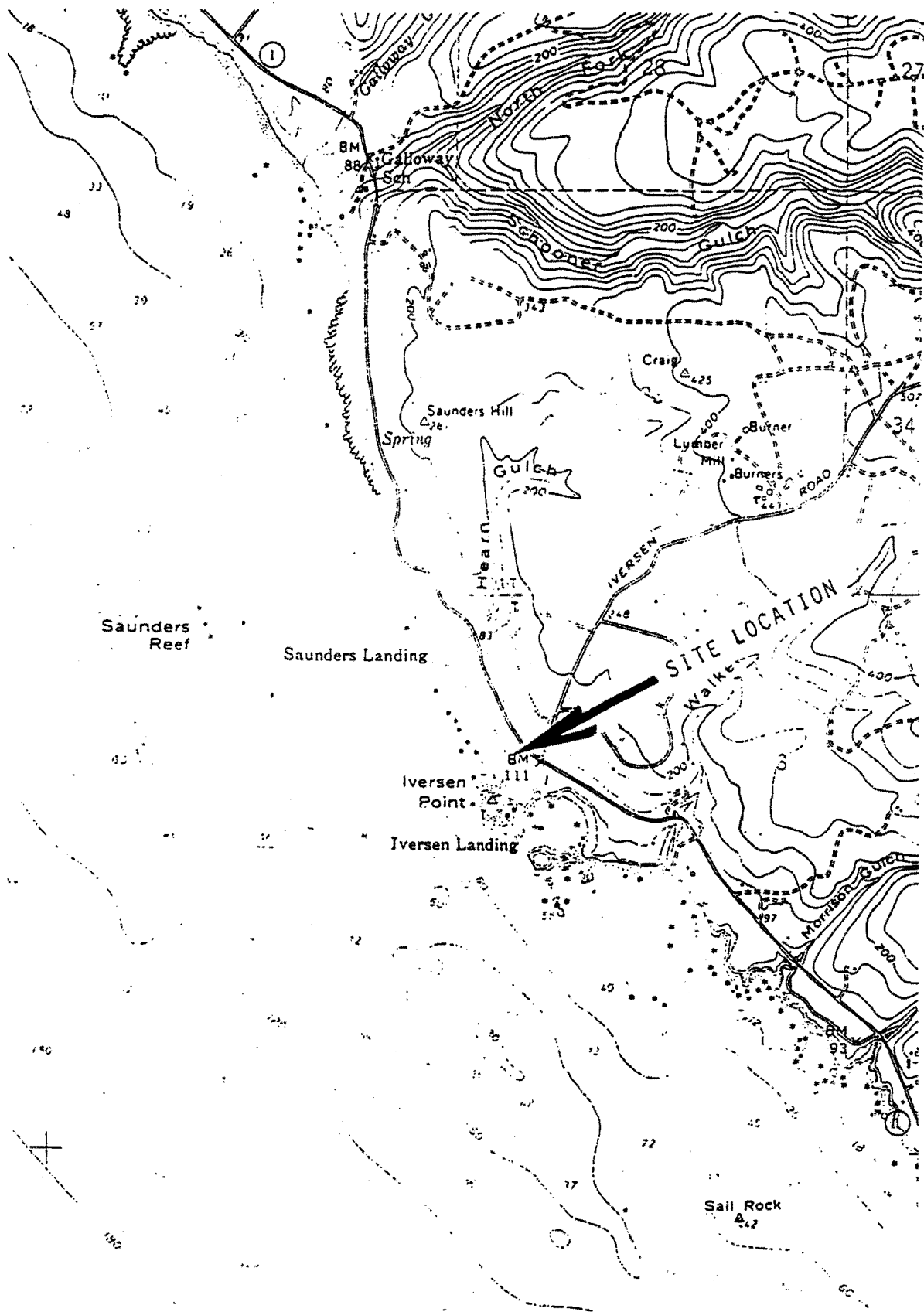
P. O. Box 247

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cc: Matheson Design

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Site Location Map

Plate

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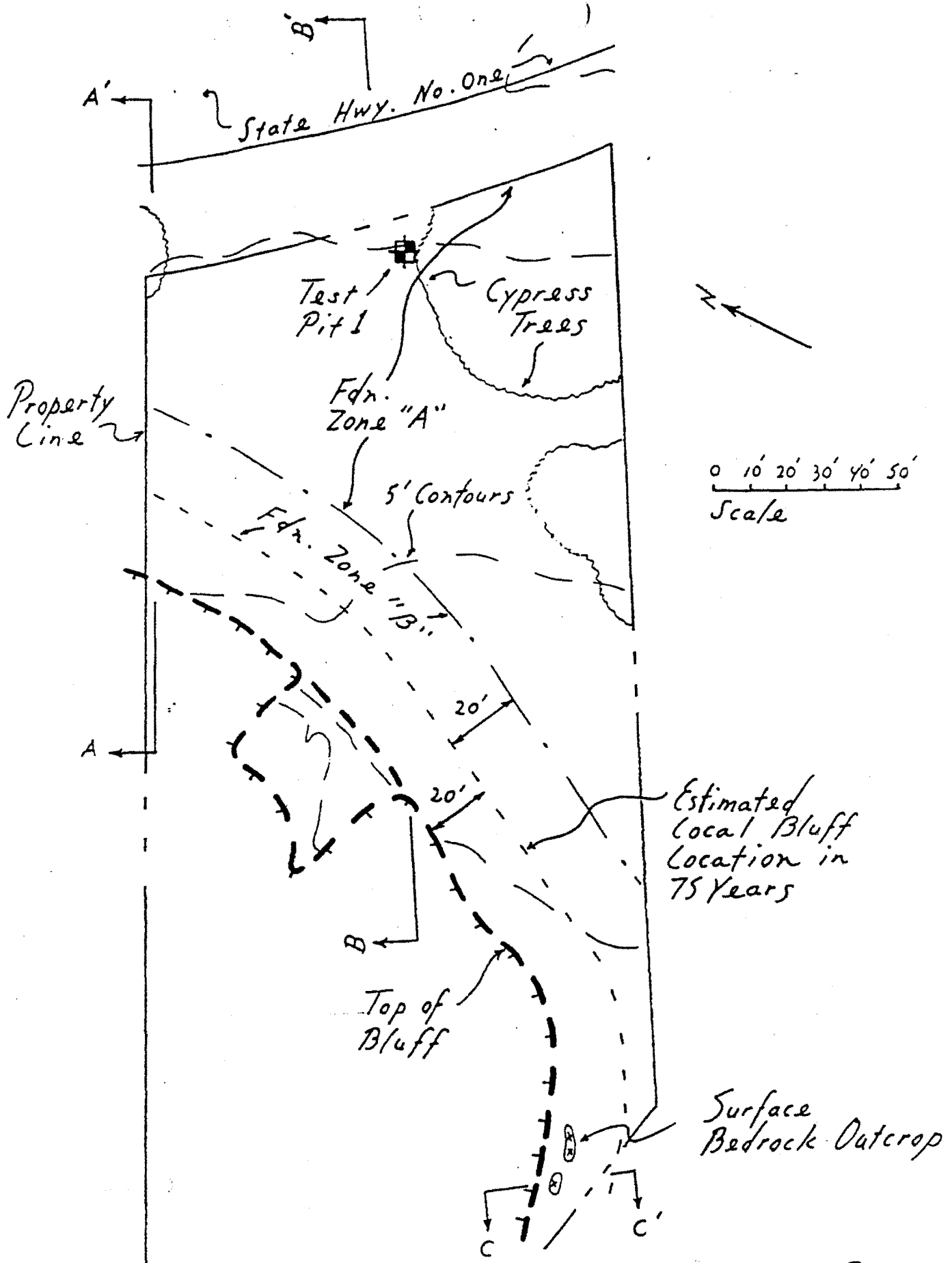
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Mendocino Co. CA

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Date 1-20-98

20



Site Plan

Plate

a.p. 142-031-03-05

Iversen Pt.

m / / / /

T.L. No. 983357 Date 1-20-98

2 21

LOG OF Test Pit 1

Equipment Backhoe
Elevation Exist. Gr. Date 1-15-98

Shear Strength (lbs/sq. ft)
5000
4000
3000
2000
1000
0

Moisture Content (%)
Dry

Density (pcf)

Depth (ft)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Sample

Blows/Ft. *

Water Level
1-15-98

BLACK SANDY SILT (ML), soft, wet
(topsoil)

GRAY BROWN SANDY CLAY (CL), med.
stiff, wet
Moderate caving below 2'

LIGHT GRAY BROWN & ORANGE BROWN SANDY
CLAY (CL), stiff, wet

LIGHT BROWN & RUST BROWN SANDY SILT
(ML), stiff, saturated, with
angular & rounded small rock
fragments (Qmts-Marine Terrace
Alluvium)

LIGHT BROWN & RUST BROWN SILTY FINE
SAND (SM), med. dense, saturated
(Qmts)

LIGHT GRAY BROWN & RUST BROWN SILTY
SAND (SM), med. dense (Qmts)

DARK GRAY SILTSTONE, massive, weath-
ered, med. hard (Pgr)

The log of subsurface conditions shown herein applies only at the specific boring or test pit or probe location on the date indicated. It may not be representative of subsurface conditions at other locations and/or other times.

* Standard Penetration Test

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Job No 983357 Appr. Jan Date 1-20-98

LOG OF Test Pit 1

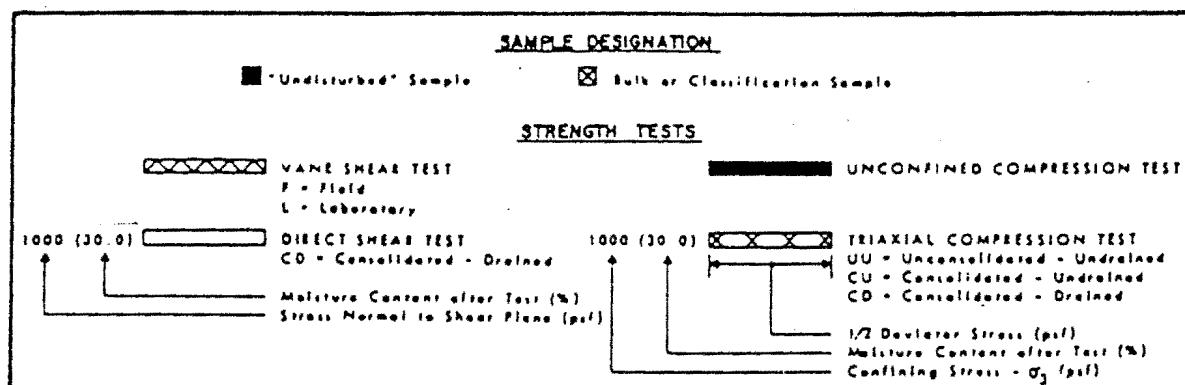
A.P. 142:031-03-05
Iversen Pt.
Mendocino Co., CA

PLATE

3

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS MORE THAN HALF IS LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL - SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL - SAND - SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL - SAND - CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND - SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN HALF IS SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
		OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

UNIFIED SOIL CLASSIFICATION SYSTEM



KEY TO TEST DATA

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SOIL CLASSIFICATION CHART

PLATE

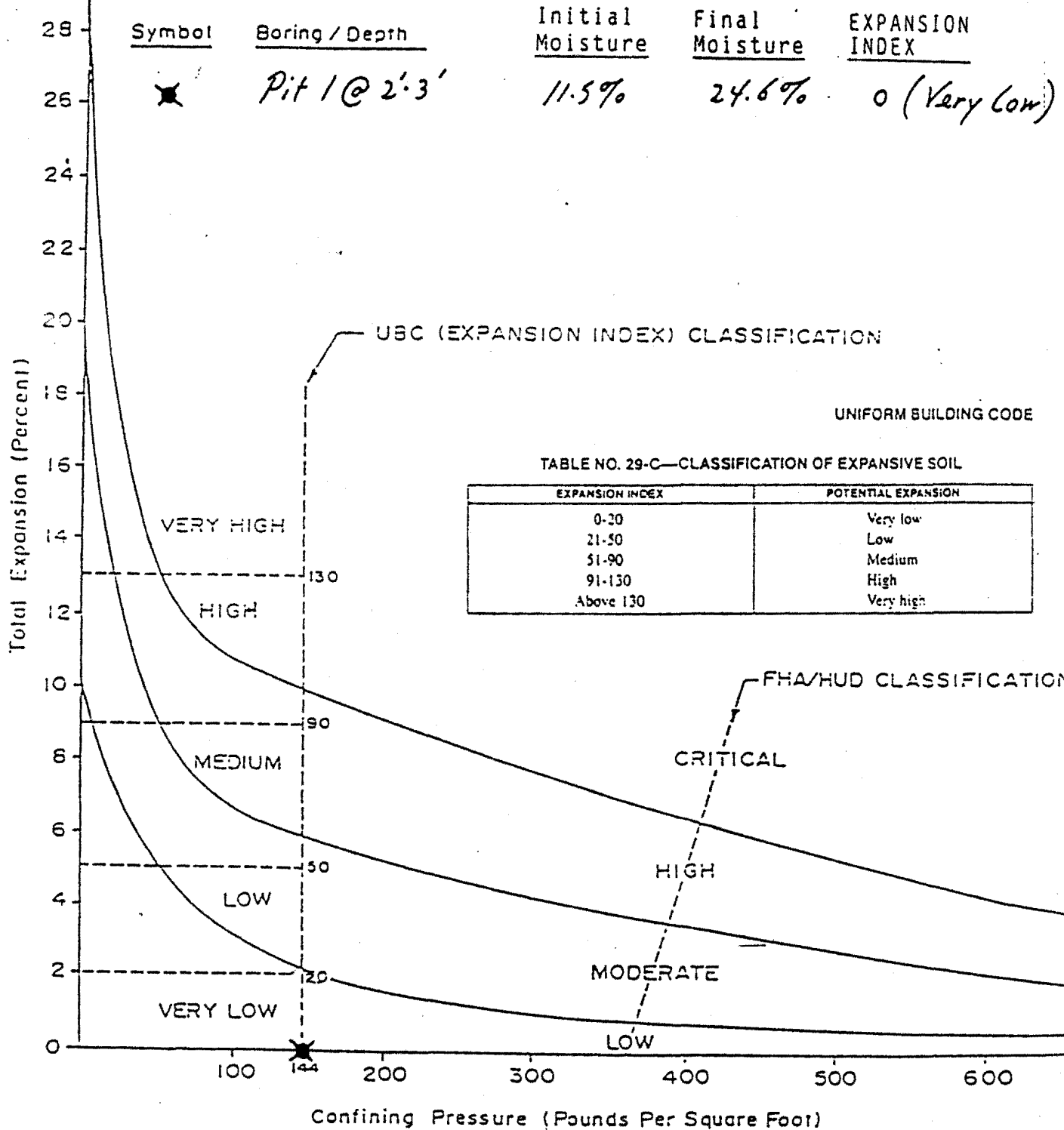
Job No. 983357 Appr. [Signature] Date 1-20-98

A.P. 142-031-03-05
Iversen Pt.
Mendocino Co., CA

4

EXPANSION INDEX TEST (UBC 29-2)

(4" diameter x 1" thick specimen, 144 psf surcharge; 24 hr saturation)
(90 percent relative compaction at optimum moisture per ASTM 1557)



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EXPANSION TEST RESULTS

Q.P. 142-031-03-05
Iversen Pt.
Mendocino Co., CA

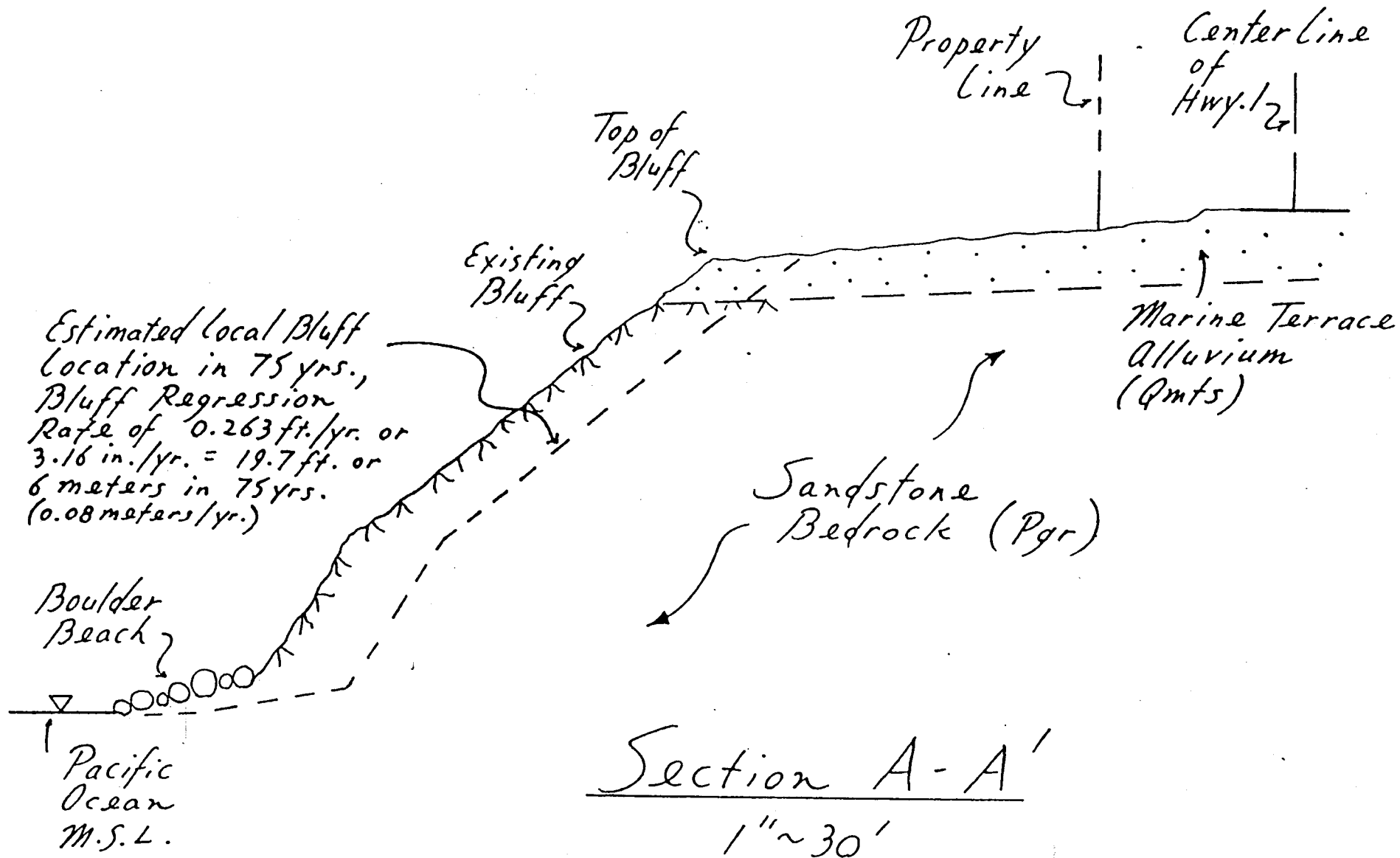
PLATE

5

Job No. 983357

Appr. *[Signature]*

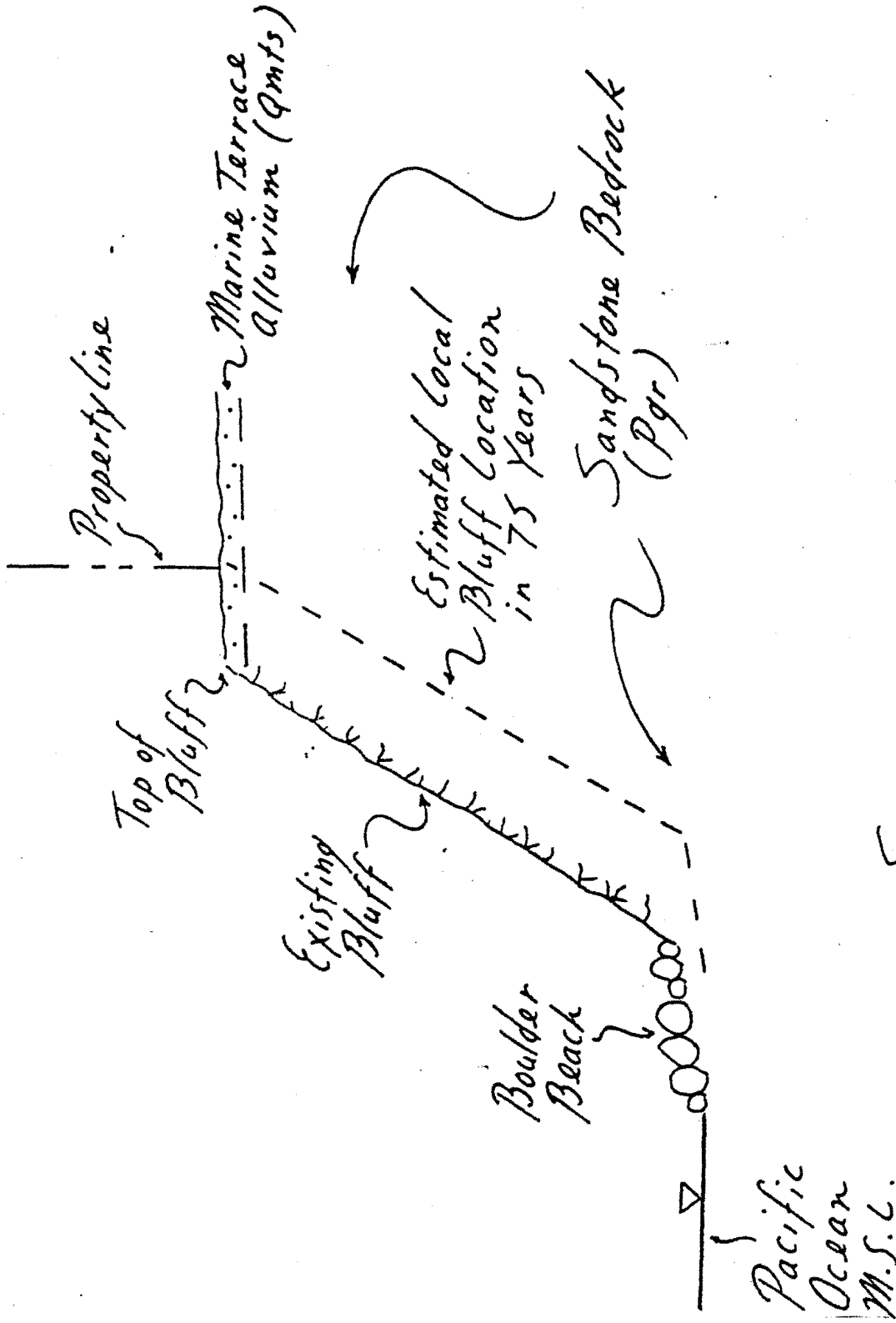
Date 1-20-98



Job No. 983357 Appr. Jan Date 1.20.98

Bluff Profile
A.P. 142-031-03-05
Iversen Pt.
Mendocino Co., CA

Plate
6



Section C-C'

1" ~ 30'

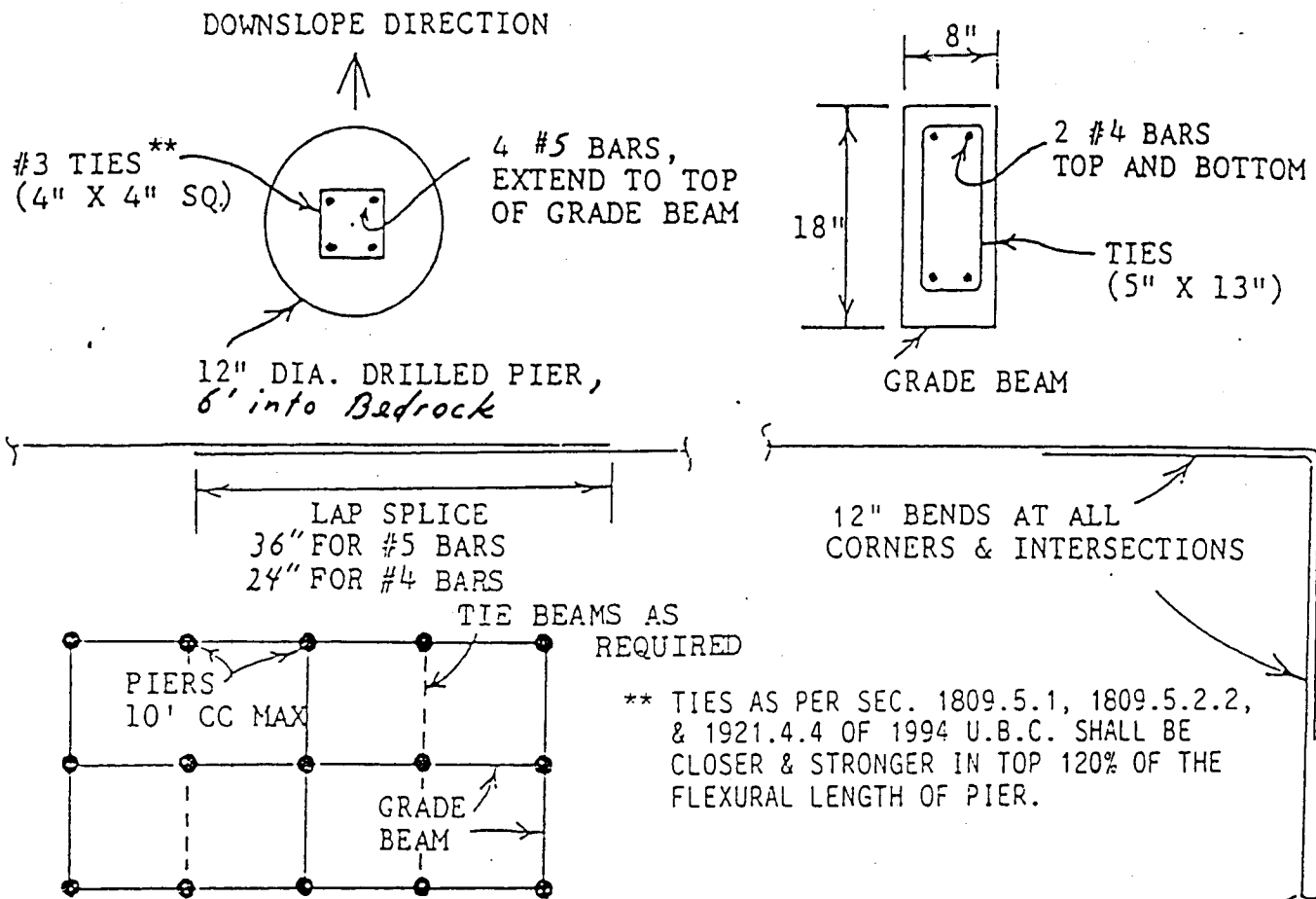
Bluff Profile

a.p. 142-031-03-05
Iversen Pfr.
Mendocino Co., CA

Job No. 983357 Appr. Jan Date 4-20-98

Plate

8



TYPICAL FOUNDATION LAYOUT

1. RECOMMENDED MINIMUM FOUNDATION DETAILS FROM THE CONCEPTUAL GEOTECHNICAL ENGINEERING STANDPOINT. HOWEVER, THE ACTUAL FOUNDATION DETAILS WILL HAVE TO BE DETERMINED BY THE STRUCTURAL CIVIL ENGINEER.*
2. THE FOUNDATION SHOULD ALSO BE DESIGNED TO RESIST THE MINIMUM LOADS AS REQUIRED BY THE UNIFORM BUILDING CODE.
3. REINF. STEEL SHOULD BE #40 GRADE, ASTM A615-40 OR BETTER.
4. WOOD JOIST FLOORS SHOULD BE USED.
5. SOIL ENGINEER SHOULD PERIODICALLY OBSERVE DRILLING OF PIER HOLES.
6. FOUNDATION STRUCTURAL ENGINEER SHOULD OBSERVE STEEL & FORMS PRIOR TO CONCRETE POURS.

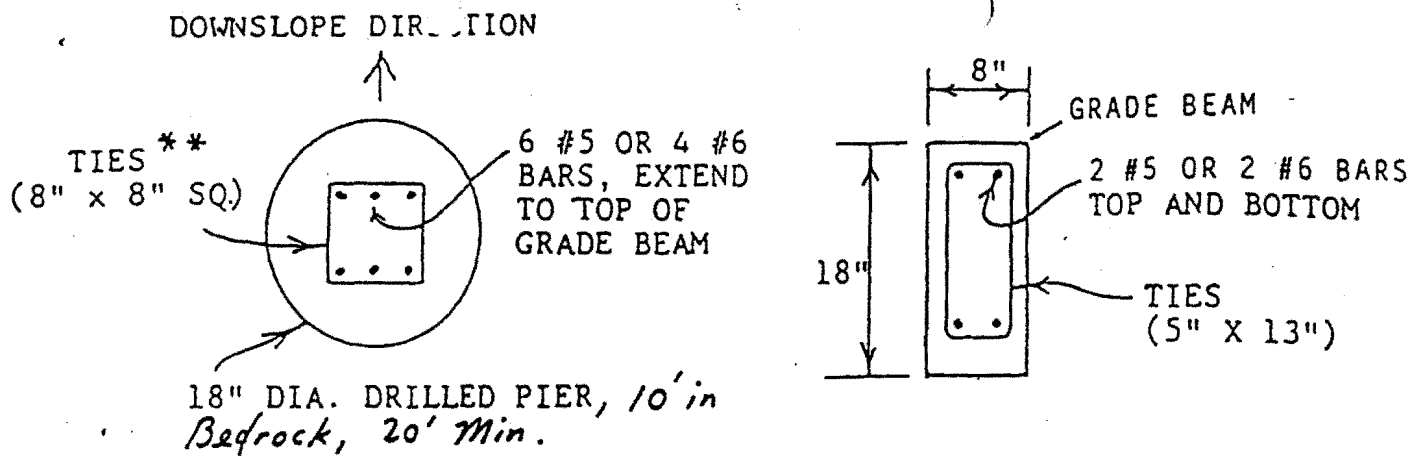
* Unless approved by geotechnical engineer with supplemental consultation

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FOUNDATION DETAILS - Alt. I (Zone A) PLATE
Q.P. 142-031-03-05
Iversen Pt.
Mendocino Co., CA

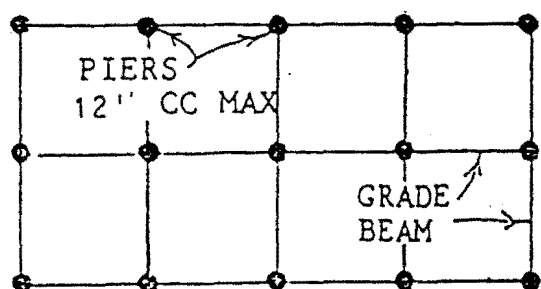
Job No. 983357 Appr. *[Signature]* Date 1-20-98

9



LAP SPLICE
36" FOR #5 BARS
48" FOR #6 BARS

12" BENDS AT ALL
CORNERS & INTERSECTIONS



** Ties as per Sec. 1809.5.1,
1809.5.2.2, & 1921.4.4 of
1994 U.B.C. Shall be
closer & stronger in top
120% of the flexural
length of pier.

TYPICAL FOUNDATION LAYOUT

1. RECOMMENDED MINIMUM FOUNDATION DETAILS FROM THE CONCEPTUAL GEOTECHNICAL ENGINEERING STANDPOINT. HOWEVER, THE ACTUAL FOUNDATION DETAILS WILL HAVE TO BE DETERMINED BY THE STRUCTURAL CIVIL ENGINEER.*
2. THE FOUNDATION SHOULD ALSO BE DESIGNED TO RESIST THE MINIMUM LOADS AS REQUIRED BY THE UNIFORM BUILDING CODE.
3. REINF. STEEL SHOULD BE #40 GRADE, ASTM A615-40 OR BETTER.
4. WOOD JOIST FLOORS SHOULD BE USED.
5. SOIL ENGINEER SHOULD PERIODICALLY OBSERVE DRILLING OF PIER HOLES.
6. FOUNDATION STRUCTURAL ENGINEER SHOULD OBSERVE STEEL & FORMS PRIOR TO CONCRETE POURS.

* Unless approved by geotechnical engineer with supplemental consultation

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FOUNDATION DETAILS - A1.1 (Zone B)

PLATE

A.P. 142-031-03-05

Iversen Pl.

Mendocino Co. CA

10

Job No. 983357

Appr. [Signature]

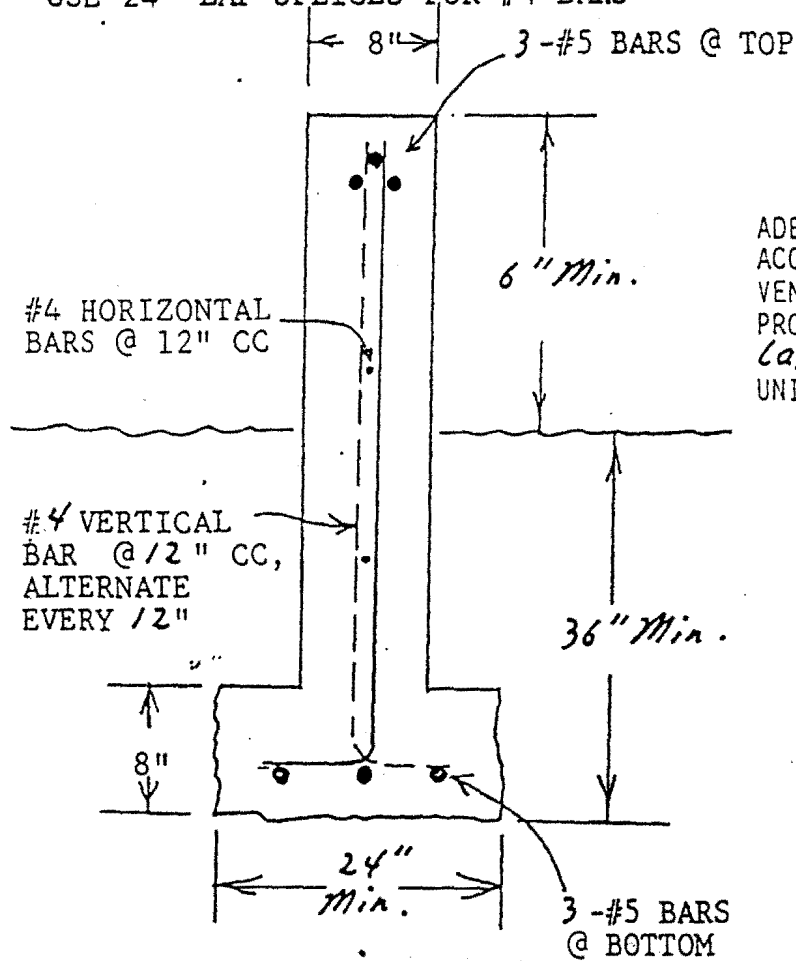
Date: 1-20-98

ALL EXTERIOR AND INTERIOR FOUNDATIONS SHOULD BE
CONTINUOUS AND NO ISOLATED FOOTINGS SHOULD BE USED
SO AS TO HELP CONTROL DIFFERENTIAL SETTLEMENT EFFECTS.

USE 24" MIN. BENDS @ ALL CORNERS
AND INTERSECTIONS

USE 36" LAP SPLICES FOR #5 BARS

USE 24" LAP SPLICES FOR #4 BARS



PLACE ABOVE FOUNDATIONS
IN BOTH DIRECTIONS
NO MORE THAN 20' APART

** For Zone "A" Only*

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FOUNDATION DETAILS • Aft. II *
Q.P. 142-031-03-05
Iversen Pt.
Mendocino Co., CA

PLATE

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Job No. 983357 Appr. *[Signature]* Date 1-20-98

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SOIL • FOUNDATION AND GEOLOGICAL ENGINEERS

P. O. BOX 3410/SAN RAFAEL/CALIFORNIA 94912-3410/ (415) 383-0935

June 4, 1999

Job No. 993357

Rosemarie Jones

P.O. Box 69

Trinity Center, CA 96091

RECEIVED

JUN 16 1999

CALIFORNIA
COASTAL COMMISSION

RE: Clarification of Certain
Geotechnical Considerations
Klute/Jones Residence
A.P.142-031-03-05
Iversen Landing Subdivision
Iversen Point
Mendocino, California

EXHIBIT NO.	6
APPLICATION NO.	A-1-MEN-99-26 KLUTE
Geotechnical Addendum	
Page 1 of 15	

INTRODUCTION

The purpose of this correspondence is to clarify certain geotechnical considerations with respect to the proposed residence.

I previously have performed a geotechnical investigation report at this site that summarized the physical surface and subsurface conditions dated January 22, 1998.

Between 1960 and 1965 I attended the University of California at Berkeley and since 1966 to the present have been continuously employed as a geotechnical engineer in Northern California. In late 1966 I performed a geotechnical investigation in the coastal area of Mendocino County and since that time I have performed numerous studies along the California coast in the area of the San Andreas fault and ocean bluff areas under the jurisdiction of the

California Coastal Commission, including studies at Big Sur, Muir Beach, Stinson Beach, Bolinas, Inverness, Point Reyes, Dillon Beach, Bodega Bay, Jenner, Gualala, Anchor Bay, Point Arena, Irish Beach, Albion, Whiskey Shoals, Elk, Little River, Mendocino, Caspar, Fort Bragg and Eureka.

I grew up in Martinez and attended the local schools there prior to entering the University of California. I worked for the larger firm of Harding-Lawson Associates from 1966 to 1973 and since that time I have been self-employed. I am married with 3 sons, ages 20, 22 and 24. I perform geotechnical peer review of reports of other geotechnical engineers for the Town of San Anselmo. In addition to working for private clients, I have provided geotechnical services for the City of Tiburon, Town of Belvedere, City of Petaluma, City of Oakland, San Quentin Prison, Leggett Justice Court District, and the U.S. Army. Over the years I have performed a few hundred geotechnical evaluations pertaining to disputes between property owners pertaining to stability and land subsidence considerations and have testified in the Superior Courts of Marin County, San Francisco County and Alameda County and have given numerous depositions in these matters.

BACKGROUND AND DISCUSSION

Based upon my recent telephone conferences with the owner of the property and her planning-construction consultant, I understand a group of local property owners have expressed their concerns in their correspondence dated April 21, 1999. I was also told that the house location and design has been re-done 4 times in response to planning and the opposition of local property owners. I recently was provided with house Site Plan No. 4 as prepared by Matheson Design.

When I performed the geotechnical investigation in early 1998, the owners indicated to me that they only had a general vague idea as to the house location and design and my investigation was performed with respect to the physical surface and subsurface conditions of the site and not with respect to a particular design or location.

From my vantage point, during the last several years generally throughout the greater Bay Area and Northern California, most residential house projects and additions are frequently opposed by the local property owners and this phenomena occurs not only in high profile or scenic areas, but also upon routine and average sites in typical residential areas. Generally most of the opponents to the proposed house projects upon which I work attack projects for a number of reasons and generally always include site instability. Also, I occasionally perform geotechnical evaluations to be used by individuals or groups that are opposed to certain construction. Thus, I have found that opposition documents and appeal of projects beyond the planning and planning commission level to be ordinary and average generally in the Bay Area and Northern California where I practice and generally it is unusual for the neighboring property owners and property owner groups to not be in opposition.

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Page 4 - June 4, 1999

My geotechnical studies and evaluations are performed from a neutral standpoint, based solely upon the site physical surface and subsurface conditions.

RATE OF BLUFF EROSION-REGRESSION

About 20 years ago I became aware that the California Coastal Commission desired an estimated structural life of 75 years for structures located within their jurisdiction along the California coast. The 75 year requirement was not determined by me and I used the 75 year value in my evaluation of the Iversen Point property as mandated by the California Coastal Commission.

About 8 years ago the County of Mendocino Planning Department added a requirement of the geotechnical consultant estimating the rate of bluff regression in meters and/or inches per year based upon the recommended procedure of utilizing aerial photos and/or other appropriate methods. Up until that time the providing for an estimated 75 year structural life was based upon the professional opinion of the consultant based upon the quality and hardness of the bedrock, its geologic age, its inclination and visual evidence or lack of evidence of recent deterioration and erosion, sloughing and/or sliding and providing a reasonably conservative bluff setback and providing foundation recommendations consisting of deeper and stronger drilled piers.

With respect to aerial photos, I have found that aerial photos obtained from the U.S. Geological Survey generally are taken from a much higher elevation and it is more difficult to determine an appropriate rate of bluff regression. However, on one occasion—about 32 years ago in 1967, Pacific Aerial Surveys of Oakland flew most of the northern California coast at an elevation considerably lower than the ordinary and average U.S. Geologic Survey aerial photos and I have found that those aerial photos when viewed under magnification varying from 6x to 22x and also enlarged and comparison with the current site geometry provide a reasonably reliable method of determining whether the bluff has significantly

regressed during that time. It should be realized that before about 1950 aerial photos generally were not flown and generally are not available.

As I recollect, over many years of performing numerous studies along the California coast, older lot maps accurately indicating the location of the bluff top, at the time the map was performed, generally are not available for most lots and therefore the aerial photograph method is the ordinary and average method of determination of the estimated rate of bluff regression and also is the method described in literature I have previously received from the County of Mendocino Planning Department. From my recollection of many studies I have performed along the northern California coast, I can only recollect about three instances where older individual lot maps were available to me of sufficient accuracy and with sufficient survey points indicated so as to determine the top of the bluff location a considerable time in the past and then compare it with the current site topography.

During the last 8 years when it has been required for the geotechnical consultant to provide a numerical rate of bluff regression as mandated by the County of Mendocino Planning Department, for the numerous studies I have performed along the Mendocino county coast during that time, I generally have used the lower elevation 1967 Pacific Aerial Survey photos that can be obtained from the Pacific Aerial Surveys near the Oakland airport for a fee of about \$75.00 each. I obtain the aerial photo of the area of the coast where I am performing a study prior to visiting the site so that I can try to determine and locate prominent landmarks and physical features that are easily evident on the

aerial photo and also easily observable during my visual observation. The most common prominent landmark with respect to the location of the bluff top is from the center of Highway 1. By observing the aerial photo with aerial photo magnifying glasses varying from 6 power to 22 power and also enlarging the aerial photo of the property and viewing the enlargement with magnifying glasses and obtaining a horizontal linear scale by determining the distance between 2 easily recognizable points (such as the intersection of a particular road with a main road and a side road that is shown on the U.S. Geological map of the area and is shown on the older aerial photo and also is measurable in the field), I have found that it is possible to determine with an accuracy of a few feet as to how much the bluff has receded between 1967 and present.

I have performed 5 geotechnical evaluations within the older 14 lot subdivision located adjacent to the bluff at Whiskey Shoals where the bluff bedrock is younger and weaker and more exposed and by using the enlarged magnifying analysis of aerial photos as previously described, generally I can locate within a property or nearby where a portion of the bluff has receded about 8 feet to 16 feet since the aerial photo was flown in 1967. Then in the field I can observe the bluff and locate the areas of more recent bluff erosion and regression that correlates with that observed on the aerial photo and perform tape measurement from the center line of Highway 1 to the edge of the bluff in the area in question and thus can determine an approximate rate of bluff regression as indicated by the County of Mendocino Planning Department of meters per year and/or inches or feet per year.

I can recollect that during the last 8 years for northern California coastal sites I have found that by observing the aerial photos and enlarged aerial photos under higher magnification and comparing that with the field measurement of the current site topography, that the rate of bluff erosion calculated generally

varies from 3 to 4 inches and locally 6 inches and occasionally no regression has occurred. The areas where the bluff recedes faster is where the underlying bedrock is younger and weaker and more directly exposed to wave action. Those areas where I find no evidence of bluff regression since 1967 are those areas where the underlying bedrock materials are older and stronger and harder and less exposed to the prevailing waves and storm waves due to the orientation of the bluff with respect to the sea and the presence of adjacent points, peninsulas and the presence of sea mounts or sea stacks. Sea mounts or sea stacks are in essence very hard erosion resistant rock that have not weathered and washed away that consist of small rocky islands adjacent to the coast.

In my 1998 geotechnical evaluation report for this property, I indicated on page 4 that "Observation of the 'Geologic Map of the Santa Rosa Quadrangle Regional Geologic Map Series,' compiled by D. Wagner and E. Bortugno of the California Division of Mines and Geology in 1982, indicates that the site is plotted as being underlain by sedimentary bedrock materials of the German Rancho Formation (Pgr) of Paleocene geologic age consisting of marine sandstone and mudstone with the outer portions of the protruding points and land in the general area plotted as consisting of the Iversen basalt (Mib) of Miocene geologic age."

At the end of page 4 and at the beginning of page 5 of my previous geotechnical evaluation report I indicated that "The base of the bluff at the Klute property is moderately well sheltered by the adjacent protruding land points to the south and north that are of the harder Iversen basalt and also is further protected by the abundant large sea rocks and sea mounts moderately close to to the

base of the bluff area varying from about 40 feet to 75 feet across that tends to significantly dissipate wave energy prior to reaching the rocky beach area at the base of the bluff. On the Site Location Map, Plate 1 that is a copy of a portion of the U.S. Geological Survey topographical map of the Saunders Reef 7.5-Minute Quadrangle, the abundant sea mounts and sea rocks are plotted.

The geological literature of the area indicates that the site is underlain by bedrock materials of Paleocene geologic age that is about 65 to 54 million years of age. In contrast, the weaker and more erodable rocks at Whiskey Shoals were by field observation, aerial photo analysis and review of an older accurate available survey map of one lot revealed calculated average bluff erosion rates of 3 inches to 6 inches per year. The bedrock materials at Whiskey Shoals are of Miocene geologic age and vary from about 7 to 26 million years of age.

I have performed 2 geotechnical evaluations at Bolinas in Marin County where the combination of younger and weaker bedrock materials and high exposure to both ordinary and average prevailing waves and southwesterly storm waves result in a calculated average rate of bluff regression of about 12 inches per year.

During the El Nino storm season I visited the bluff area in Pacifica where a number of houses were beginning to fall off the bluff top due to bluff erosion. I observed that the bluff materials were very young Pliocene and Pleistocene deposits and consisted of lightly cemented sandy deposits of no more that 3 to 4 million years of age.

In summary, the rate of bluff along the northern California coast

is quite variable and is primarily a function of the age and hardness of the underlying bedrock materials and the exposure to both normal and storm wave erosion. In those areas where my aerial photo analysis and field observations have revealed higher rates of bluff erosion, the bedrock materials have been younger and weaker and more exposed. However, in those areas where the underlying bedrock materials are older and harder and less exposed, both my aerial photo observation and field observations have revealed no evidence of historically recent bluff regression. Thus, I have found a high correlation between my aerial photo analysis and the age and exposure of the geologic formation and the presence and/or absence of areas of visually observable recent bluff regressions.

At the Iversen Point property in question, my aerial photo analysis based upon 2 typical representative cross sections that were also field measured and visually observed revealed no noticeable bluff regression since 1967. This correlates with the older and harder and less exposed bedrock materials and thus correlates with the absence or presence of recent bluff regression with respect to other geotechnical evaluations I have performed. For comparison purposes, I find that about 1/3 to 1/4 of the geotechnical evaluations I performed along the California coast show no apparent bluff regression in the last 32 years while about 2/3 to 3/4 of the sites due show evidence of noticeable bluff regression.

It should be realized that the availability of aerial photos is much more limited for a rural forested area such as Mendocino County and it is my opinion that the results of my aerial photo analysis are as best as I can perform due to the unavailability of older lower aerial photos.

At the Iversen Point property in question, by using the method of bluff regression calculation as indicated by the County of Mendocino Planning Department, the measured amount of bluff regression was 0 and therefore the bluff setback could have been 0 feet based solely upon geotechnical engineering considerations. However, based upon my more than 30 years of geotechnical experience, I made the engineering judgement that it would be prudent to have a 20 foot minimum top of bluff setback so as to account for possible regression of the outer portion of the bedrock materials that gradually weather with time. It should be noted that when I performed my geotechnical evaluation in 1998, the house location had not been determined and the building and bluff setbacks as indicated in that report and as indicated on the Site Plan-Plate 2, and cross sections were based upon the actual site physical and bedrock conditions and my considerable experience along bluff areas not only along the California coast, but also with a great number of bluff evaluations of the bay front bluffs of Tiburon, Belvedere and Point Richmond.

The reason that the house No. 4 Site Plan reveals a 20 foot minimum top of bluff setback is that in January of 1998 I recommended a 20 foot minimum bluff setback as indicated in the report before the plans had been drawn and thus the bluff setback was determined by me, then the plans drawn and not vice-versa as the local property owners association has alleged.

The local property owners association attacks the use of the 75 year structure life as used in the report, but as indicated earlier in this correspondence, that amount of time is the amount required by both the California Coastal Commission and the County of Mendocino Planning Department. The 75 year value was not determined by me.

SEA WALLS

The local property owners association makes reference to the visual blight of future sea walls.

Along the California coast, sea walls have been constructed when older houses were placed in closer proximity of bluff area, during an era of lesser controls prior to regulation by the California Coastal Commission, where the underlying bedrock materials are younger, weaker and more exposed.

I have found by personal observation and personal experience that sea walls have not been required or necessary or installed where the bedrock materials are older and harder and the site is not well exposed to the prevailing and storm waves and where the houses have been reasonably set back from the edge of the bluff area in consideration of the underlying geology.

With respect to the Iversen Point site in question, the underlying bedrock materials are older, harder and relatively well protected and therefore the concern for the visual blight of a future sea wall is moot as no future sea wall will be necessary.

In summary, sea walls will not be necessary at this site due to the older, harder and relatively well protected bedrock materials.

FAULTING

The requirements of the Alquist-Priolo Fault-Rupture Hazard Zone Act mandate that the California Division of Mines and Geology determine the approximate location of active faults in California and publish 7.5 minute topographical maps indicating the approximate locations of such active faults and fault zones and provide regulations and requirements with respect to building upon or near such active faults.

Observation of the Alquist-Priolo special fault study zone maps for the Gualala and Point Arena northeast quadrangles indicates that the site is located about 4 miles west of the San Andreas fault zone.

By definition, an active fault is defined as a fault that has experienced displacement during historic time (200 years before present) or during Holocene time (10,000 years before present). Faults that have experienced displacement during Pleistocene (10,000 years before present to 1.6 million years before present) are not considered active faults by the California Division of Mines or the U.S. Geological Survey.

Also, observation of the published Fault Activity Map of California prepared by the California Division of Mines and Geology as Geologic Data Map No. 6 in 1994 as compiled by C. Jennings, indicates that the only plotted active fault within this coastal area of northern California is the San Andreas fault.

Thus, the California Division of Mines and Geology and the legal definition of an active fault in California indicates that no active faults are present within 4 miles of this site.

Furthermore, Division 2, Chapter 7.5 of the California Public Resources Code under Section 2621.6 (a) indicates that single family residences that do not exceed 2-stories in height and that are not part of a new development of 4 or more dwellings are exempt from the requirements of the Alquist-Priolo Special Fault Studies Act.

In summary, no legally defined active faults are near the site and even if there was a legally defined active fault as indicated upon the published official maps of the state of California, California Division of Mines and Geology, it would still be legal and permitted to build a 2-story residence. Also, the Alquist-Priolo Act allows construction and/or subdivision of more than 4 properties if the fault is located at least 50 feet or more away from the actual house location. The local property owners association have indicated that they have reviewed a private unpublished map that indicates that the Iversen fault trace is located about 200 feet north of the property. However, the Iversen fault is likely one of many tens of thousands to hundreds of thousands of old inactive faults within California that are not considered to be active by the California Division of Mines and Geology that has been given the legislation legal mandate to determine where active faults are present. However, even if the Iversen fault was active and was shown on the Alquist-Priolo Special Fault Studies Map, it would still be legal and permissible to build upon the property in question as it allows one to build as close as 50 feet from an active fault and also exempts single family residences 2-stories or less in height.

In summary, it is my opinion that the objection argument raised by the local property owners association has no merit with respect to the issue of faulting.

Also, the bedrock materials in the bluff were harder and competent and did not exhibit any evidence of shearing, crushing or slickensides that are present in active fault areas.

POSSIBLE RISING SEA LEVEL

As of this date, I have not been required and I know of no governmental, legal, or professional requirement to consider the possible very slow and slight rise in sea level during the next 100 years. Even for filled sites adjacent to San Francisco Bay, consideration of long term global sea level rise has not required consideration. For example, in 1997 I performed an investigation for seven bay front lots and in 1998 I performed another investigation for six bay front lots in Marin County that were upon older previous reclaimed marshland fill adjacent to the tidal waters of San Francisco Bay. Those two projected sites were closely scrutinized by the local planning department, Army Corps of Engineers, BCDC, and concerned local property owners, and rising sea level was not brought up.

In summary, it is my opinion that the possible slight global rise of sea level of up to 4 inches during the next 100 years would have no effect upon the proposed Iversen Point house site.

It should be noted that no opposition group to a project upon which I have worked has even brought this item up before, even with high profile, controversial sites with much local opposition.

Yours very truly,
EARTH SCIENCE CONSULTANTS

Jay A. Nelson, Principal Geotechnical Engineer
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