# MARIN COUNTY
# LOCAL COASTAL PROGRAM
# UNIT 1 – *Amended*

## Environmental Hazards

MARIN COUNTY COMMUNITY DEVELOPMENT AGENCY
3501 Civic Center Drive, Room 308
San Rafael, California 94903

# M A R I N  C O U N T Y

# L O C A L  C O A S T A L  P R O G R A M

# U N I T  I

*Amended*

ADOPTED BY MARIN COUNTY BOARD OF SUPERVISORS

August 21, 1979

CERTIFIED BY STATE COASTAL COMMISSION

April 1, 1980

AS AMENDED

December 9, 2004

The following document is the current amended version of the 1981 Marin County LCP Unit I, which reflects all policy text amendments approved by the California Coastal Commission from 1982 to 2004. Following each amended policy is a note that provides the details of the Resolution(s)/Ordinance(s) passed by the Marin County Board of Supervisors that proposed and adopted each text amendment, as well as the corresponding action(s) of the California Coastal Commission. All information contained herein is current as of April 16, 2010, and is the most accurate portrayal of the amended LCP Policies to the best knowledge of the Marin County Community Development Agency at this time.

## EXCERPT: LCP POLICIES ON SHORELINE PROTECTION AND HAZARD AREAS

### III. SHORELINE PROTECTION AND HAZARD AREAS

Policies within this issue group cover several areas of concern with development in selected locations of Unit I. Policy areas include bluff top setback requirements, shoreline protective works, earthquake and other geologic hazard identification, mitigation and policy programs for notice of such hazards, and disclaimers of government liability resulting from damage by subsequent geologic activities. These policies are intended to address the specific issues discussed below, as well as implement the intent of Coastal Commission policies and Coastal Act Sections 30235 and 30253.

### SEACLIFF RETREAT

The major slope stability problem in the Bolinas area is the coastal sliding, which is nearly continuous along the seacliffs. In the Bolinas planning area, this includes the bluffs from the boundary of the National Seashore to the cliffs between Brighton and Wharf Road on the Little Mesa. This is virtually the entire shoreline of the Bolinas Planning Area.

Structural weaknesses, inherent in the Monterey Shale, and the energetic erosion by the surf combine to cause active landsliding of the seacliffs. The Monterey shale involved in this sliding is intensely fractured, which significantly reduces its stability. The surf along this part of the cliff is brown and muddy, showing that it is laden with material being removed from the cliff. This process occurs year round but is most severe during winter storms.

The cliffs between Brighton Street and Wharf Road are made up of the soft sediments of the Merced formation. Galloway (1977) points out that these cliffs are protected from the open sea but bear the brunt of southerly winter storms. During these storms, waves pound the soft sediments, causing extensive falls and slumps.

Retreat rates vary depending on the location, Between the downtown section of Bolinas and Duxbury Point, landsliding has caused the cliff to retreat an average of 0.3 to 0.6 meters per year (Wahrhaftig, 1970). Along the west-facing cliffs, exposed to the open sea, retreat has been monitored since 1859 and has progressed at a rate of about .75 meters/year (Galloway, 19-77). In the vicinity of-the RCA station, rates vary from one and one-half feet per year to one quarter foot per year, depending on the location (Wagner, 1977). Retreat rates on the Little Mesa average about a half a meter per year (Galloway, 1977).

Destruction of improvements and property in this area has occurred over time and will continue to do so as long as they are placed in this zone of active sliding. Wagner (1977) describes incidences of past damage. During the winter of 1977-1978 five blufftop homes were threatened by rapidly retreating cliffs. Three homes were declared unsafe by the Bolinas Fire Department and the two others will be threatened in the future. (Howe, in press). Slumping was evident in many other sections of the Bolinas Coast but did not directly threaten property.

There is a need to determine setback distances for developments near the retreating cliffs. The Coastal Commission in its Interpretive Guidelines for Marin County recommend a minimum setback of 150 feet from the blufftop for new construction. This setback is based on a retreat rate of 3 feet per year multiplied by an economic life expectancy for a structure of 50 years. They also require a geologic investigation and report for all blufftop development. The Environmental Hazards Element of the Marin Countywide Plan calls for adherence to the guidelines adopted by the Coastal Commission. The Bolinas Community Plan recommends a variable setback. From Little Mesa to Duxbury Reef, they recommend an 80 foot (two feet per year times 40 years) setback and from Duxbury Reef to Point Reyes National Seashore, they recommend a setback of 120 feet (three feet per year times 40 years). This is based on an economic life expectancy of 40 years for a structure and the retreat rates indicated in parenthesis.

While not as completely documented as Bolinas, Muir Beach's seacliffs also experience relative rapid rates of shoreline erosion. While development potential is limited to a few vacant ocean bluff lots, these lots were often earlier by-passed as representing more difficult or even dangerous building sites. Development on these lots must be carefully evaluated under the LCP policies to assure that the site can adequately support the proposed development without undue risk or the necessity to construct shoreline protective devices.

The LCP policies will assist in identification of lots where new construction would be hazardous and/or require future shoreline protection. Coordinated research and development of programs to reduce such hazards are encouraged. Since such programs are for the benefit of private properties, they should be financed primarily by those to be so benefited. The County would provide limited assistance in such organizing and reviewing such studies.

SEISMICITY

In November 1974, the Marin County Board of Supervisors passed Resolution 74-426, which implemented the requirements of the Alquist-Priolo Act as they pertained to Marin County. The Department of Public Works subsequently prepared a set of policies, "Policies and Criteria for Implementation of the Alquist-Priolo Geologic Hazard Zones Act", which are distributed to all applicants who propose projects, as defined by the Act, within the Special Study Zones. Appendix B contains the Alquist-Priolo Act and Marin County's implementing resolution and policies.

Development shall continue to be required to meet the seismic safety standards of the Alquist-Priolo Act, as it has been implemented by the County through Board of Supervisors Resolution 74-426, and the policies and criteria for its implementation developed by the Department of Public Works pursuant to resolution 74-426.

However, recent geologic studies indicate that the San Andreas Fault Zone covers a greater area than that indicated on the Alquist-Priolo Special Study

Zone maps. The zone of fault activity extends to approximately the eastern shore of Bolinas Lagoon and continues out to sea about one third the distance north of the Seadrift Gate. It was also determined that the Lagoon area is probably a graben, a block of material that is subsiding in relation to the surrounding land surface. This occurs as a result of earthquake activity.

The-County shall request the State Geologist's Office review the recent Study: "Depositional History and Fault-Related Studies, Bolinas Lagoon, California", Joel R. Bergquist, U.S.G.S. Open File Report 78-802, to determine if the Alquist-Priolo Special Study Zone should be extended in the Bolinas Lagoon vicinity.

SHORELINE EROSION:
STINSON BEACH SANDSPIT

Shoreline development is located on the dunes of the Stinson Beach sandspit, a mile and a half long barrier beach that separates Bolinas Lagoon from the Pacific Ocean. The spit is characterized by a short sloping section which ordinarily contains the wash of the waves, a broad level beach section which occasionally is washed over by the runup of waves at high tide, and a set of dunes 10 to 15 feet high on which the homes are built. The dunes extend a maximum of about 50 feet from the rear of the homes; where the winter storms of 1977/78 caused extensive erosion only about 10 feet of dune remains. The height and width of the dunes were artificially. increased at the time Seadrift was developed.

The function of beaches and dunes is to act as an energy absorber; the waves break on the slope of the beach and energy is consumed as the water rushes up the slope and onto the broad, flat berms. The dunes act as the last natural barrier to flooding of the inland section during storms. They retreat in the face of storm waves and rebuild during later calm periods. During intense storm activity in natural situations, the dunes are occasionally washed over by waves. The shape of the spit is controlled by several factors, including the location of the Bolinas bluffs. Changes in these factors result in changes in the shape and size of the spit:

The winter of 1977/78 saw a series of severe storms batter the California coast. The combination of high waves, high tides and recurring storm activity led to extensive damage of coastal structures from shoreline erosion. At Stinson Beach this took the form of eroding away the beach and dune system. Eight homes in Seadrift were threatened by this erosion, and an emergency revetment was placed. Research by Howe (in press) suggests that the conditions experienced that winter were not a "freak" or rare occurrence, and areas which experienced damage will likely experience similar conditions in the future.

The section of Seadrift threatened by the shoreline erosion consisted of nine lots, one of which did not contain a home. Several emergency measures, which failed, were attempted to protect these properties before the revetment (a type of seawall, that is laid on the dune or bluff to prevent wave attack from removing sand) was constructed by the County. The seawall runs the length of the nine lots and at its highest point was 14 to 15 feet high at the time of construction. Beach replenishment over the summer has reduced this height to about 10 feet, but rock still remains exposed above the beach in front of the dunes.

As noted in the "Final Staff Report and Recommendations on Issues Raised by Development of Seadrift Subdivision, Stinson Beach", May 1978, as amended, there is a wave erosion hazard to beach front lots and homes at Seadrift. The precise extent of this hazard is not known. It is likely the hazard will vary over time, depending on the severity of the winter, and place, because of the constantly shifting nature of both the beach and off-shore sand bars. The fact that the dunes were artificially increased in size at the time Seadrift was constructed and have now been significantly reduced by last winter's storm activity with little summer replenishment could further increase this hazard.

Given the unpredictable occurrence of this hazard and its generally localized area of impact (only nine lots were significantly threatened during the winter of 1977/78), it is likely the majority of permit applications will be on an emergency basis for a small number of lots. This would result in a haphazard placement of emergency erosion control structures. How these structures would physically and visually impact the remainder of the beach could not be determined in an emergency situation.

## PROTECTION OF EXISTING STRUCTURES AND COUNTY LIABILITY

In addition to policies that address development standards and new project review for areas of seacliff retreat, earthquake hazards, shoreline and dune erosion, this chapter also establishes policies that encourage investigation and development of joint programs to protect existing structures from shoreline erosion. These policies are desirable to successfully implement Coastal Act goals regarding development of shoreline protective works. Through identification of areas potentially subject to shoreline erosion, there exists an opportunity to develop programs to mitigate such hazard before emergency situations development. This provides flexibility in design techniques, financing and engineering feasibility to assure the balancing of public and private interests can be accomplished in a nonemergency period.

The policies identify strong review standards for new development in hazardous areas, coupled with attempts to adequately evaluate and respond to potential geologic hazards prior to their occurrence. The County of Marin does not accept responsibility for the protection of areas subject to shoreline erosion. Additionally, the County accepts no liability for approved development in areas identified as subject to geologic hazards. A waiver of liability would be recorded on all new development otherwise permitted by this
section's policy standards.

## LCP POLICIES ON SHORELINE PROTECTION AND HAZARD AREAS

1. New structure shall be set back from the Bolinas and Mir Beach bluffs a sufficient distance to ensure with reasonable certainty that they are not threatened from cliff retreat within their economic life expectancies. Adequate setback distances will be determined from information contained in required geologic reports and the setback formula established below. These setbacks will be of sufficient distance to eliminate the need for shoreline protective works.

In view of the fact that the retreat rate varies markedly along the cliffs, and that the life expectancy of different kinds of structures varies greatly, the following formula will be used to determine setbacks from the bluff for new structures:

Setback (meters) = structure life (yrs.) X retreat rate (meters/yr.) In areas where vigorous sliding is taking place, an additional 15 meters should be added as a safety factor.

The retreat rate will be determined by a complete geotechnical investigation which will be required if one or both of the following conditions are met: The building or proposed development site is within 150 feet of the blufftop, or the site is located in stability zones 2, 3 or 4 as indicated on the Slope Stability of the Bolinas Peninsula Study Area map which accompanies Wagner's 1977 report, "Geology for Planning, Western Marin County". This report and accompanying maps is incorporated by reference as part of the LCP.

2. Development shall continue to be required to meet the seismic safety standards of the Alquist-Priolo Act as it has been implemented by the County.

   The County shall request that the State Geologist's Office review the recent study, "Depositional History and Fault-Related Studies, Bolinas Lagoon, California", by Joel R. Bergquist, U.S.G.S. Open File Report 78-802, to determine if the Alquist-Priolo Special Study Zone should be extended in the Bolinas Lagoon vicinity.

3. The County shall seek public funds to contract with the State Division of Mines and Geology to initiate a study to identify lots and/or structures threatened with cliff retreat within their economic life expectancy. The results of this study shall be incorporated into the general restoration program for the Bolinas Mesa as described in Chapter II of the LCP.

4. Many of the building sites in Unit I are characterized by one or more potential geologic hazards. The development of residential structures on such parcels may be subject to often sudden and destructive geologic phenomenon. The County of Marin does not encourage new residential development of such parcels and expressly states that the issuance of a coastal development permit for such property does not warrant said property's safety_ from geologic hazards. Further, the County of Marin will not accept liability for subsequent personal or property damage caused by geologic processes on said properties. To assure that the builder and subsequent purchasers are expressly aware of the policy, a "waiver of liability" shall be executed and recorded by said for short-term, emergency food, shelter, and said property owner prior to the issuance of a coastal development permit. Further, clothing, the County of Marin will not participate in emergency or disaster relief funding for properties so identified and would recommend such limitations on State and/or federal disaster/emergency grants and/or loans.

Existing geologic information indicates this geologic hazard policy shall apply to new development (excluding improvements to existing structures that would not result in an increase of 50 percent or more of internal floor area of the structure) on lots located in the following areas:

- Lands located in the "Alquist-Priolo" earthquake hazard zones, as said zones may be amended.
- Development within 300 feet of the mean high tide of the sea.
- Development on parcels with slopes averaging over 35 percent.
- All lots within the Seadrift sandspit to include the Patios, Calles and Seadrift Subdivision.

(Those lands covered by this "geologic hazards" policy are shown on the geologic hazard maps on file in the Marin County Planning Department)

5. The following policy from Section 30235 of the Coastal Act is incorporated into the County LCP:
   Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline process shall be permitted when required to serve coastal-dependent uses or to protect existing structures (constructed before adoption of the LCP), or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.

6. To minimize visual and sand transport impacts on Stinson Beach, any permit granted to construct erosion control structures shall require the re-establishment of the former dune contour and appearance. In case of emergency permits, the property-owner of record shall agree, in writing, that such restoration work will be accomplished within 60 days after the threat of damage has passed.

7. Because revetments, seawalls or other shoreline protective works can be detrimental to maintenance of natural shoreline processes and can interfere with visual enjoyment and coastal access, such works are discouraged. The County of Marin through the LCP and other documentation has identified those coastal areas potentially subject to significant wave and run-off erosion. Because such probable risk areas are identified, sufficient opportunity for private investigation and response to such hazards is available. Therefore, the County of Marin shall not finance or construct emergency shoreline protective devices for the benefit of private developments.

8. It shall be County policy to encourage property owners subject to ocean-front erosion hazards to develop responses to such hazards prior to emergency conditions. Where contiguous properties are subject to generally similar erosion hazards, joint program development should occur. The County will not finance such engineering studies (or any subsequent construction activities), but will seek aid from Federal

and State agencies, colleges and universities to assist private consulting engineers in such review and recommendations. Where existing community organizations or special districts are unable to provide organizational support for such area-wide joint studies, the County, upon request, will assist in the organization and administration of such privately funded studies.

9. In the absence of an overall wave hazard/shoreline erosion study, any-permit application for seawalls, riprap or other protective structures on beaches, shall be accompanied by engineering reports stating the nature and extent of wave erosion hazard along the beach area and an explanation of how the proposed protective works will mitigate the hazard, both on and off the project site. This policy shall not apply to emergency permit applications applied for within three years of the date of adoption of the LCP. Emergency permit applications after that date shall be subject to report requirement or shall specifically establish why the need for such protective devices was not foreseen.

# IV. PUBLIC SERVICES AND NEW DEVELOPMENT

## LOCATION AND DENSITY OF NEW DEVELOPMENT

Development Issues under the Coastal Act. The California Coastal Act of 1976 establishes policies under which the LCP planning and regulations must be based. Several of these policy standards apply at the Seadrift Subdivision. These general coastal issues include:...

- The reduction of geologic hazards associated with new development;...

Geologic Hazards. Publications of the U.S. Geological Survey, U.S. Army Corps of Engineers and California Division of Mines and Geology substantiate a variety of geologic hazards on the Seadrift Spit. The San Andreas fault and its mapped cone include portions of the Seadrift Subdivision. Coupled with the future probability of earth shaking is the generally poor foundation base afforded by the sandy material of the Seadrift Spit. The sandy soils of the natural spit as well as the Lagoon muds comprising area of artificial fill are both foundation materials which are highly intolerant to earthquake intensities. Additionally, sandy soil materials in combination with high groundwater in the areas are subject to the geologic phenomenon of liquefaction during earthquake shaking. This phenomenon can be extremely hazardous to buildings so situated.

The Seadrift Subdivision is at a relatively low elevation with a gently sloping beach profile. These characteristics subject the Seadrift Spit to the dangers of seismic seawaves, particularly waves generated from a southerly direction. Wave run-up estimates are such that total overtopping of the Spit may be possible during such seismic wave occurrences. A less drastic geologic occurrence, wind and wave erosion of the Spit, is a continuing process. Along the Bolinas Lagoon side of the spit, for example, gross estimates of shore erosion range from 3 to 10 inches a year.

Wave erosion hazard along the ocean front is even more pronounced and, as recently demonstrated, can, with sudden efficiency, extensively erode the protective sand dunes fronting the Seadrift houses. The result of this phenomenon is twofold: the physical endangerment to the structures and the pressure to develop shoreline protective works that often distract from the public's visual and physical use and enjoyment of the coast.

In summary, the range of possible physical hazards at Seadrift is extensive. The predictability of experiencing some or all of these hazards is relatively high. Build-out of the Subdivision's existing residential lots will expose a significant number of houses and people to these geologic hazards.

## LCP POLICIES ON LOCATION AND DENSITY OF NEW DEVELOPMENT

... Where plans and policies of the local coastal program conflict with policies of local plans, the policies of the LCP shall govern. Maps showing the LCP land use designations are on file with the Marin County Planning Department.

Stinson Beach (excluding Seadrift)

The Stinson Beach LCP land use designations are those identified in the adopted Community Plan except as modified below:

30. The properties presently Zoned R-3 along Shoreline Highway shall be rezoned to R-2 in order to minimize flood hazards and the adverse impacts on Easkoot Creek which would result from such development (Easkoot Creek runs across the subject properties). Redesignation of the R-3 properties to R-2 will also assure development consistent with the existing character of the community. Development shall not be permitted within the 100-year floodplain of Easkoot Creek and shall otherwise conform with LCP Policies on septic systems and stream protection.

APPENDIX B: SEISMICITY

# ALQUIST-PRIOLO SPECIAL STUDIES ZONES ACT

Excerpts from California Public Resources Code
(Signed into law December, 1972, amended September 26, 1974,
May 4, 1975 and September 28, 1975)

BOARD OF SUPERVISORS OF THE COUNTY OF MARIN

RESOLUTION NO. 74-426

A RESOLUTION AUTHORIZING IMPLEMENTATION
OF THE ALQUIST-PRIOLO GEOLOGIC HAZARD ZONES ACT

**See Unit I Appendix B for copies of the documents above**

# ALQUIST-PRIOLO SPECIAL STUDIES ZONES ACT

Excerpts from California Public Resources Code
(Signed into law December, 1972, amended September 26, 1974,
May 4, 1975 and September 28, 1975)

**DIVISION 1. ADMINISTRATION**
**CHAPTER 2. DEPARTMENT OF CONSERVATION**
Article 3. State Mining and Geology Board
and the Division of Mines and Geology

660. There is in the department a State Mining and Geology Board consisting of nine members appointed by the Governor.

673. The board shall also serve as a policy and appeals board for the purposes of Chapter 7.5 (commencing with Section 2621) of Division 2.

**DIVISION 2. GEOLOGY, MINES AND MINING**
**CHAPTER 7.5. SPECIAL STUDIES ZONES**

2621. This chapter shall be known and may be cited as the Alquist-Priolo Special Studies Zones Act.

2621.5. It is the purpose of this chapter to provide for the adoption and administration of zoning laws, ordinances, rules, and regulations by cities and counties in implementation of the general plan that is in effect in any city or county. The Legislature declares that the provisions of this chapter are intended to provide policies and criteria to assist cities, counties, and state agencies in the exercise of their responsibility to provide for the public safety in hazardous fault zones.

This chapter is applicable to any project, as defined in Section 2621.6, upon issuance of the official special studies zones maps to affected local jurisdictions, but does not apply to any development or structure in existence prior to the effective date of the amendment of this section at the 1975-76 Regular Session of the Legislature.

2621.6. (a) As used in this chapter, "project" means

(1) Any new real estate development which contemplates the eventual construction of structures for human occupancy, subject to the Subdivision Map Act (commencing with Section 66410 of the Government Code).

(2) Any new real estate development for which a tentative tract map has not yet been approved.

(3) Any structure for human occupancy, other than a single-family wood frame dwelling not exceeding two stories.

(4) Any single-family wood frame dwelling which is built or located as part of a development of four or more such dwellings constructed by a single person, individual, partnership, corporation, or other organization. No geologic report shall be required with respect to such single-family wood frame dwelling if the dwelling is located within a new real estate development, as described in paragraph (1) or (2) of this subdivision, for which development a geologic report has been either approved or waived pursuant to Section 2623.

(b) For the purposes of this chapter, a mobile home whose body width exceeds eight feet shall be considered to be a single-family wood frame dwelling not exceeding two stories.

2621.7. This chapter, except Section 2621.9, shall not apply to the conversion of an existing apartment complex into a condominium. This chapter shall apply to projects which are located within a delineated special studies zone.

2621.8. This chapter shall not apply to alterations or additions to any structure within a special studies zone the value of which does not exceed 50 percent of the value of the structure.

2621.9. A person who is acting as an agent for a seller of real property which is located within a delineated special studies zone, or the seller if he is acting without an agent, shall disclose to any prospective purchaser the fact that the property is located within a delineated special studies zone.

2622. In order to assist cities and counties in their planning, zoning, and building-regulation functions, the State Geologist shall delineate, by December 31, 1973, appropriately wide special studies zones to encompass all potentially and recently active traces of the San Andreas, Calaveras, Hayward, and San Jacinto Faults, and such other faults, or segments thereof, as he deems sufficiently active and well-defined as to constitute a potential hazard to structures from surface faulting or fault creep. Such special studies zones shall ordinarily be one-quarter mile or less in width, except in circumstances which may require the State Geologist to designate a wider zone.

Pursuant to this section, the State Geologist shall compile maps delineating the special studies zones and shall submit such maps to all affected cities, counties, and state agencies, not later than December 31, 1973, for review and comment. Concerned jurisdictions and agencies shall submit all such comments to the State Mining and Geology Board for review and consideration within 90 days. Within 90 days of such review, the State Geologist shall provide copies of the official maps to concerned state agencies and to each city or county having jurisdiction over lands lying within any such zone.

The State Geologist shall continually review new geologic and seismic data and shall revise the special studies zones or delineate additional special studies zones when warranted by new information. The State Geologist shall submit all revised maps and additional maps to all affected cities, counties, and state agencies for their review and comment. Concerned jurisdictions and agencies shall submit all such comments to the State Mining and Geology Board for review and consideration within 90 days. Within 90 days of such review, the State Geologist shall provide copies of the revised and additional official maps to concerned state agencies and to each city or county having jurisdiction over lands lying within any such zone.

2623. The approval of a project by a city or county shall be in accordance with policies and criteria established by the State Mining and Geology Board and the findings of the State Geologist. In the development of such policies and criteria, the State Mining and Geology Board shall seek the comment and advice of affected cities, counties, and state agencies. Cities and counties shall require, prior to the approval of a project, a geologic report defining and delineating any hazard of surface fault rupture. If the city or county finds that no undue hazard of this kind exists, the geologic report on such hazard may be waived, with approval of the State Geologist.

After a report has been approved or a waiver granted, subsequent geologic reports shall not be required, provided that new geologic data warranting further investigations is not recorded.

2624. Nothing in this chapter is intended to prevent cities and counties from establishing policies and criteria which are stricter than those established by this chapter or by the State Mining and Geology Board, nor from imposing and collecting fees in addition to those required under this chapter.

2625. (a) Each applicant for approval of a project may be charged a reasonable fee by the city or county having jurisdiction over the project.

(b) Such fees shall be set in an amount sufficient to meet, but not to exceed, the costs to the city or county of administering and complying with the provisions of this chapter.

(c) The geologic report required by Section 2623 shall be in sufficient detail to meet the criteria and policies established by the State Mining and Geology Board for individual parcels of land.

2630. In carrying out the provisions of this chapter, the State Geologist and the board shall be advised by the Geologic Hazards Technical Advisory Committee consisting of nine members nominated by the State Geologist and appointed by the board. Members of the committee shall be selected and appointed on the basis of their professional qualifications and training in seismology, structural geology, engineering geology, or related disciplines in science and engineering, and shall possess general knowledge of the problems relating to geologic seismic hazards and building safety. The members of the committee shall receive no compensation for their services, but shall be entitled to their actual and necessary expenses incurred in the performance of their duties.

BOARD OF SUPERVISORS OF THE COUNTY OF MARIN

RESOLUTION NO. 74-426

A RESOLUTION AUTHORIZING IMPLEMENTATION
OF THE ALQUIST-PRIOLO GEOLOGIC HAZARD ZONES ACT

WHEREAS, the Alquist-Priolo Geologic Hazard Zones Act (Ch. 1354, Stats. 1972) directs the State Mining and Geology Board to establish certain seismic safety policies and criteria for proposed new real estate developments or structures for human habitation near earthquake faults, the State Geologist to prepare maps delineating earthquake faults and their associated fracture belts, and mandates cities and counties to require proposed new real estate developments or structures for human habitation near faults and within delineated special studies zones to submit geologic reports and observe the State-adopted criteria; and

WHEREAS, the State Mining and Geology Board has adopted Policies and Criteria (copies of which are available for inspection at the County Planning Department) for the administration of the Alquist-Priolo Geologic Hazard Zones Act Thai are applicable to Marin County and provide for geologic studies, their possible waiver by the County with concurrence of the State Geologist, and establish required setbacks from identified active and potentially active faults; and

WHEREAS, pursuant to the State Mining and Geology Board's adopted Policies and Criteria, the State Geologist has prepared preliminary special studies zones maps for Marin County which have been published and posted as a public notice and within which all known property owners of record have received notice of their property's inclusion; and

WHEREAS, the State Geologist has issued final versions of the special studies zones maps, incorporating minor changes, for local administrative use, and these final versions have been received by the County; and

WHEREAS, to defray the State and local costs of administering the program, the Alquist-Priolo Geologic Hazard Zones Act provides for fees to be collected by the County; and

WHEREAS, a method of appeal by applicants is desirable and equitable;

NOW, THEREFORE, BE IT RESOLVED:

1. That all County agencies and departments are to observe and carry out the requirements of the Act and adopted Policies and Criteria.

2. The Planning Department is to review all applications for new real estate developments, including subdivisions, land divisions, master plans, development plans, and design reviews, and building permits for structures for human habitation to determine if such projects are located within the special studies zones. The Planning Department shall notify such applicant and the Department of Public Works if the project is located within the special studies zones and also notify the applicant that a geologic report is required unless waived by the Department of Public Works and the State Geologist. I Public Works if the project is located within the special studies zones and also notify the applicant that a geologic report is required unless waived by the Department of Public Works and the State Geologist.

3. The Department of Public Works is to review all applications for new real estate developments and structures for human habitation within the special studies zones for compliance with the Act and develop procedures for its implementation.

4. The applicant shall reimburse the County for actual costs incurred in reviewing the geologic report and also pay an additional building inspection fee in the amount of one-tenth of one percent of the total valuation of the proposed building construction to cover administrative costs, as provided in the Act (Pub. Res. C § 2624 and 2625).

5. Provisions to implement this Act are to be included in a comprehensive seismic safety and geologic hazards protective ordinance to be developed by the County Planning Department with the cooperation of the County Counsel and the Department of Public Works for consideration by this Board at a later date.

6. Any time limits specified within Titles 19, 21 and 22 are hereby waived until any required geologic report has been approved or the need for a report waived by the Department of Public Works and the State Geologist.

7. The Marin County Board of Supervisors shall hear any appeals arising from implementation of this Act in order to determine whether an undue hazard exists with respect to the application. The appeals shall be submitted in writing to the Clerk of the Board of Supervisors. All decisions and findings shall be given in writing to the appellant.

PASSED AND ADOPTED at a regular meeting of the Board of Supervisors held on the 23rd day of December , 1974, by the following vote:

| | | |
|---|---|---|
| AYES: | SUPERVISORS | Peter R. Arrigoni, Gary Giacomini, Thomas S. Price, Arnold M. Baptiste, Bob Roumiguiere |
| WOES: | SUPERVISORS | - |
| ABSENT: | SUPERVISORS | - |

Bob Roumiguiere

Chairman of the Board of Supervisors

ATTEST:

Clerk

POLICIES AND CRITERIA FOP IMPLEMENTATION
OF THE ALQUIST-PRIOLO GEOLOGIC HAZARD ZONES ACT

PURSUANT TO MARIN COUNTY BOARD
OF SUPERVISORS RESOLUTION NO. 74-42b

1. Applicants for new real estate developments, including subdivisions, land divisions, master plans, development plans, and design reviews, and building permits for structures for human habitation in the studies areas shall have a geologic report prepared by a geologist registered in the State of California unless waived pursuant to Section 2623 of the Act (Pub. Res. C. 2623). The contents of the geologic report shall generally comply with the "Desired Content of Geological Reports Submitted to the Department of Public Works, County of Marin," as applicable to the Act.

2. Three (3) copies of the geologic report shall be submitted to the Department of Public Works, along with a one hundred fifty dollar deposit to cover the cost to the County of having the report reviewed by a geologist registered in the Sate of California. Prior to approval of the report by the Department of Public Works, any additional costs in excess of the one hundred fifty dollar deposit shall be paid by the applicant. If the cost to the County is less than one hundred fifty dollars, the excess will be returned to the applicant.

3. In addition, prior to issuance of a building permit for a structure for human habitation, a fee in the amount of one-tenth of one percent of the total valuation of the proposed building construction shall be paid when a geologic report has been required for this property.

4. Upon submission of the geologic report to the Department of Public Works, the Department of Public Works will transmit one copy to a geologist registered in the State of California, hired by the Department of Public Works to review such

reports. The second copy will be transmitted to the State Geologist, when approved, and the third copy filed with the Department of Public Works.

5. Where the application is for a building permit, reference to the Department of Public Works shall mean the Building Inspection Division of the Department of Public Works, and for other applications, shall mean the Land Development Section of the Department of Public Works.

6. If a geologic report is required, no permit will be granted or application approved until the geologic report has been approved and any recommendations or conditions implemented or made conditions of such permit or approval.

7. If an applicant is dissatisfied with the decision of the Department of Public Works or its consultant, he may appeal to the Marin County Geologic Hazard Advisory and Appeals Board within five working days of the date-of formal action by the Department of Public Works. Any such appeal shall be submitted to the Director of Public Works.

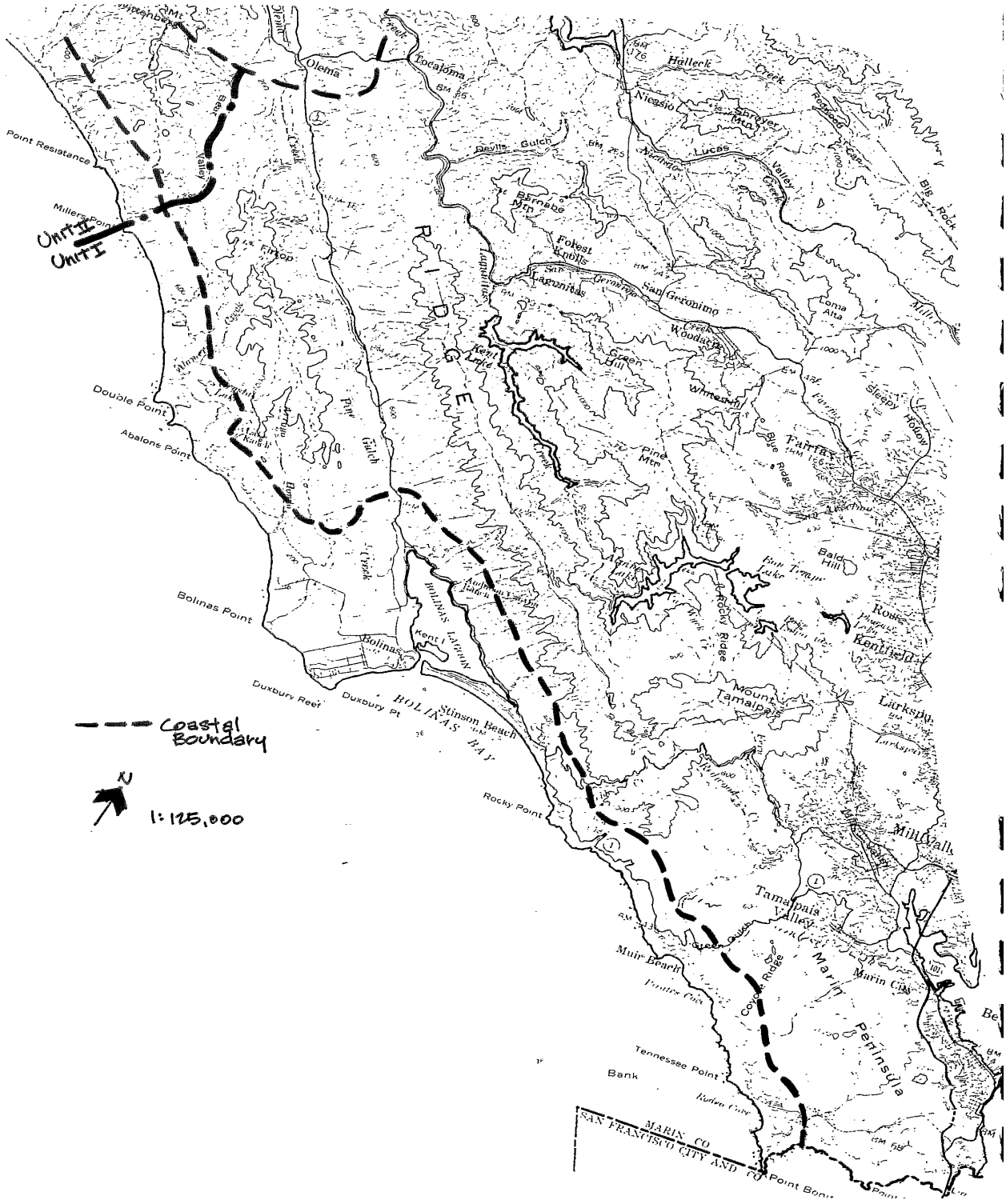


Figure 1: Unit 1 Local Coastal Program Boundary

# MARIN COUNTY
# LOCAL COASTAL PROGRAM
# UNIT 2 - *Amended*

## Environmental Hazards

MARIN COUNTY COMMUNITY DEVELOPMENT AGENCY
3501 Civic Center Drive, Room 308
San Rafael, California 94903

# M A R I N C O U N T Y

# L O C A L C O A S T A L P R O G R A M

# U N I T II

*Amended*

ADOPTED BY MARIN COUNTY BOARD OF SUPERVISORS

December 9, 1980

CERTIFIED BY STATE COASTAL COMMISSION

April 1, 1981

AS AMENDED

December 9, 2004

The following document is the current amended version of the 1981 Marin County LCP Unit II, which reflects all policy text amendments approved by the California Coastal Commission from 1982 to 2004. Following each amended policy is a note that provides the details of the Resolution(s)/Ordinance(s) passed by the Marin County Board of Supervisors that proposed and adopted each text amendment, as well as the corresponding action(s) of the California Coastal Commission. All information contained herein is current as of April 16, 2010, and is the most accurate portrayal of the amended LCP Policies to the best knowledge of the Marin County Community Development Agency at this time.

# EXCERPT: LCP POLICIES ON SHORELINE PROTECTION AND HAZARD AREAS

## THE COASTAL ZONE IN UNIT II

Marin's Unit II coastal zone is approximately 70 miles in length and generally extends 1000 yards inland from the mean high tide line of the sea. In significant coastal resource areas, it extends inland to the first major ridgeline paralleling the sea or five miles inland from the mean high tide line, whichever is less.

The major natural feature in Unit II is Tomales Bay, a long narrow bay separating the Point Reyes peninsula from the coastal zone on the mainland. Two very distinct landscapes are found on either side of the Bay: the east side is characterized by open, rolling grasslands, while the west side consists of the densely wooded, steep terrain of the Inverness Ridge. The predominant land use in Unit II is agriculture, primarily grazing and dairying. Extensive areas are also owned and managed by the state and federal governments as public parkland, including Tomales Bay State Park, the Golden Gate National Recreation Area, and Point Reyes National Seashore. Urban development is generally confined to six small coastal village areas: Olema, Point Reyes Station, Inverness Ridge, Marshall and nearby shoreline hamlets, Tomales, and Dillon Beach.

## SHORELINE STRUCTURES

### COASTAL ACT POLICIES

Coastal Act policies on the construction of groins, breakwaters, piers, and other shoreline structures are contained in Section 30235. This section limits the purposes for which such structures can be built. In addition, the Secretary for Resources has established more detailed policies for use by departments within the Resources Agency (including the Coastal Commission) when reviewing shoreline protective projects. The full text of Section 30235 is given in Appendix A.

### PLANNING ISSUES

There are two categories of shoreline structures: protective works and piers. Protective works, as the term implies, are used to protect a harbor or beach from the force of the waves. Piers can be used for a variety of recreational or commercial purposes.

Both types of shoreline structures, but particularly protective works, can significantly interfere with the movement and supply of sand along the coast. Improperly placed groins, jetties, or seawalls can reduce sand deposition, increase the rate of sand loss and change its distribution, upsetting the equilibrium of the shore. Marine structures can change current patterns and alter the configuration of the sea bottom offshore. In addition, shoreline structures can impair access to and along the coast, damage sensitive habitats, and degrade the visual qualities of the coast.

In contrast to these adverse effects, several benefits may be gained by the construction of piers or other structures which serve coastal dependent uses. Piers offer moorings for recreational boats, serve the commercial fishing industry, and

provide access to and over the water for fishing, viewing, and birdwatching. In weighing these benefits against the potential adverse impacts of shoreline structures, the number, location, and purposes of those structures must be evaluated.

Currently, there are approximately 50 piers on Tomales Bay. Some piers serve coastal dependent uses, such as commercial fishing, while the majority are attached to single-family dwellings. Of the 50 piers, 5 provide for public access and 3 allow limited public use, i.e., 16% of the total allow some public use. The remaining 42 piers (84% of the total) are private. The existing piers on Tomales Bay have affected the scenic quality of the shoreline and, in some places, interfere with public access to and along the shoreline. The piers, however, do serve local residents and visitors and contribute to the distinctive fishing village character of the Tomales Bay area.

Recognizing the intent of the Coastal Act, the County recommends limiting the number of new piers constructed and directing further development to existing built-up areas. The purposes for which shoreline protective works are built should be limited and, if possible, multiple use of piers should occur. These various actions would help to protect the scenic qualities of the Bay, minimize interference with public access along *the* shoreline, and minimize impacts on the marine environment. Marin County has a tidelands ordinance which requires a permit for the construction of any pier or protective work on tidelands. The ordinance specifies that environmental, scenic, public trust, and public safety issues shall be considered in permit review. However, the ordinance does not distinguish among or in any way limit the purposes for which shoreline structures are to be used. Distinctions of this kind need to be added so that the ordinance reflects Coastal Act policies.

## SHORELINE STRUCTURES

### LCP POLICIES ON SHORELINE STRUCTURES:

1. General policy. The County discourages the proliferation of shoreline structures in the Unit II coastal zone due to their visual impacts, obstruction of public access, interference with natural shoreline processes and water circulation, and effects on marine habitats and water quality. In some cases, however, the County recognizes that the construction of protective works or piers may be necessary or desirable. When' piers are allowed, multiple public and private, commercial and recreational uses shall be accommodated, if feasible, to maximize the use of these structures and minimize the need for further construction. Coastal permits for all shoreline structures will be evaluated based on the criteria listed in the policies below.

2. Shoreline protective works. The construction or reconstruction of revetments, breakwaters, groins, seawalls, or other artificial structures for coastal erosion control shall be allowed only if each of the following criteria is met:

   a. The structure is required to serve a coastal-dependent use, a coastal-related use in a developed area, or to protect existing development or public beaches.

   b. No other non-structural alternative is practical or preferable.

   c. The condition causing the problem is site specific and not attributable to a general erosion trend, or the project reduces the need for a number of

individual projects and solves a regional erosion problem.

d. It can be shown that a structure(s) will successfully mitigate the effects of shoreline erosion and will not adversely affect adjacent or other sections of the shoreline.

e. The structure will not be located in wetlands or other significant resource or habitat area, and will not cause significant adverse impacts to fish or wildlife.

f. There will be no reduction in public access, use, and enjoyment of the natural shoreline environment, and construction of a structure will preserve or provide access to related public recreational lands or facilities.

g. The structure will not restrict navigation, mariculture, or other coastal use and will not create a hazard in the area in which it is built.

Before approval is given for the construction or reconstruction of any protective shoreline structure, the applicant for the project shall submit a report from a registered geologist, professional civil engineer, or certified engineering geologist verifying that the structure is necessary for coastal erosion control and explaining how it will perform its intended function. Such a report shall not be required for emergency permit applications; however, the application shall specifically establish why the need for protective structures was not foreseen.

3. Piers and similar recreational or commercial structures. These structures shall be limited to sites located within existing developed areas or parks. New piers shall be permitted only if each of the following criteria is met:

   a. The structure will be used to serve a coastal-dependent use or will preserve or provide access to related public recreational lands or facilities.

   b. The structure will not be located in wetlands or other significant resource or habitat area and will not, individually or cumulatively, cause significant adverse impacts on fish or wildlife.

   c. The structure will not interfere with public access, use, and enjoyment of the natural shoreline environment.

   d. The structure will not restrict navigation, mariculture, or other coastal use and will not create a hazard in the area in which it is built.

   e. There is no pier with public access within 1/2 mile, or use of a nearby pier would not be feasible due to its size, location, or configuration.

   The reconstruction of existing piers shall be permitted provided that the pier is of the same size and in the same location as the original pier. Enlargements-or changes in design or location shall be evaluated based on criteria (a) through (e) above.

4. Public access requirement. Public access to new piers or similar. recreational or commercial structures shall be required unless it can be demonstrated that such access would interfere with commercial fishing or similar operations on the pier or be hazardous to public safety. A public access easement from the first public road across the applicant's property to the pier shall be required as a condition of coastal permit approval.

5. Design standards for all shoreline structures. The design and construction of any shoreline structure shall:

   a. Make it as visually unobtrusive as possible;

   b. Respect natural landforms to the greatest degree possible;

   c. Include mitigation measures to offset any impacts on fish and wildlife resources caused by the project;

   d. Minimize the impairment and movement of sand supply and the circulation of coastal waters; and

   e. Address the geologic hazards presented by construction in or near Alquist-Priolo earthquake hazard zones.

## NEW DEVELOPMENT AND LAND USE

### COASTAL ACT POLICIES

All of the policies in Chapter 3 of the Coastal Act apply to the issue of new

development and land use. [including] hazards (Section 30253)...

HAZARDS

Section 30253 of the Coastal Act provides in part that new development be sited and designed to minimize risks in geologic, flood, or fire hazard areas or in areas where the danger of cliff or bluff erosion exists. The Act also prohibits the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

The major geologic hazard in the Unit II coastal zone is a potential earthquake along the San Andreas fault. This fault runs northwest to southeast through the center of Tomales Bay, north to within 1/2 mile of Dillon Beach and south through the Olema Valley. The epicenter of the great 1906 earthquake was located along the fault, very near the town of Olema. Geologists have estimated that earthquakes of magnitude 7 or greater, with horizontal displacements on the order of 10 feet, can be expected to occur on the Tomales. Bay section of the fault every 75 to 300 years. Such earthquakes can be expected to cause extensive ground shaking, ground breaking, lurching, landslides, and faulting in the upland areas of Unit 11, and severe liquefaction along the shoreline of Tomales Bay.

The California Division of Mines and Geology has mapped earthquake hazard zones throughout the State, pursuant to the Alquist-Priolo Special Studies Zones Act of 1972. The earthquake hazard zone in Unit II includes most of the water area of Tomales Bay, Tom's and Sand Points to the north, and parts of Millerton and Tomasini Points to the south. South of Inverness, the earthquake zone extends onto the shore and includes areas on both sides of Sir Francis Drake Boulevard, small parts of Inverness Park, and all lands between Inverness Park and Point Reyes Station, as well as the town of Olema. The State Mining and Geology Board has adopted policies on earthquake hazard zones which prohibit new structures for human occupancy on or within 50 feet of an active fault trace, recommend more stringent guidelines for critical community structures such as hospitals, and require a geologic report to accompany an application for a development permit within a special studies zone. The County has adopted special procedures for reviewing development projects within earthquake zones, in keeping with the policies of the State Mining and Geology Board and the requirements of the Alquist-Priolo Act.

Erosion of beaches and bluffs constitutes the second major hazard in the Unit II coastal zone. Seawalls and riprap have been placed in some locations around Tomales Bay to prevent beach erosion, such as in the Marshall area, and at least one application has been made to the Coastal Commission for a permit to construct a groin. The Coastal Act policy on hazards provides that new development avoid the need for such protective structures, especially if the development is not coastal-dependent. LCP policies on shoreline protective works are given on page 132.

Bluff erosion is a significant hazard in the area north of Dillon Beach to the Estero de San Antonio, including the Oceana Marin subdivision. This area has been described by Clyde Wahrhaftig in his Report on the Geology of the Coast Between Dillon Beach and Estero San Antonio, Marin County, California, 1970, as follows:

> The coast of Marin County north of Dillon Beach is underlain largely by unstable masses of relatively impermeable crushed sandstone and shale, and is subject to very active landsliding. Retreat of the bluff top at the head of the landslides may average a foot or more a year, and cannot practically be controlled by riprapping at the base of the bluff. Soils

formed from this material have a high content of swelling clays and will present serious foundation problems aside from the landslides. A perennially high water table in this impermeable material is suggested by numerous seeps, springs, and patches of tules on the upland above the bluff, and would seriously interfere with underground sewage disposal such as by septic tanks and drain fields. In addition, the effluent water from such sewage-disposal procedures would probably intensify landslide activity.

The coast north of Dillon Beach has also been identified by the State as an area *where* existing homes are endangered by bluff erosion and future development would be, seriously threatened: A report issued by the State department of Navigation and ocean Development in 1977, Assessment and Atlas of Shoreline Erosion Along the California Coast, categorized this section of coast as "critical" for erosion and bluff hazards. Erosion hazards in Oceana Marin have also been recognized by the Regional Coastal Commission in its development standards for the subdivision. Site-specific recommendations by a soils engineer have been required in the past for new single-family homes, in order to address the hazards of building on steep slopes, landslides, slumping, bluff and wave erosion hazards.

Based on Coastal Act policies, bluff and cliff developments must be sited and designed to ensure stability and structural integrity for their expected economic lifespans while minimizing the alteration of natural landforms. The County Building Department presently reviews foundation plans and the Land Development Department reviews drainage, grading, and site plans. Both reviews are made on a case-by-case basis. LCP policies on hazards for Unit II support this procedure and establish general standards for development on bluffs and in other hazardous areas. The LCP also rezones the undeveloped land between the Oceana Marin subdivision and Estero de San Antonio from A-2 to APZ-60, in recognition of its development constraints due to eroding coastal bluffs in the area, visual impacts, water quality impacts on the Estero de San Antonio, and agricultural character.

## NEW DEVELOPMENT AND LAND USE

### LCP POLICIES ON NEW DEVELOPMENT AND LAND USE:

5. Hazards
   a. An applicant for development in an area potentially subject to geologic or other hazards as mapped by the County, including Alquist-Priolo earthquake hazards zones, areas subject to tsunami runup, landslides, liquefaction, beach or bluff erosion, steep slopes averaging greater than 35%, or flood hazard areas, shall be required to demonstrate that the area of construction is stable for development, the development will not create a hazard or diminish the stability of the area, and the development will not require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. The applicant may be required to file a report by a qualified professional evaluating the geologic conditions of the site and the effect of the development. In addition, as a condition of coastal permit approval, the applicant shall be required to sign a waiver of liability exempting the County from liability for any personal or property damage caused by natural hazards on such properties.

   b. In coastal bluff areas, new structures shall be set back a sufficient distance from the bluff edge to ensure with reasonable certainty that they are not threatened by bluff retreat within their expected economic lifespans C50

years). The County shall determine the required setback based on information submitted by the applicant, staff investigation, and a geologic report which may_ be required. The setbacks will be of sufficient distance to eliminate the need for shoreline protective works.

c. Development of any kind beyond the required bluff-top setback shall be constructed to ensure that all surface and subsurface drainage shall not contribute to the erosion of the bluff face or the stability of the bluff itself. Surface water shall be directed away from the top of the bluff or handled in a manner which prevents damage to the bluff by surface and percolating water.

d. New development shall be sited and designed so that no protective shoreline structures (e.g. seawalls, groins, breakwaters) are or will be necessary to protect the building from erosion or storm damage during its expected economic lifespan (50 years). The applicant may be required to submit a professional geologic report demonstrating that the project conforms to this policy.

e. The County encourages PG&E to utilize materials for overhead utility lines which minimize fire hazards to surrounding areas.

c) Design Review Guidelines. In addition to all other standards for development review in the Coastal Program, the following special Design Review Guidelines shall apply to the processing of all development applications in Paradise Ranch Estates:

1. Predevelopment Geotechnical Engineering Studies. Individual engineering studies will be required for building lots within the Class 3 and Class 4 slope stability zones as mapped in Wagner and Smith, Slope Stability of the Tomales Bay Study Area, 1977, to evaluate slope stability and to engineer foundations and structures to provide for proper grading, siting, structural stability and seismic design. These provisions are required by the LCP and Inverness Ridge Communities Plan, as well.

APPENDIX B
Definitions

SOURCE: CALIFORNIA COASTAL ACT

30101
Coastal-dependent development or use means any development or use which requires a site on, or adjacent to, the sea to be able to function at all.

30101.3
Coastal-related development means any use that is dependent on a coastal-dependent development or use.

30106.
Development means, on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of, any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).

As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.

30107
Energy facility means any public or private processing, producing, generating, storing, transmitting, or recovering facility for electricity, natural gas, petroleum, coal or other source of energy.

30107.5
Environmentally sensitive area means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

30108.2

Fill means earth or any other substance or material, including pilings-placed for the purposes of erecting structures thereon, placed in a submerged area

30114.

Public works means the following:

(a) All production, storage, transmission, and recovery facilities for water, sewerage, telephone, and other similar utilities owned or operated by any public agency or by any utility subject to the jurisdiction of the Public Utilities Commission, except for energy facilities.

(b) All public transportation facilities, including streets, roads, highways, public parking lots and structures, ports, harbors, airports, railroads, and-mass transit facilities and stations, bridges,_ trolley wires, and other related facilities. For the purposes of this division, neither the Ports of Hueneme, Long Beach, Los Angeles, nor San Diego Unified Port District nor any of the developments within these ports shall be considered public works.

(c) All publicly financed recreational facilities, all projects of the State Coastal Conservancy, and any development by a special district.

(d) All community college facilities.

30121

Wetland means lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.

SOURCE: DRAFT STATEWIDE INTERPRETIVE GUIDELINES ON WETLANDS AND OTHER WET AREAS, CALIFORNIA COASTAL COMMISSION, UPDATED TO November 17, 1980.

Wetlands.

Usually wetlands can be easily identified but in some cases, due to the highly variable conditions along the California coast, distinguishing wetland boundaries may be difficult. In such cases, the Coastal Commission will rely in part on the presence of hydrophytes (plants typically found in wet habitats) and/or the presence of hydric soils (wet soils). When there is doubt as to whether a particular area can be considered a wetland under the Coastal Act, or when it is not clear where a wetland boundary is located, the permit applicant will be required to submit a map identifying wetland areas within 500 feet of the proposed development using technical criteria supplied by the Commission.

Estuaries.

For the purposes of these guidelines, an "estuary" is a coastal water body usually semi-enclosed by land, but has open, partially obstructed, or intermittent exchange with the ocean and in which ocean water is at least occasionally diluted by fresh water runoff from the land. The salinity may be periodically increased above the open ocean by evaporation. In general, the boundary between "wetland" and "estuary" is the line of extreme low water.

Streams and Rivers.

For the purposes of these guidelines a "stream" or "river" is a perennial or intermittent watercourse mapped by the United States Geological Survey on the most current 7.5 minute quadrangle series, or identified in a local coastal program,

Lakes.

For the purposes of these guidelines, "lakes" are confined, perennial water bodies mapped by the United States Geologic Survey on the most current 7.5 minute quadrangle series, or identified in a local coastal program.

Open Coastal Waters and Coastal Waters.

For the purposes of these guidelines, "open coastal waters" or "coastal waters" refer to the open ocean overlying the continental shelf and its associated coastline. Salinities exceed 30 parts per thousand with little or no dilution except opposite mouths of estuaries.

Furthermore, for the purposes of these guidelines, some portions of open coastal waters, generally areas without especially significant plant or animal life, may not be environmentally sensitive habitat areas. Environmentally sensitive habitat areas within open coastal waters may include Areas of Special Biological Significance as identified by the State Water Resources Control Board, habitats of rare or endangered species, near-shore reefs, and kelp beds.

Riparian Habitats.

For the purposes of these guidelines, a "riparian habitat" is an area of riparian vegetation. This vegetation is an association of plant species which grow adjacent to freshwater watercourses, including perennial and intermittent streams, lakes, and other bodies of fresh water.

NOTE: The technical background material for these guidelines and a more thorough explanation of wet habitats and their definition may be obtained from the California Coastal Commission.

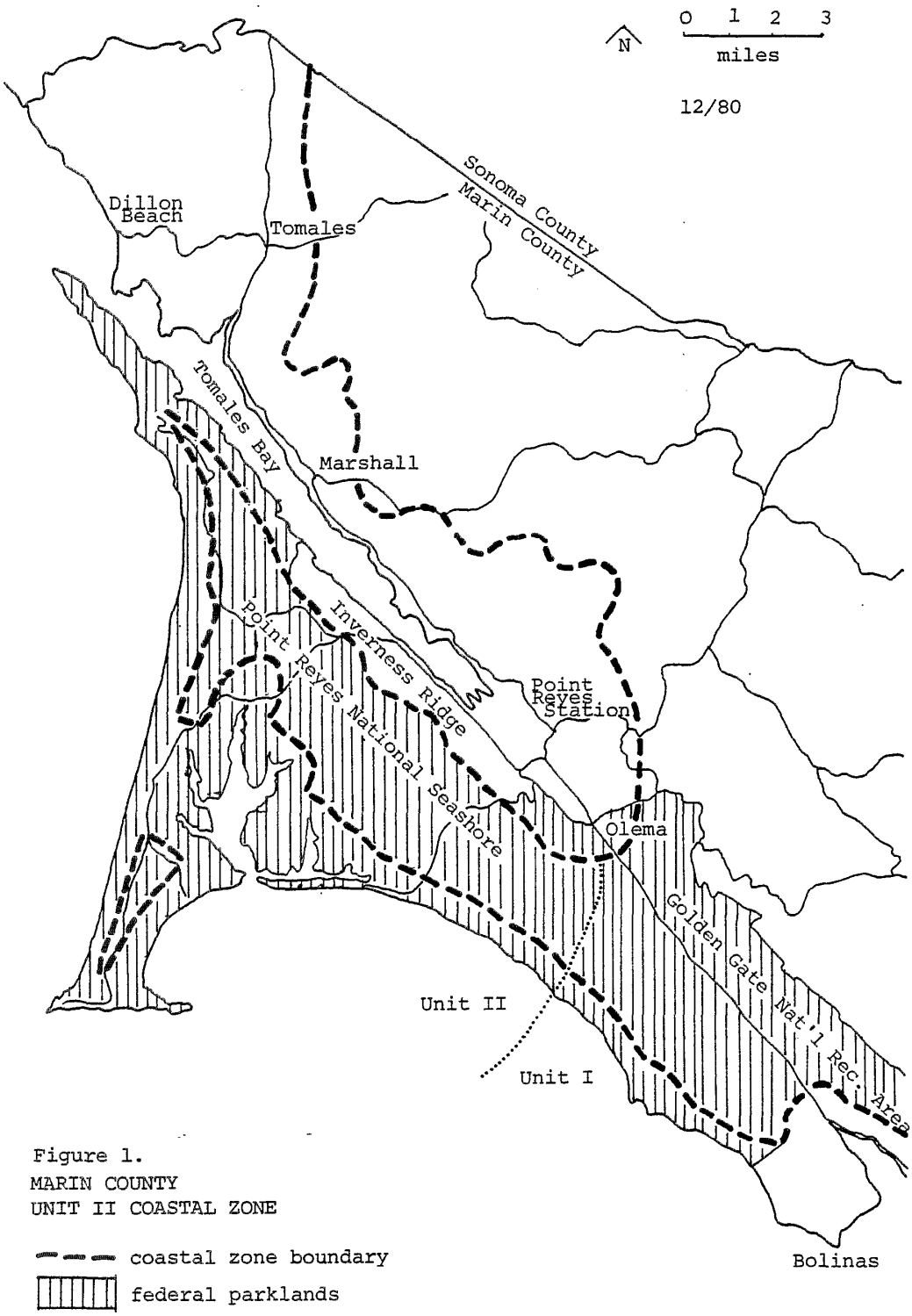


Figure 1.
MARIN COUNTY
UNIT II COASTAL ZONE

Figure 1: Unit II Coastal Zone