

CALIFORNIA COASTAL COMMISSION

SAN DIEGO COAST AREA

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REGULAR CALENDAR
STAFF REPORT AND PRELIMINARY RECOMMENDATION

Application No.: 6-97-90

Applicant: Paul Denver & Stanley Canter

Description: Construction of a 13 ft. high, approximately 80 ft. long seawall at the base of a coastal bluff fronting two properties, each containing a single-family residence.

Site: On public beach fronting 164 and 172 Neptune Avenue, Encinitas, San Diego County.

STAFF NOTES:Summary of Staff's Preliminary Recommendation:

Staff is recommending denial of the proposed development because the seawall is not required to protect the existing residences pursuant to Section 30235 of the Coastal Act. The blufftop setback that exists today for these residences is very close to the same setback approved by the Commission for their original construction which was found to meet the requirements of Section 30253 and not require shoreline altering devices in the future. The proposed seawall will have adverse impacts on shoreline sand supply, visual quality due to landform alterations and, on public access and recreation over the long-term. In addition, there are feasible alternatives available to increase the stability of the existing structures, reduce the risk of erosion and avoid shoreline altering construction in the future.

Substantive File Documents: Certified City of Encinitas Local Coastal Program (LCP); City of Encinitas Resolution No. PC-93-33; City of Encinitas Notice of Decision (Time Extension) DCD-95-076; Environmental Initial Study by Michael Brandman Associates dated October 4, 1993; Geotechnical and Geological Investigation 137, 144, 150, 164 and 172 Neptune Avenue by Earth Systems Design Group dated February 13, 1993; Geotechnical/Coastal Engineering Supplement by Skelly Engineering dated July 30, 1993; Supplemental Bluff Stability Review for 164 and 172 Neptune Avenue by Earth Systems Engineering Group dated June 17, 1994; CDP Nos. 6-93-36/Clayton, 6-93-85/Auerbach et al and 6-93-131/Richards et al; U.S. Army Corps of Engineers, Los Angeles District (September 1991) State of the Coast Report, San Diego Region (CCSTWS), and all Technical Support

Documents prepared for this study; San Diego Association of Governments (July 1993) Shoreline Preservation Strategy (including technical report appendices, The Planners Handbook, Beachfill Guidelines, and Seacliffs, Setbacks and Seawalls Report); Stone, Katherine E. and Benjamin Kaufman (July 1988) "Sand Rights: A Legal System to Protect the 'Shores of the Sea'", Journal of the American Shore and Beach Preservation Association, Vol. 56, No. 3, pp. 8 - 14; Tait, J.F. and Gary B. Griggs (1990) "Beach Response to the Presence of a Seawall," Journal of the American Shore and Beach Preservation Association, Vol. 58, No. 2, pp. 11 - 28; Personal Communication between Leslie Ewing and Gayle Cosulich, Zeiser - Kling Consultants, Inc. (January 12, 1994); Group Delta Consultants, Inc. (November 3, 1993) "Shoreline Erosion Evaluation Encinitas Coastline, San Diego County, California" prepared for Mr. and Mrs. Richard Cramer (Project No. 1404-ECO1); Everts, Craig (1991) "Seacliff Retreat and coarse Sediment Yields in Southern California," Proceedings of Coastal Sediments '91, Specialty Conference/WR Div./ASCE, Seattle WA; Sunamura, T. (1983) "Processes of Sea Cliff and Platform Erosion," in CRC Handbook of Coastal Processes and Erosion, P.D. Komar (ed), CRC Press, Boca Raton, FL; Beach Bluff Erosion Technical Report for the City of Encinitas by Zeiser Kling Consultants, Inc. dated January 24, 1994; Sterrett, E.H. and R.E. Flick. "Shoreline Erosion Atlas." Shoreline Erosion Assessment and Atlas of the San Diego Region, vol. II. Sacramento, California: California Department of Boating and Waterways, 1994; Reconnaissance Report for the Encinitas Shoreline by the U.S. Army Corps of Engineers, dated March 1996; Final Draft Technical Report for the City of Encinitas Comprehensive Coastal Bluff and Shoreline Plan by Moffatt and Nichol Engineers, dated February 1996; CDP Nos. F8964, F9833, 6-84-461, 6-93-135 and 6-96-138.

PRELIMINARY STAFF RECOMMENDATION:

The staff recommends the Commission adopt the following resolution:

I. Denial.

The Commission hereby denies a permit for the proposed development on the grounds that the development will not be in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976 and would prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of the Coastal Act.

II. Findings and Declarations.

The Commission finds and declares as follows:

1. Detailed Project Description/History. This proposal involves the construction of a 13 ft. high, approximately 80 ft. long seawall at the base of a coastal bluff fronting two adjacent 6,800 sq. ft. blufftop lots, each containing a single-family residence. The proposed seawall will consist of a series of pre-cast concrete panels, each approximately 13 inches thick. The face of the proposed seawall will be coated with an approximately 3-inch thick

shotcrete application that will be colored and textured to allow for a more natural appearance (thus, the total thickness of the wall will be approximately 16 inches). No riprap or toe-stone is proposed.

The subject development is proposed to be located at the base of an approximately 80 ft. high coastal bluff on the west side of Neptune Avenue in the City of Encinitas. The site and the surrounding blufftop lots are developed with both single- and multi-family residences. The beach and the bluff face in this area are public property, currently in the ownership of the City of Encinitas. No structures (i.e., stairways, seawalls or bluff protection) currently exist on the bluffs fronting the subject site. The existing residences are currently sited 22 to 24 ft. (172 Neptune Avenue) and 28 ft. (164 Neptune Avenue) from the bluff edge.

Both the existing residences were approved for construction by the Commission. In June of 1981, the Commission approved the construction of an approximately 4,440 sq. ft., two-story single-family residence with an attached three-car garage at 172 Neptune Avenue (ref. CDP #F9833). The residence was approved to be sited approximately 26 ft. from the bluff edge, with an at-grade patio and landscaping permitted within this geologic setback area. The permit was approved with one special condition requiring the applicant to record the standard waiver of liability deed restriction. The Commission did not require or receive "as-built" plans showing exactly how far from the bluff edge the home was constructed.

In October of 1985, the Commission approved a permit for the construction of a 3,891 sq. ft., four-level, single-family residence at 164 Neptune Avenue (ref. CDP #6-84-461). This permit was approved with conditions which required the applicant to record the standard waiver of liability, submit drainage plans and revised site plans indicating a minimum 25 ft. blufftop setback for the residence. The permit also approved the placement of a approximately 280 sq. ft. at-grade patio within the geologic setback area. Subsequently, in January of 1987, an amendment to this permit was approved reducing the size of the residence to 3,137 sq. ft. and only two-levels. Again, the Commission did not require or receive "as-built" plans showing exactly how far from the bluff edge the home was constructed.

On August 11, 1994, the Commission denied a permit request to construct the same seawall as proposed in this application (ref. CDP #6-93-135 Denver/Canter). Subsequently, on December 11, 1996, the Commission again denied a permit request for the same seawall (ref. CDP #6-96-138 Denver/Canter). The Commission denied both permit requests because a need for the seawall to protect the existing development had not been documented and geologic stability on adjacent properties had not been assured.

Although the City of Encinitas has a certified LCP and has been issuing coastal development permits since May of 1995, the proposed development is located within the Commission's area of original jurisdiction where permit jurisdiction is not delegated to the local government. As such, the standard of review is Chapter 3 policies of the Coastal Act, with the certified LCP used as guidance.

2. Geologic Conditions and Hazards. Section 30235 of the Coastal Act states, in part:

Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.

In addition, Section 30253 of the Coastal Act states, in part:

New development shall:

(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

Coastal Act Section 30235 acknowledges that seawalls, revetments, cliff retaining walls, groins and other such structural or "hard" solutions alter natural shoreline processes. Thus, such devices are required to be approved only when necessary to protect existing structures. The Coastal Act does not require the Commission to approve shoreline altering devices to protect vacant land or in conjunction with construction of new development. A shoreline protective device proposed in those situations is likely to be inconsistent with various Coastal Act policies. For example, Section 30253 addresses new development and requires that it be sited and designed to avoid the need for protective devices that would substantially alter natural landforms along bluffs and cliffs.

Additionally, the Commission has often times interpreted Section 30235 to require the Commission to approve shoreline protection for existing principal structures only. The Commission must always consider the specifics of each individual project but has found, in many instances, that accessory structures such as patios, decks and stairways are not required to be protected under Section 30235 or can be protected from erosion by relocation or other means that does not involve shoreline protection. The Commission has historically permitted at grade structures within the geologic setback area recognizing they are expendable and capable of being removed rather than requiring a protective device that alters natural landforms along bluffs and cliffs.

Pursuant to Section 30253 of the Coastal Act, in approving new development on blufftop lots, structures are required to be setback an appropriate distance (based on a site specific geotechnical report) from the edge of the bluff that will allow for the natural process of erosion without triggering the need for a seawall. This "geologic setback area" is so designated to accommodate the

natural erosion of the bluff. In other words, on blufftop lots, residences are set back from the bluff edge to allow the natural process of erosion to occur on the site without causing the residence to be threatened. Thus, at some future point when evidence of some erosion of the setback area is identified (even undercutting and subsequent block failures), this does not necessarily confirm the need for bluff or shore protection to protect the residence. In the case of the subject properties, the 25 to 26 ft. minimum blufftop setback was determined by the applicants geotechnical consultant to be the setback that would allow the bluff to naturally erode and not require protective devices for the expected life of the residences.

Various reports and letters previously submitted by the applicant's geotechnical and engineering consultants argue that due to the undercutting of the bluff toe, protection of the residence is necessary now, and, that if remedial steps are not taken, failures of the mid and upper bluff are likely to occur. However, the report does not substantiate that such failures would undermine the foundations for the residential structures or threaten the existing homes on top of the bluff should they occur. While the submitted geotechnical reports indicate there is evidence of ongoing erosion and undermining of the lower portion of the bluff at the subject site, the reports also state that there is no evidence indicating deep seated landsliding on or adjacent to the subject site. In addition, in reviewing the submitted slope stability analyses, the proposed critical failure surface intersects the top of the bluff seaward of the existing residences. Additionally, based on the submitted bluff profiles, even with the recent sloughing due to undercutting at the bluff toe, if the upper bluff were to continue to erode to a stable angle of repose (approximately 35 degrees), neither of the foundations for the two residences would likely be undermined or threatened.

In addition, in review of documents submitted to the Commission during review for the construction of the residence at 164 Neptune Avenue, plans/reports indicate that the residence was constructed utilizing a pier and grade beam foundation along the western portion of the residence with the piers extending to a depth of greater than 12 feet to provide a greater factor of safety for the residence. The geotechnical reports submitted with the applications for seawalls have not addressed this factor. While beach conditions in this area have changed somewhat from when these homes were first constructed, other than some noted undermining and sloughage at the base of the bluff within the Torrey Sandstone formations, the condition of the bluff appears to be similar to the condition described in the the soils/geotechnical reports submitted for the construction of the residences. Additionally, the small amount of bluff erosion that has occurred at the site since the residences were built is consistent with that which the geotechnical reports anticipated would occur.

Addressing current conditions, the applicants have not submitted any additional geotechnical information to support the need for the proposed seawall beyond that submitted with the previous permit request in 1996. At that time, the applicant's did submit a letter from a coastal engineer to address the then current site conditions as well as a letter responding to Commission's staff's request for additional technical information to

adequately demonstrate what circumstances had changed at the site since the previous Commission actions in 1994 and 1996. Essentially, the applicant's engineer stated that other than some recent sloughage at the base of the bluff, there "has been no topographic changes" at the subject site and the loss of the material has not altered the stability analysis for the site. The bluff in 1993 had a pronounced notch at the base, resulting from wave attack. In 1996, some material overhanging this notch sloughed off, due to lack of support. Such loss was anticipated in 1993 and the bluff analysis which was performed at that time assumed that the notch was gone. Based on site inspections by Commission staff, the condition of the bluff fronting the subject properties appears to be identical to the condition noted in 1996; there are no visible changes or evidence of major sloughages or erosion of the bluff. Because the applicants have not submitted any new geotechnical information, observations of the bluff by Commission staff is the only new information on which the Commission has to base its decision relative to what changes have occurred on the bluff since the previous application was denied.

Thus, based upon the current distance between the residences and the bluff edge, the current erosion rate, predicted natural angle of repose, the lack of deep seated landslides, and the stable foundations of the homes, there is no evidence that the existing residences are in danger from erosion and therefore, the Commission is not required to approve a shoreline altering device pursuant to Section 30235. In this case, the proposed shoreline protective device is intended to reduce continuing erosion to prevent loss of additional property even though the existing principal structures are not actually "in danger". Thus, the Commission is not required to approve a shoreline altering device. Further, approval would be inconsistent with other Chapter 3 policies which address visual quality of coastal areas, minimization or landform alteration and protection of public access and recreational opportunities. Also, there are alternatives available which will likely reduce the potential future threat without involving structural solutions and their associated landform alteration and beach impacts.

A number of adverse impacts to public resources (beach, bluff and access) are associated with the construction of shoreline structures. In this particular case, the natural shoreline processes referenced in Section 30235 of the Coastal Act, such as the formation and retention of sandy beaches, will be altered by construction of a seawall, since bluff retreat is one of several ways that beach quality sand is added to the shoreline. This retreat is a natural process resulting from many different factors such as undercutting by wave action of the toe of the bluff causing bluff collapse, saturation of the bluff soil from ground water causing the bluff to slough off and natural bluff deterioration. When a seawall is constructed on the beach at the toe of the bluff, it directly impedes these natural processes.

Some of the effects which a structure may have on natural shoreline processes can be quantified. Three of the effects from a shoreline protective device which can be quantified are 1) loss of the beach area on which the structure is located; 2) the long-term loss of beach which will result when the back beach location is fixed on an eroding shoreline; and 3) the amount of material which would have been supplied to the beach if the back beach or bluff were to erode naturally.

Based on review of the proposed seawall application, the Commission finds that the following impacts on beach sand supply would result from construction of the proposed seawall. The proposed seawall, which is approximately 80 ft. long by 16 inches thick, will encroach onto and permanently displace an estimated 107 sq. ft. of public beach area that is currently available for public use. In addition, over the expected life of the seawall, it is estimated that an additional 400 sq. ft. of public beach area will be lost to public use due to the seawall's prevention of the landward migration of the beach in this location (based on information provided by the applicant's engineer that the expected life of the seawall is approximately 25 years and the long-term erosion rate at the base of the bluff is .2 ft. per year). Finally, based on a rough approximation of current and future bluff profiles, it is estimated that approximately 710 cubic yards of beach quality sand will be deprived the beach over the life of the seawall due to the seawall's alteration of the natural erosion of the bluff.

The above described impacts on the beach and sand supply have previously been found to result from seawalls in other areas of Encinitas. In March of 1993, the Commission approved CDP #6-93-85/Auerbach, et al for the construction of a seawall fronting six non-continuous properties located approximately 900 ft. north of the subject site. In its finding for approval, the Commission found the proposed shoreline protection would have specific adverse impacts on the beach and sand supply and required mitigation for such impacts as a condition of approval. The Commission made a similar finding for several other seawall developments located several blocks north of the subject site (ref. CDP Nos. 6-93-36-G/Clayton, 6-93-131/Richards, et al, 6-93-136/Favero, and 6-95-66/Hann). The Notice of Intent to Issue Permit for CDP #6-95-66 is attached as a reference. A report prepared by Commission staff as part of a federal grant project which explains the impact analysis associated with seawalls and the mitigation program in place in San Diego County is attached.

In addition to the adverse impacts the seawall will have on the beach as detailed above, the Commission finds that the proposed seawall would also have adverse impacts on adjacent unprotected properties caused by wave reflection, which leads to accelerated erosion. Numerous studies have indicated that when continuous protection is not provided, unprotected adjacent properties experience a greater retreat rate than would occur if the protective device were not present. This is due primarily to wave reflection off the protective structure and from increased turbulence at the terminus of the seawall. According to James F. Tait and Gary B. Griggs in Beach Response to the Presence of a Seawall (A Comparison of Field Observations) "[t]he most prominent example of lasting impacts of seawalls on the shore is the creation of end scour via updrift sand impoundment and downdrift wave reflection. Such end scour exposes the back beach, bluff, or dune areas to higher swash energies and wave erosion." As such, as the base of the bluff continues to erode on the unprotected adjacent properties, failure of the bluff is likely. Thus, future failures could "spill over" onto other adjacent unprotected properties, prompting requests for much more substantial and environmentally damaging seawalls to protect the residences. This then starts a "domino" effect of individual requests for protection.

In response to these concerns, the applicant's engineer previously noted that the proposed seawall has incorporated a number of features into its design to reduce the potential for accelerated erosion on adjacent unprotected properties. These include minimal thickness of the seawall, which will reduce the turbulence at the end of the wall which can lead to accelerated erosion of adjacent unprotected bluffs. The engineer has also indicated that the ends of the wall will be shaped to reflect lateral splash away from the bluff, helping to reduce wave reflection onto adjacent unprotected bluffs.

Although the proposed seawall design includes the design features described above to reduce impacts of the wall on adjacent properties, at best, the above described impacts can be reduced, but not eliminated. In addition, the reduction in end turbulence due to minimal thickness of the wall is only a temporary effect. The proposed seawall design also includes return walls at the end of the seawall which go into the bluff perpendicular to the wall and the bluff face. These return walls are important components of a seawall as they protect the wall from wave flanking, which could lead to erosion behind the wall. Regardless of whether accelerated erosion were to occur on the adjacent unprotected properties, these adjacent bluffs will continue to erode due to the same forces that are causing them to erode currently. As this occurs, more surface area of the return wall is exposed to wave attack leading to increased turbulence and accelerated erosion of the adjacent unprotected bluff.

According to information contained in the Planners Handbook (dated March 1993), which is included as Technical Appendix III of the Shoreline Preservation Strategy adopted by the San Diego Association of Governments (SANDAG) on October 10, 1993, "[a] longer return wall will increase the magnitude of the reflected wave energy. On a coast where the shoreline is retreating, there will be strong incentives to extend the length of the return wall landward as adjacent property is eroded, thereby increasing the return wall, and its effects on neighboring property, with time."

The Commission also finds that there are other alternatives available that could reduce the risk from erosion, while not requiring the construction of shoreline altering structures and their associated impacts on beach sand supply. Such alternatives include, but are not limited to, directing all blufftop drainage away from the bluff towards the street, removing or capping any existing permanent irrigation within the designated geologic setback area, installing a means of reducing groundwater before it reaches the bluff, underpinning the existing home foundations, removing at-grade accessory structures, and beach sand replenishment.

In summary, while it is clear that the toe of the bluff fronting 164 and 172 Neptune Avenue has been undercut by wave action, the applicants have not documented that the erosion rate has significantly increased beyond that which was anticipated to occur in the original geotechnical review for construction of the homes or that the undercutting places the homes in danger from erosion or subsequent bluff failure. Thus, the Commission is not required to approve the proposed protection. In addition, as noted above, the proposed seawall

will contribute to erosion and geologic instability over time on adjacent unprotected properties and also deplete sand supply, occupy public beach and fix the back of the beach. Additionally, there are other less damaging alternatives available to reduce the risk from bluff erosion. Therefore, the Commission finds that the proposed seawall is inconsistent with Sections 30210, 30211, 30212, 30235, 30240, 30250, 30251 and 30253 of the Coastal Act and must be denied.

3. Local Coastal Planning. Section 30604 (a) also requires that a coastal development permit shall be issued only if the Commission finds that the permitted development will not prejudice the ability of the local government to prepare a Local Coastal Program (LCP) in conformity with the provisions of Chapter 3 of the Coastal Act. In this case, such a finding cannot be made.

The subject site is located on the beach within the City of Encinitas. In November of 1994, the Commission approved, with suggested modifications, the City of Encinitas Local Coastal Program (LCP). Subsequently, on May 15, 1995, coastal development permit authority was transferred to the City. Although the site is within the City of Encinitas, it is within the Commission's area of original jurisdiction. As such, the standard of review is Chapter 3 policies of the Coastal Act, with the City's LCP used as guidance.

As shoreline erosion along the coast rarely affects just one individual property, it is imperative that a regional wide solution to the shoreline erosion problem be addressed and solutions developed to protect the beaches. Combined with the decrease of sandy supply from coastal rivers and creeks and armoring of the coast, beaches will continue to erode without being replenished. This will, in turn, decrease the public's ability to access and recreate on the shoreline.

Based on specific policy and ordinance language requirements placed in the LCP by the Commission, the City of Encinitas is in the process of developing a comprehensive program addressing the shoreline erosion problem in the City. The intent of the plan is to look at the shoreline issues facing the City and to establish goals, policies, standards and strategies to comprehensively address the identified issues. To date, the City has conducted several public workshops and meetings on the comprehensive plan to identify issues and present draft plans for comment. However, based on recent discussions with City Planning Staff, it is uncertain when the plan will come before the Commission as an LCP amendment or when it will be scheduled for local review by the Encinitas City Council, but it is fairly certain such hearings will not occur this year.

In its draft form, the main thrust of the City's Comprehensive Plan is to declare the majority of the City's coastal bluffs as an area subject to hazard where all existing blufftop structures are considered threatened and in need of immediate protection. To address the hazard, the City's draft plan requires shore protection be constructed as a condition of a permit for additions to blufftop development. Further, the draft plan permits such protection to be constructed without having to document the need for or to

examine other alternatives. Thus, implementation of the City's draft plan would not only result in the eventual total armoring of the City's coastline but such armoring would occur on lot-by-lot basis.

While City and Commission staff have met several times to discuss the City's draft comprehensive plan, there still remains some areas of disagreement. In addition to the issue described above, Commission staff do not agree with the draft plan's characterization of the subject site as an area of "moderate to high" risk relative to bluff erosion and failures. The draft plan bases this characterization on several studies and reports completed in recent years pertaining to the Encinitas shoreline. While several of these reports include the subject site in an area described as "moderate to high risk" (relative to bluff erosion), it appears that the subject site and surrounding stretch of bluffs ranging from several blocks to the north and south of the subject site were included only because they are geographically near other areas of moderate to high risk. The differences between the subject stretch of beach and the areas to the north and south are not clearly identified.

Each of these studies/reports divides the Encinitas shoreline in separate "reaches", with designation and degree of risk applied to each. In most of the studies/reports, the subject site is placed within a "reach" that includes two historic landslides and one recent landslide as well as an area where numerous shore and bluff protection devices have been constructed. The disagreement stems from the fact that the bluffs from several blocks to the north and south of the subject site are different from the remainder of the reach to the north. The bluffs in this section of the Encinitas coastline are in public ownership; for the most part pristine, devoid of shore and bluff protection structures or private access stairways; and, there is no visible evidence of landslides or bluff failures (other than some undercutting at the toe of the bluff). As such, it is premature to commit this stretch of bluffs to armoring without a thorough analysis of alternatives.

If this project is approved, it sends a signal that there is no need for site specific geotechnical review to determine the safe location for placement of new development on the blufftop and will result in total armoring of the shoreline where there is any existing development even if the development is not in danger from erosion. This approach is not consistent with Section 30253 and the public access and recreation policies of the Coastal Act. In addition, in review of submitted site plans that include other blufftop properties in the surrounding area, it should be noted that other residences in the area are located approximately the same distance from the bluff as the residences subject to this permit review. Therefore, a decision that shoreline protective measures are appropriate as preventive measures to arrest erosion and preserve existing property when existing structures are clearly not threatened, should be done through a comprehensive planning effort that analyzes the impact of such a decision on the entire reach. The Commission should not approve "piece meal" construction of seawalls for individual properties which could further exacerbate the problem. Planning for comprehensive protective measures which may include a combination of continual lower bluff protection constructed in substantial segments, limits on future bluff development and ground and surface water controls, in conjunction with

beach replenishment, should occur to avoid the need for substantial alteration of the natural landform in the future.

Based on the above discussion, the proposed seawall development has been found to be inconsistent with numerous Chapter 3 policies of the Coastal Act in that the need for the seawall has not been documented and its adverse impacts on beach sand supply and on adjacent unprotected properties are significant. The Commission finds that approval of the proposed seawall development will prejudice the ability of the City of Encinitas to prepare a comprehensive plan addressing the City's coastline as required in the certified LCP and consistent with Chapter 3 policies and, therefore, it must be denied.

4. Consistency With the California Environmental Quality Act (CEQA).

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

As previously stated, the proposed development would result in adverse impacts to coastal resources by altering and depleting shoreline sand supply, decreasing geologic stability and reducing visual quality of a scenic beach area. There are feasible alternatives available which would substantially lessen any significant adverse impacts which the proposal may have on the environment.

These feasible alternatives include the no project alternative which would allow the natural process of bluff erosion to continue, as anticipated in the geotechnical reviews done at the time of residential construction; reducing erosion at the top of the bluff by assuring all drainage is directed away from the bluff edge; removing any existing permanent irrigation within the geologic setback area; installation of a means of reducing groundwater from reaching the bluff face; underpinning the residences; removing accessory structures; and other non-structural means to increase stability of the residence and the site and assure continued security for the residences from potential bluff erosion/failure. Therefore, as currently proposed, the Commission finds the proposed project is not the least environmentally damaging feasible alternative, and therefore is inconsistent with CEQA.

(7090R)

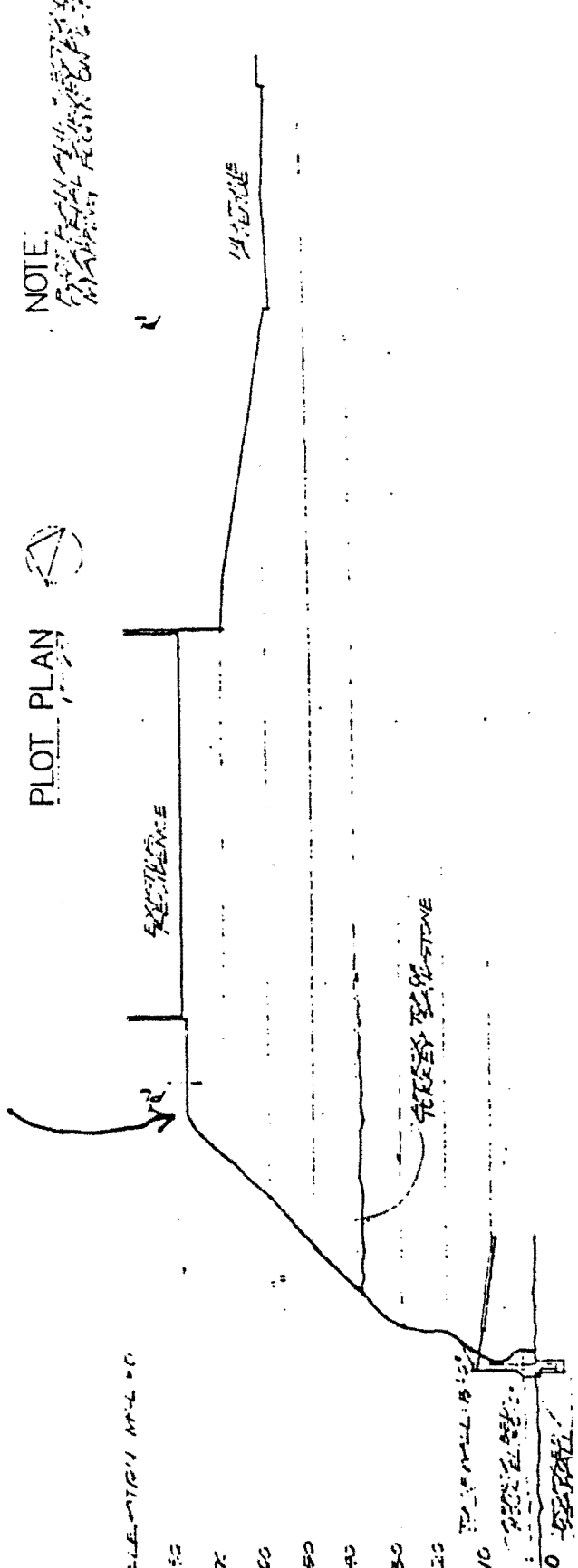
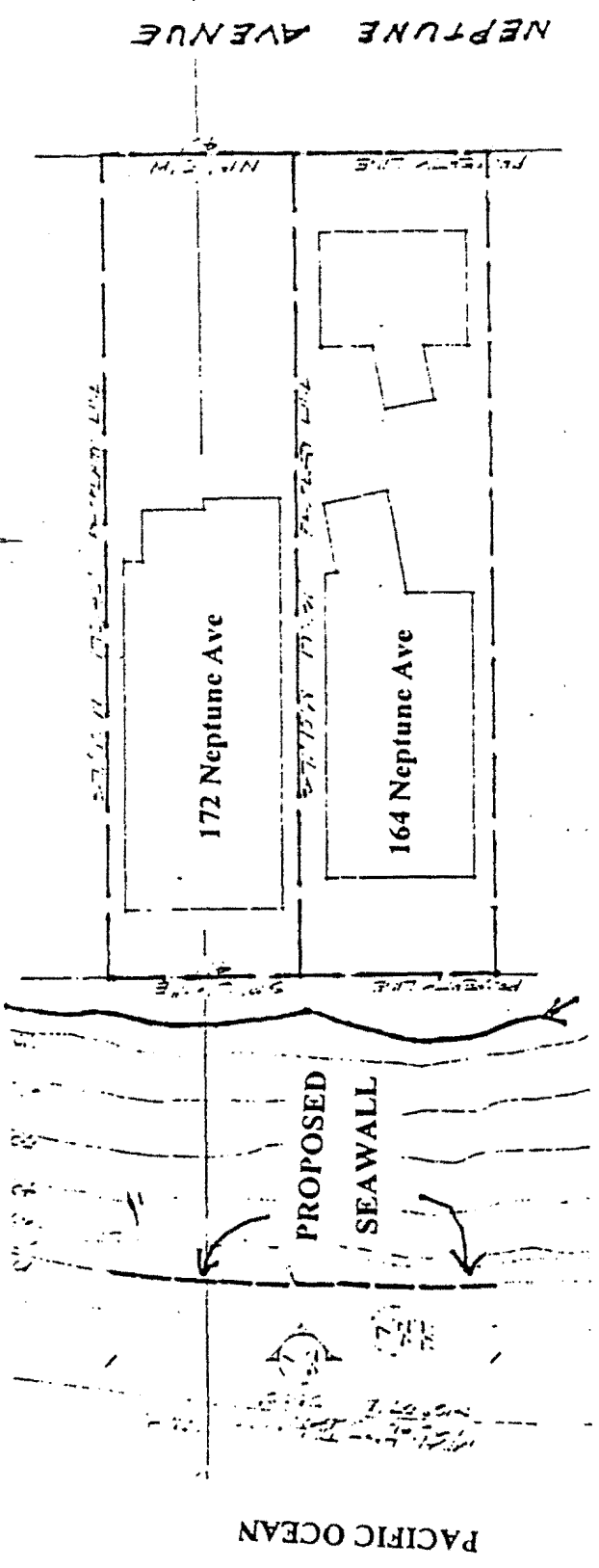


EXHIBIT NO. 2
APPLICATION NO.
6-97-90
Site Plans
California Coastal Commission

CALIFORNIA COASTAL COMMISSION

SAN DIEGO COAST AREA
3111 CAMINO DEL RIO NORTH, SUITE 200
SAN DIEGO, CA 92106-1725
(619) 521-8036

Date July 13, 1995Application No. 6-95-66Page 1 of 7**FILE COPY**NOTICE OF INTENT TO ISSUE PERMIT

On July 12, 1995, the California Coastal Commission approved the application of Andrew Han, subject to the attached standard and special conditions, for the development described below:

Description: Construction of a 13 ft. high cast-in-place concrete seawall, with tiebacks, on public property fronting a blufftop lot containing an existing single-family residence.

Site: Public property fronting 386 Neptune Avenue, Encinitas, San Diego County. APN 256-282-12

The permit will be held in the San Diego District Office of the Commission, pending fulfillment of Special Conditions 1-3, 5-8, 10-11, & 13. When these conditions have been satisfied, the permit will be issued.

CHARLES DAMM
DISTRICT DIRECTOR
BY

EXHIBIT NO. 3

APPLICATION NO.

6-97-90Notice of Intent to
Issue Permit for**6-95-66**

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California Coastal Commission

1 of 7

STANDARD CONDITIONS:

1. Notice of Receipt and Acknowledgement. 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 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 or 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.

SPECIAL CONDITIONS:

The permit is subject to the following conditions:

1. Final Plans. Prior to the issuance of the coastal development permit, the applicant shall submit for review and written approval of the Executive Director, final plans for the seawall approved herein for the site. Said plans shall first be approved by the City of Encinitas and include the following:

- a. Said plans shall document that disturbance to sand and intertidal areas shall be minimized. Beach sand excavated shall be redeposited on the beach. Local sand, cobbles or shoreline rocks shall not be used for back-fill or construction material.

SPECIAL CONDITIONS, continued:

- b. Said plans shall indicate that the proposed seawall shall conform as closely as possible to the contours of the bluff, and shall be designed to incorporate surface treatments that resemble the color and surface of the adjacent natural bluff.
- c. Plans shall indicate that any existing permanent irrigation system located within the geologic setback area (40 feet from the bluff edge) has been removed or capped.
- d. Plans shall document that all runoff from impervious surfaces on the site is collected and directed away from the bluff edge towards the street.

2. Mitigation for Impacts to Sand Supply. The applicant shall be responsible for depositing a total fee of \$3,068.50 in an interest bearing account designated by the Executive Director, in lieu of providing sand to replace the sand and beach area that would be lost due to the impacts of the proposed protective structure. The methodology used to determine the appropriate mitigation fee for the subject site shall be that described in the staff report dated 6/21/95 prepared for coastal development permit #6-95-66. Payment of the fee shall be as follows:

Prior to the issuance of the coastal development permit, evidence shall be provided, in a form and content acceptable to the Executive Director, that the applicant has deposited a fee of \$360.00 in an interest bearing account designated by the Executive Director. In addition, on or before February 9, 1996, the applicant shall provide evidence, in a form and content acceptable to the Executive Director, that the remainder of the fee \$2,708.50 has been deposited in an interest bearing account designated by the Executive Director. The California Coastal Commission shall be named as trustee of this account, with all interest earned payable to the account for the purposes stated below.

The purpose of the account shall be to establish a beach sand replenishment fund to aid SANDAG, or a Commission-approved alternate entity, in the restoration of the beaches within San Diego County. The funds shall solely be used to implement projects which provide sand to the region's beaches, not to fund operations, maintenance or planning studies. The funds shall be released only upon approval of an appropriate project by the Executive Director of the Coastal Commission. The funds shall be released as provided for in a memorandum of agreement (MOA) between SANDAG, or a Commission-approved alternate entity, and the Commission, setting forth terms and conditions to assure that the in-lieu fee will be expended in the manner intended by the Commission. In the event SANDAG does not enter into a MOA with the Commission within one year from deposition of the initial fee, the Commission can appoint an alternative entity to administer the fund.

SPECIAL CONDITIONS, continued:

3. Future Bluff/Shoreline Protective Devices. Prior to the issuance of the coastal development permit, the applicant shall record CDP #6-95-66 and the adopted findings. The document shall be recorded and run with the land and bind all successors and assigns. Additionally, by acceptance of this coastal development permit, the applicant shall accept the responsibility to provide to any successor-in-interest to the subject property, a copy of the adopted findings for CDP #6-95-66.

4. Groundwater Impacts. Plans for the installation of hydraugers in the bluff, the construction of wells along the eastern property line, or other similar means to reduce the potential for groundwater to reach the bluff face, shall be submitted to the Executive Director for review and written approval, if, from examination of soil borings and site inspections during seawall construction, the project engineer should determine that groundwater and its potential to trigger block failures exists. Said groundwater system shall be installed concurrent with construction of the seawall. In addition, a maintenance program for such groundwater removal systems shall also be submitted and receive written approval of the Executive Director. Said program shall assure the system approved herein is maintained for efficient operation at all times.

5. Community Wide/Regional Solution to Shoreline Erosion. Prior to the issuance of the coastal development permit, the permittee(s) shall execute and record a deed restriction, which shall provide that the permittee(s), or successor-in-interest, shall agree to participate in the implementation of any comprehensive program contained in the City's certified Local Coastal Program (LCP) addressing a community-wide/regional solution to the shoreline erosion problems in Encinitas. The permittee(s), or successor-in-interest, shall also agree to participate in any assessment district or other means to implement the LCP's solution to the shoreline erosion problems.

The responsibility of participation in the community-wide/regional solution shall run with the land binding on the property owner's successors and assigns and the above parameters shall be documented in a recorded restriction against the deed of the subject property. This restriction shall be recorded, in a form and content acceptable to the Executive Director, free of prior liens or encumbrances, other than tax liens, which the Executive Director believes may affect the interest being conveyed. Evidence of recordation of this restriction shall be submitted to and acknowledged in writing by the Executive Director prior to the issuance of the coastal development permit.

6. Assumption of Risk: Prior to the issuance of the coastal development permit, the applicant [and landowner] shall execute and record a deed restriction, in a form and content acceptable to the Executive Director, which shall provide: (a) that the applicant understands that the site may be subject to extraordinary hazard from bluff retreat and erosion and the (b) applicant

SPECIAL CONDITIONS, continued:

hereby waives any future claims of liability against the Commission or its successors in interest for damage from such hazards. The document shall run with the land; binding all successors and assigns, and shall be recorded free of prior liens.

7. Open Space Deed Restriction. Prior to the issuance of the coastal development permit, the applicant shall record a restriction against the subject property, free of all prior liens and encumbrances, except for tax liens, and binding on the permittee's successors in interest and any subsequent purchasers of any portion of the real property. The restriction shall prohibit any development, including, but not limited to, alteration of landforms, removal of vegetation or the erection of structures of any type, in the area shown on the attached Exhibit "4" and generally described as the area from the top of the bluff to the western property line as referenced on site plans dated 6/12/92 by Earth Systems Design Group. The recording document shall include legal descriptions of both the applicant's entire parcel(s) and the restricted area, and shall be in a form and content acceptable to the Executive Director. Evidence of recordation of such restriction shall be subject to the review and written approval of the Executive Director.

8. Future Development. Prior to the issuance of the coastal development permit, the applicant shall execute and record a document, in a form and content acceptable to the Executive Director, stating that the subject permit is only for the development described in coastal development permit #6-95-66 (the construction of a 13 ft. high seawall); and that any future additions to the residential structure, maintenance of the herein approved seawall, construction of additional seawalls or upper bluff protection, or other development as defined in Public Resources Code Section 30106 will require an amendment to permit #6-95-66 or will require an additional coastal development permit from the California Coastal Commission or from its successor agency. The document shall be recorded as a covenant running with the land binding all successors and assigns in interest to the subject property.

9. Maintenance Activities/Future Alterations. The applicant shall be responsible for maintenance of the permitted protective device. Any change in the design of the project or future additions/reinforcement of the seawall will require a coastal development permit. If after inspection, it is apparent repair or maintenance is necessary, the applicant should contact the Commission office to determine whether permits are necessary. The applicant shall be responsible for the removal of debris deposited on the beach or in the water during and after construction of the shoreline protective devices or resulting from failure or damage of the shoreline protective device.

10. Construction Access/Staging Areas/Project Timing. Prior to the issuance of the coastal development permit, the applicant shall submit plans showing the locations, both on- and off-site, which will be used as staging

SPECIAL CONDITIONS, continued:

and storage areas for materials and equipment during the construction phase of this project. The staging/storage plan shall be subject to review and written approval of the Executive Director. Use of sandy beach and public parking areas, including on-street parking, except for the North El Portal Street end, for the interim storage of materials and equipment shall not be permitted.. The plan shall also indicate that no work may occur on sandy beach during weekends or holidays in the summer months (Memorial Day to Labor day) of any year and that equipment used on the beach shall be removed from the beach at the end of each work day.

11. State Lands Commission Review. Prior to the issuance of the coastal development permit, the applicant shall obtain a written determination from the State Lands Commission that:

- a) No state lands are involved in the development; or
- b) State lands are involved in the development, and all permits required by the State Lands Commission have been obtained; or
- c) State lands may be involved in the development, but pending a final determination of state lands involvement, an agreement has been made by the applicant with the State Lands Commission for the project to proceed without prejudice to the determination.

12. Public Rights. By acceptance of this permit, the applicant acknowledges, on behalf of him/herself and his/her successors in interest, that issuance of the permit shall not constitute a waiver of any public rights which may exist on the property. The applicant shall also acknowledge that issuance of the permit and construction of the permitted development shall not be used or construed to interfere with any public prescriptive or public trust rights that may exist on the property.

13. Seawall Design. Prior to the issuance of the coastal development permit, the applicant shall submit certification by a registered civil engineer that the proposed shoreline protective device is designed to withstand storms comparable to the winter storms of 1982-83.

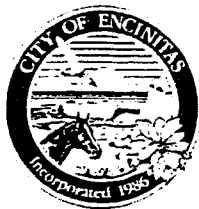
In addition, within 60 days following completion of the project, the applicant shall submit certification by a registered civil engineer, acceptable to the Executive Director, verifying the seawall has been constructed in conformance with the approved plans for the project.

14. Deed Restrictions. For Special Condition Nos. 3, 5, 6, 7 and 8 above, if legal review of the deed restriction documents (and subordination agreements, if applicable) for form and content by the Executive Director is not complete within 30 days of receipt by the Executive Director of the

SPECIAL CONDITIONS, continued:

completed and executed documents, then the permit can be released (pending written notification by the Executive Director of satisfaction of all other special conditions). However, satisfaction of all required deed restriction requirements, including recordation, shall be completed no later than 120 days from issuance of the permit or the permit shall be rendered null and void.

(4992N)



City of
Encinitas

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SEP 05 1997

CALIFORNIA
COASTAL COMMISSION
SAN DIEGO COAST DISTRICT

September 3, 1997

Mr. Lee McEachern
California Coastal Commission
San Diego District
3111 Del Rio North, Suite 200
San Diego, CA 92108

SUBJECT: 6-97-90 (City of Encinitas Case No. 93-163 MUP/EIA); Denver/Canter Seawall; 164 & 172 Neptune Avenue.

Dear Lee:

The Denver/Canter Seawall was approved pursuant to Resolution No. PC-93-33 on November 18, 1993 by the Encinitas Planning Commission, as recommended by staff, with a vote of 4-0 (1 absent). The project approval is still valid due to an extension approved by the Community Development Department pursuant to DCD-95-076. The extension established a new expiration date of December 6, 1997. The wall is consistent in design with other existing seawalls which were constructed pursuant to approvals by the City and the California Coastal Commission.


Given the pending predictable severe winter storms, the approval of the subject project should not be held up until such time that the Comprehensive Bluff and Shoreline Plan (Comp Plan) is approved. A draft Comp Plan has been prepared which has been endorsed by the City Council. City staff is now diligently working with Coastal staff and bluff top property owners to resolve the issues at hand.

Your recommendation of approval for the subject project to the California Coastal Commission will be appreciated. Coastal Commission approval will allow Mr. Denver and Mr. Canter to rely on the existing City approval without any additional requests for extensions. Additionally, your support will avoid the need for issuance of emergency permits given the anticipated severe winter storms. If you have any questions in this matter please do not hesitate to call me at (760) 633-2711.

Sincerely,

Bill Weedman
City Planner

cc: Mayor Davis
Deputy Mayor Aspell
Council Member Bond
Council Member DuVivier
Council Member Cameron
Lauren Wasserman, City Manager

EXHIBIT NO. 4
APPLICATION NO. 6-97-90
Letter of Support
 California Coastal Commission

SACRAMENTO ADDRESS
STATE CAPITOL
ROOM 3070
SACRAMENTO, CA 95833
PHONE: (916) 445-5161

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SEP 15 1997

Senate
California Legislature



DISTRICT OFFICE
2121 PALOMAR AIRPORT RD
SUITE 100
CARLSBAD, CA 92009
PHONE: (760) 438-3813
FROM ESCONDIDO
AREA 744-2223
FROM AREA CODE 714 USE
800-481-5560

WILLIAM A. CRAVEN
SENATOR
38TH DISTRICT

CHAIRMAN
COMMITTEE ON LOCAL GOVERNMENT

97-

September 8, 1997

Rusty Areias, Chairman
California Coastal Commission
45 Fremont Street Suite 2000
San Francisco CA 94105

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SEP 12 1997

CALIFORNIA
COASTAL COMMISSION

Dear Rusty:

I am contacting you to request your assistance for two of my constituents, Dr. Cantor and Dr. Denver, who reside on adjoining beach bluff-top properties located on Neptune Street in Encinitas. They will appear for the third time before the Coastal Commission at your October meeting to once again request a shoreline protection permit.

These two gentlemen have appeared before the Coastal Commission on two previous occasions, as noted, to request a shoreline protection permit to build a sea wall to protect their beach bluff-top properties. They have submitted all of the necessary geologic and engineering studies required, but on CCC staff recommendation, the Commission has denied their requests.

I understand that CCC staff recommended against the issuance of the permits because, according to criteria reiterated by staff, there was no preventative plan in place to protect beach property. The criteria used required that a demonstrated need must be present -- their houses were not immediately/imminently endangered, and on that basis, no permit would be recommended. It would seem then, that there is essentially a moratorium on the issuance of shoreline protection permits other than emergency permits.

Secondly, the CCC wanted the City of Encinitas to craft a comprehensive plan for all bluff-top properties in that area before the Commission issued any shoreline protection permits. The City of Encinitas has drafted a Coastal Bluff Plan which it is circulating

EXHIBIT NO. 5
APPLICATION NO.
6-97-90

Letter of Support

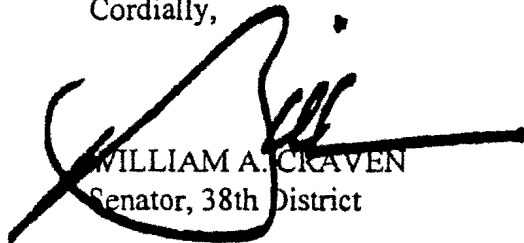
Page 1 of 2

California Coastal Commission

for public comment at this time. However, CCC staff has recommended amendments to the draft plan which are of great concern to the city and onerous to the bluff-top residents and property owners. Therefore, it would appear that the City and the CCC staff are far from some formalized agreement in this regard.

My constituents have done everything possible to meet CCC criteria for issuance of a permit, and they truly feel trapped between the city and the CCC staff. It would be most appreciated if you could study this matter and make a reasonable recommendation to the Commission which would assist Dr. Cantor and Dr. Denver.

Cordially,



WILLIAM A. CRAVEN
Senator, 38th District

WAC:cc:d

Enclosures



Howard Kaloogian ASSEMBLYMAN, SEVENTY-FOURTH DISTRICT

CALIFORNIA LEGISLATURE, STATE CAPITOL, SACRAMENTO, CA 95814 (916) 445-2390 FAX (916) 324-9991

COMMITTEES:
VICE-CHAIR, BANKING & FINANCE
MEMBER:
COMMITTEES ON JUDICIARY
REVENUE AND TAXATION
LOCAL GOVERNMENT
STATE CHAIR:
AMERICAN LEGISLATIVE EXCHANGE COUNCIL
NATIONAL CONFERENCE OF STATE LEGISLATURES

SELECT COMMITTEE ON CALIFORNIA
HORSE RACING INDUSTRY

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SEP 15 1997

CALIFORNIA
COASTAL COMMISSION
SAN DIEGO COAST DISTRICT

Sept. 12, 1997

Mr. Lee McEachern
California Coastal Commission
San Diego District
3111 Camino del Rio N., Suite 200
San Diego, CA 92108

Dear Mr. McEachern:

What impacts the pending El Nino will have on the San Diego coastline are unknown. What is known is how deteriorated this section of coastline has become, and how vulnerable certain residences are in regards to the crumbling bluffs in Leucadia, the community within the city of Encinitas.

As a concerned resident and as the representative of the 74th Assembly District, I am asking the Coastal Commission to approve a request for a seawall made by Mr. Paul Denver of 164 Neptune Ave. The city of Encinitas, the local jurisdiction in this case, has already approved Mr. Denver's plans and has staff working closely with the Coastal Commission to ensure its approval.

The projection of a record El Nino condition this winter is justification for approval of this plan, which is, I understand, similar to other seawalls already approved by your agency. Approving Mr. Denver's project now will also eliminate the need to declare an emergency permit if the bluff begins to erode further, due to high wave action or inclement weather.

I have reviewed the documents associated with this permit request and believe that Mr. Denver is nothing seeking any special consideration beyond what has already been extended to his neighbors.

Respectfully,

HOWARD KALOOGIAN
Assemblyman, 74th District

HK:del

STATE CAPITOL, P.O. BOX 942849, SACRAMENTO, CA 94249-0001
PHONE: (916) 445-2390 FAX: (916) 324-9991 E-MAIL: howard.kaloogian@assembly.ca.gov

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EXHIBIT NO. 6
APPLICATION NO.
6-97-90
Letter of Support
California Coastal Commission

REPORT ON IN-LIEU FEE BEACH SAND MITIGATION PROGRAM

SAN DIEGO COUNTY

JANUARY 1997
(REVISED SEPTEMBER 1997)

PRINCIPAL AUTHOR
SHERILYN SARB

WITH TECHNICAL ASSISTANCE BY
LESLEY EWING

IN CONSULTATION WITH
AMY ROACH, STAFF COUNSEL

PREPARED UNDER THE DIRECTION OF
CHARLES DAMM

FINANCIAL ASSISTANCE FOR THE PREPARATION OF THIS DOCUMENT WAS PROVIDED BY THE COASTAL ZONE MANAGEMENT ACT OF 1972 — AS AMENDED — ADMINISTERED BY THE OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.



California Coastal Commission

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I. PURPOSE OF THIS REPORT

The Commission's Regional Cumulative Assessment Project (ReCAP) in its December, 1994, "Preliminary Findings and Recommendations" documented that large sections of the pilot Monterey Bay shoreline were being armored through emergency and regular permits for individual site protection. The ReCAP findings and other staff work contributed to a growing body of evidence that armoring a bluff, in addition to encroaching onto the beach and preventing its further landward migration, will reduce the amount of sand and gravel entering the littoral cell, and will cause the narrowing of an eroding beach over time and reduction in the area of sand available for recreational use.

This report is initiated through a Project of Special Merit which was implemented in San Diego County and funded through a Federal grant from the Office of Coastal Resource Management (OCRM). The objective of the Project of Special Merit is to lay the foundation for a comprehensive regional approach to regulating shoreline development, which takes into consideration the cumulative adverse impacts of shoreline armoring on the long-term availability of sandy beach areas for public recreational use. This report is a product of the San Diego project, along with two procedural guidance documents to be used in evaluating proposals for shoreline protection.

Used in conjunction with the Procedural Guidance Documents on Review of Permit Applications for Shoreline Protective Devices and on Monitoring, this report will help provide a framework for Commission staff to assess the adverse and cumulative impacts of shoreline protective devices on shoreline sand supply, and therefore, on public access and recreational opportunities. The contents of this report is technical as it contains a methodology which can be utilized to quantify the adverse effects of shoreline armoring. In addition, all of the above referenced documents identify potential measures which can be implemented to mitigate such identified effects.

The specific purpose of this report, pursuant to the requirements of Task 1.3.B of the Commission's FY 95 federal grant, is to identify the components of the in-lieu fee beach sand mitigation program which has been implemented in portions of San Diego County through the Coastal Commission's approval of coastal development permits for seawalls in the City of Encinitas and Solana Beach. The report is to analyze the application of the in-lieu fee as a condition of approval of other projects in different shoreline situations. The objective is to develop a complete program for implementation within San Diego County and to identify the constraints or limitations to implementation in other shoreline areas along the California coast.

II. MITIGATION OF IMPACTS TO SAND SUPPLY

Section 30235 of the Coastal Act requires the Commission to approve seawalls, revetments, cliff retaining walls and other such construction that alters natural shoreline processes to protect existing structures, public beaches and coastal development uses in danger from erosion and **when designed to eliminate or mitigate the adverse impacts on shoreline sand supply**. The Coastal Act does not contain a specific definition for mitigation. The California Environmental Quality Act (CEQA)

guidelines¹ provide a definition of mitigation for purposes of CEQA. Section 15370 of the CEQA guidelines define mitigation as:

- 1) Avoiding the impact altogether by not taking a certain action or parts of an action.
- 2) Minimizing impact by limiting the degree or magnitude of the action and its implementation.
- 3) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- 4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- 5) Compensating for the impact by replacing or providing substitute resources or environments.

This definition provides several alternative forms of mitigation. In mitigation by avoidance, adverse impacts are avoided altogether through alteration of project location, design, or other related aspects. Commission staff typically recommends mitigation by avoidance, if feasible, since it is the best way to prevent direct adverse impacts to public access and sand supply in association with a shoreline protective device. However, if the Commission is required to approve a shoreline altering device to protect an existing structure in danger from erosion, minimizing, rectifying or reducing project impacts are forms of mitigation that diminish the severity of the project related impacts and are required under Section 30235. Although these forms of mitigation can result in alterations to the project design, the overall integrity of the project can be preserved.

Compensation includes mitigation undertaken to replace public access or sand which is lost or adversely impacted, with access or beach of equal or greater value or size. This report is examining the use of a fee, instead of placing sand on the beach, to compensate for the impacts of seawalls on natural shoreline processes and sand supply in San Diego County. The analyst should refer to the Procedural Guidance Document on Review of Permit Applications for Shoreline Protective Devices to identify other forms of mitigation which may be appropriate when recommending approval of shoreline altering devices. As further addressed in the above referenced document, mitigation can take a variety of forms depending on various factors, including the nature of the impact, the amount of beach available, the ability to revise the proposed project and ownership of the land.

III. THE BEACH SAND MITIGATION PROGRAM — SAN DIEGO COUNTY

A. INITIAL APPLICATION

The Coastal Commission initiated the in-lieu fee mitigation program in response to two coastal development permit applications for lower bluff protection in the City of Encinitas in San Diego

¹ See CEQA Guidelines Section 15370.

County. One application involved the construction of 9-ft high shotcrete seawalls, with tiebacks, on public property fronting six non-contiguous lots to protect existing private residential blufftop development (CDP #6-93-85 Auerbach et al). The second application was for similarly designed seawalls in the nearby section of shoreline on 8 contiguous properties (CDP #6-93-131 Richards et al). The projects represented the first proposals for armoring along a section of coastline backed by 100 foot high, very scenic coastal bluffs, where the vertical portion of the bluffs are owned by the City of Encinitas.

These public coastal resources, i.e., the bluffs, had not been altered by stairways, retaining walls, seawalls or other forms of protective devices which exist along other segments of the Encinitas shoreline. The requests were being made to stop the natural process of undercutting in order to prevent massive block falls. Some of the properties had experienced sloughage of the upper bluff which had precipitated the initial concern and prompted the permit applications. Additionally, landowners of five properties requested permits for installation of a below-ground, upper bluff retention systems, to secure the residences in the event the upper bluff should continue to erode to the point of threatening the foundation of the structures.

Pursuant to Section 30235, the Commission is required to approve a protective device which alters natural shoreline processes, such as the proposed seawalls, when there is an existing structure in danger from erosion and a seawall is required to protect it; and, when the protection is designed to eliminate or mitigate adverse impacts on shoreline sand supply. In the Encinitas examples, it was determined that protection was necessary; therefore, some form of mitigation was required, if the structures were approved, to offset the significant effects of the armoring on the adjacent public resources, including beach sand supply, and, therefore, public access and recreational opportunities. The in-lieu fee program was derived as the means to mitigate the impacts of the shoreline protective devices on beach sand supply, to be paid by the applicants in-lieu of placing sand on the beach. The payment of the fee was required as a condition of approval of the coastal development permits for the shoreline protective devices in accordance with Section 30235 of the Coastal Act.

The amount of the fee was derived through a methodology developed by the Commission staff coastal engineer to quantify the amount of sand that would replace the lost beach area and replace the amount of sand denied to the littoral cell over the life of the structure. That volume of sand is then multiplied by the cost of transporting and depositing sand on the beach in the project vicinity to determine the fee to be paid in-lieu of placing sand on the beach to mitigate for the lost beach area and material.

At this time, the condition is specific to permits in San Diego County, because there is a regional agency, the San Diego Association of Governments (SANDAG) that has agreed to collect the fees and administer the fund. SANDAG has adopted a Shoreline Preservation Strategy for the San Diego County shoreline which acknowledges the value of beaches to recreation and tourism and, thus, to the State and regional economy, and encourages beach replenishment to protect property and maintain beaches for public recreational use over the long-term.

As mentioned, the in-lieu fee mitigation program was developed in San Diego County as a result of proposals for shoreline armoring which covered many contiguous properties and are located in areas

where the bluff and the beach are in public ownership and without existing armoring. The Commission found the fee to be appropriate for several reasons including, the proposed protective devices were located on beaches used by the public; they were necessary to protect private development in danger from erosion; they would result in adverse impacts to State tidelands; there were no design modifications that would lessen or eliminate the impact; mitigation in the form of a fee would allow beach nourishment to occur in a comprehensive rather than piecemeal manner; and the fee would offset the long-term effects of the armoring on the public beach. The amount of fees required through conditions of approval of permits which have been approved by the Commission to date are shown on Attachment 3.

B. METHODOLOGY TO QUANTIFY IMPACTS AND CALCULATE FEE

The methodology used to quantify the impacts and calculate the fee amount for the projects which have already been approved by the Coastal Commission was detailed in the staff reports for those projects. As part of the Project of Special Merit implemented in the San Diego office, Commission staff has considered how the methodology can be used to quantify the impacts of shoreline protective devices in other shoreline situations, and in other locations along the California coast. As a result, the staff engineer has revised the description of the methodology and referenced figures to provide an explanation of the science which is more understandable to the layman; however the equations are the same as those used to calculate the fee for the already approved projects. The revised description and figures are contained below and a revised impact analysis worksheet is attached as Attachment 1. The following methodology can be used to quantify some of the effects of a proposed shoreline protective device on sand supply and natural shoreline processes, and to help identify and support the appropriate measures to mitigate those impacts.

As stated, Commission staff has found that some of the effects which a structure may have on natural shoreline processes can be quantified. By quantifying these effects, an analyst can have a better understanding of the impacts of a proposed project and have a way to compare different project designs. Also, this quantification can provide support for any recommended mitigation conditions. Three of the effects from a shoreline protective device which can be quantified are 1) loss of the beach area on which the structure is located; 2) the long-term loss of beach which will result when the back beach location is fixed on an eroding shoreline; and 3) the amount of material which would have been supplied to the beach if the back beach or bluff were to erode naturally.

LOSS OF BEACH AREA ON WHICH THE STRUCTURE IS LOCATED

Shoreline protective devices such as seawalls, revetments, gunnite facings, groins, etc. all are physical structures which occupy space. When a shoreline protective device is placed on a beach area, the underlying beach area cannot be used as beach. If the underlying beach area is public beach, the public will not be able to use the area the way it had prior to placement of the structure. This area will be altered from the time the protective device is constructed and the extent or area occupied by the device will remain the same over time, until the structure is removed or is moved from its initial location. (The only exception to this would be a structure which can spread or move seaward over time, such as a revetment.) The beach area located beneath a shoreline protective device, referred to as encroachment area, is the area of the structure's footprint (Figure 4-2).

The encroachment area (A_e) is equal to the width of the properties which are being protected (W) times the seaward encroachment of the protection (E). This can be expressed by the following equation:

$$A_e = W \times E$$

LONG-TERM LOSS OF BEACH IF THE BACK BEACH LOCATION IS FIXED.

Seawalls, revetments, gunnite facings, etc. protect the landward or backbeach property by being more resistant to wave action than the natural beach or bluff material. Because of this greater resistance to wave attack, these structures remain where they are placed. On an eroding unprotected shoreline, the natural back beach or bluff migrates landward. A shoreline protective device will halt this landward migration and "fix" the location of the back beach or bluff. If the erosion has been caused by the landward movement of waves and general landward migration of the front beach and wet beach area, the fixed position of the back beach will result in a narrowing of the useable beach. When the back beach location on an eroding beach is fixed, the beach will narrow over time shrinking to a smaller and smaller corridor between the ocean waves and the shoreline protective device. Eventually, the dry beach will disappear and waves will hit the shoreline protective device during all but the most extreme low tide events. This loss of beach occurs because the natural balance between landward movements of the fore beach and back beach or bluff has been changed by the construction of a more resistant back beach structure, preventing the landward migration of the back beach or bluff. In some cases, beach lost will be entirely public beach, i.e., the beach seaward of the mean high tide line is held in the public trust, or the beach landward of the mean high tide line is owned by a local government or other public agency such as State Parks and Recreation. In other cases, the beach lost will be both private and public, i.e., the beach seaward of the mean high tide line is held in the public trust and the beach landward of the mean high tide line is private. In all cases, as the beach narrows, there is a loss of beach sand both seaward and landward of the mean high tide line.

The actual long-term loss is equal to the actual long-term erosion times the width of property which has been fixed by a resistant shoreline protective device (See Figure 4-3). Since the actual amount of long-term erosion cannot be predicted, erosion is approximated by the long-term average annual erosion rate times the number of years that the back beach or bluff will be fixed. The width of the property which has been fixed can be determined from the project design. Since one of the key tests of Section 30235 is whether there is an existing structure in danger from erosion, the long-term average annual erosion rate should be provided by the applicant as information to help the analyst determine whether there is any danger from erosion and whether the shoreline protective device is needed. The same long-term average annual erosion rate which is used to determine whether there is any danger from erosion would be used to determine the approximate amount of beach area which would be lost if the landward erosion of the forebeach is not balanced by the landward erosion of the back beach or bluff.

Figure 4-2 Encroachment Area-Beach
Area Lost Due to Placement of a
Structure on the Beach.

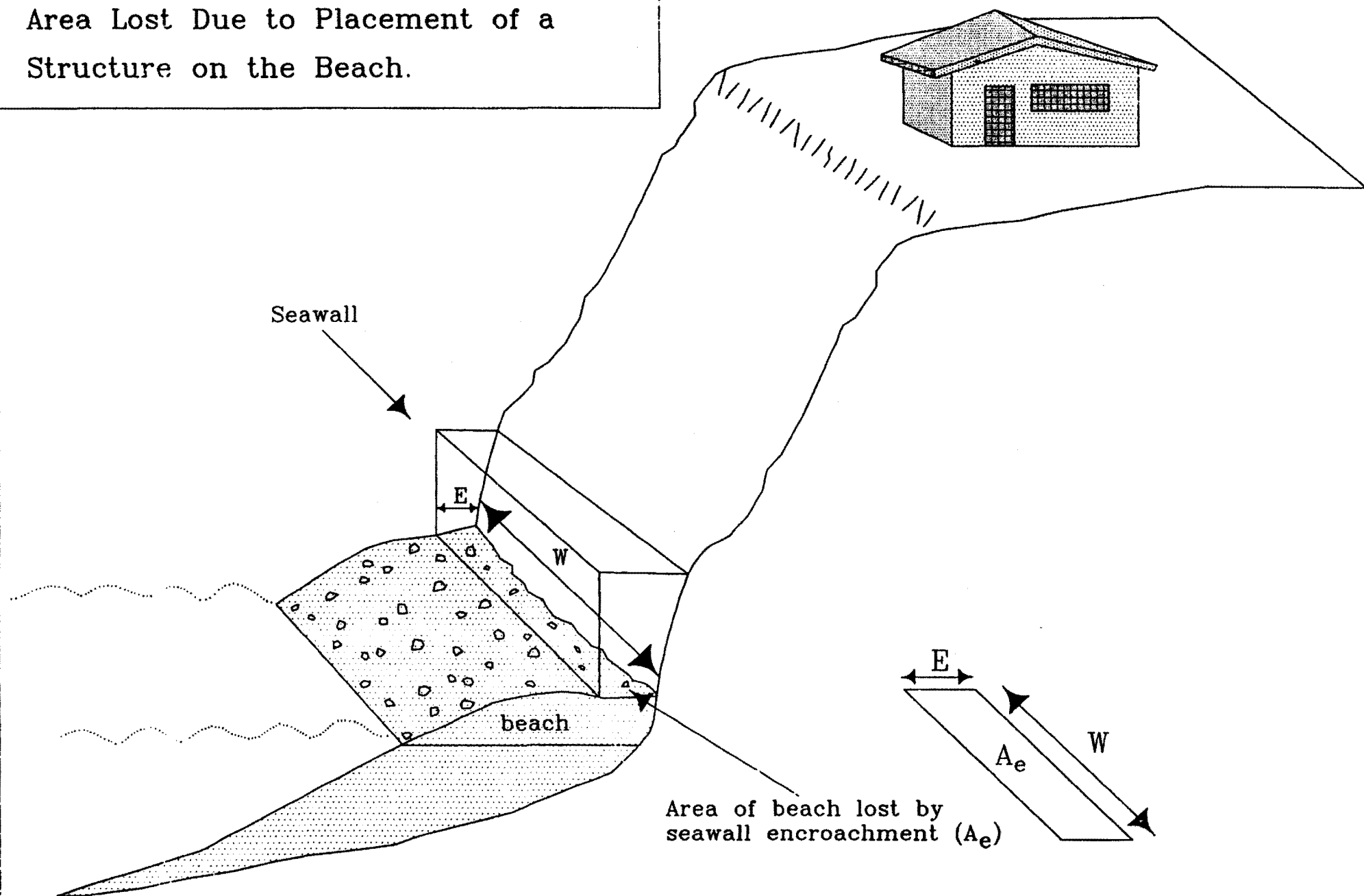
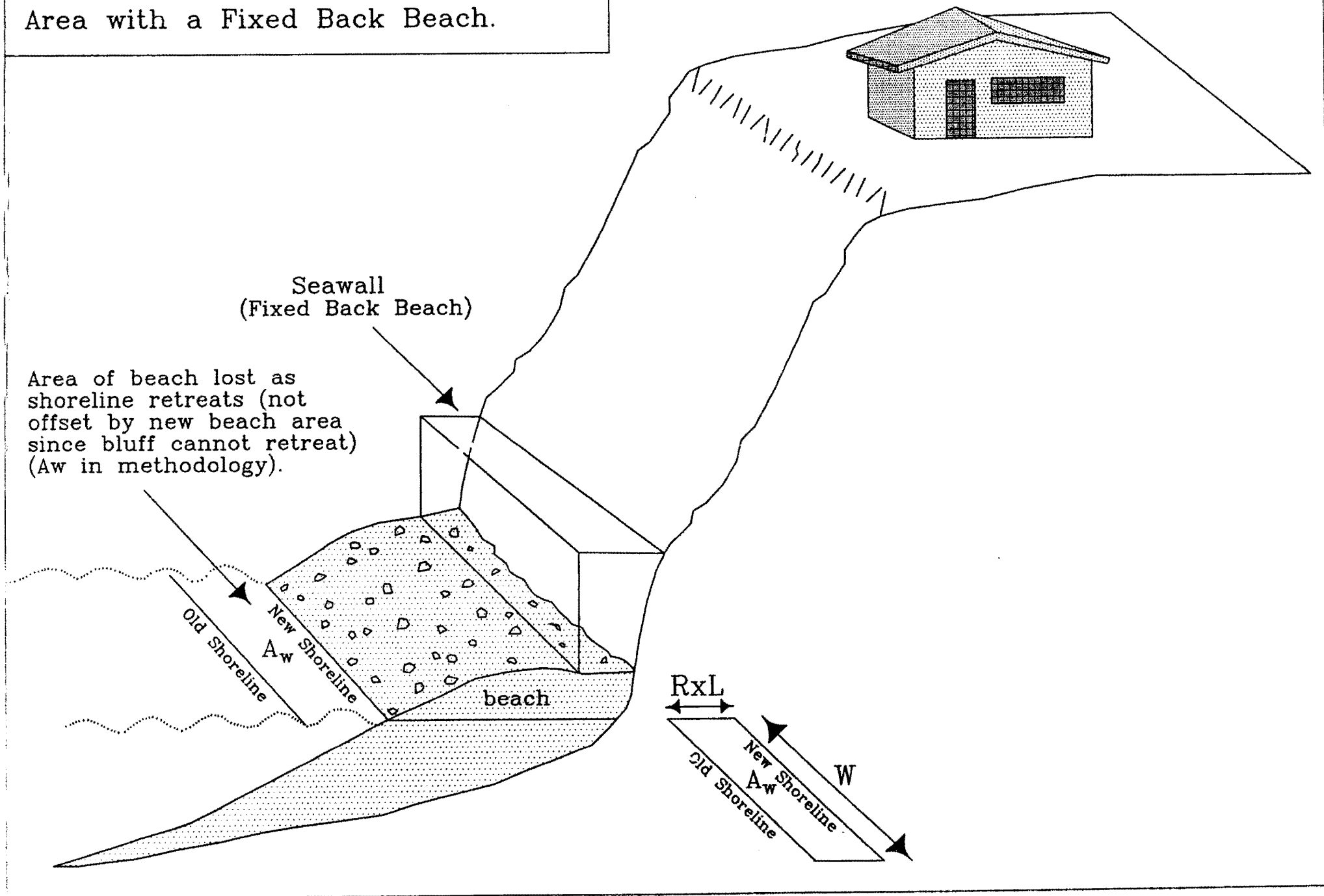


Figure 4-3 Long-term Loss of Beach Area with a Fixed Back Beach.



The area of beach lost due to long-term erosion (A_w) is equal to the long-term average annual erosion rate (R) times the number of years that the back beach or bluff will be fixed (L) times the width of the property that will be protected (W). This can be expressed by the following equation:

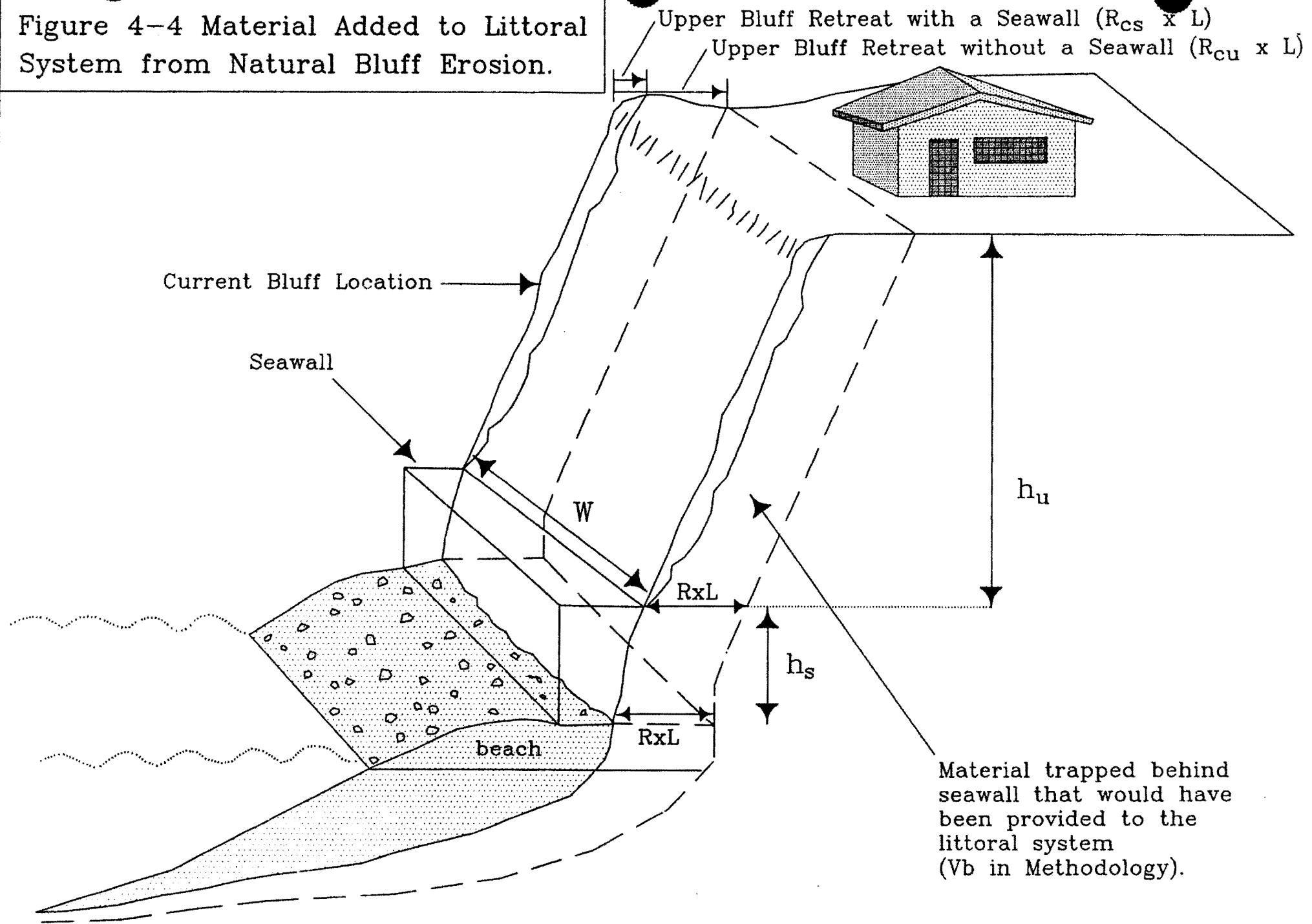
$$A_w = R \times L \times W$$

LOSS OF MATERIAL FROM NATURAL BACK BEACH OR BLUFF EROSION.

Beach material comes to the shoreline from inland areas, carried by rivers and streams; from offshore deposits, carried by waves; and from coastal dunes and bluffs, becoming beach material when the bluffs or dunes lose material due to wave attack, landslides, surface erosion, gullyng, etc. Coastal dunes are almost entirely beach sand and wind and wave action often provide an on-going mix and exchange of material between beaches and dunes. Many coastal bluffs are marine terraces — ancient beaches which formed when land and sea levels differed from current conditions. Since the marine terraces were once beaches, much of the material in the terraces is beach quality sand or cobble, and a valuable contribution to the littoral system when it is added to the beach. While beaches can become marine terraces over geologic time, the normal exchange of material between beaches and bluffs is for bluff erosion to provide beach material. When the back beach or bluff is protected by a shoreline protective device, the natural exchange of material either between the beach and dune or from the bluff to the beach will be interrupted and, if the shoreline is eroding, there will be a measurable loss of material to the beach. Since sand and larger grain material is the most important component of most beaches, only the sand portion of the bluff or dune material is quantified as beach material.

A seawall, gunnite facing, or revetment will prevent the material directly landward of it from eroding and becoming beach material. A seawall, gunnite facing or revetment will probably prevent some of the material above it from becoming beach material; however, some upper bluff retreat may continue unless the shoreline protective device extends the entire height of the bluff. Figure 4-4 shows several possible configurations of the bluff face, with a protective structure. The solid line shows the likely future bluff face location with shoreline protection and the dotted line shows the likely future bluff location without shoreline protection. The volume of total material which would have gone into the littoral system over the lifetime of the shoreline protective device would be the volume of material between the solid line and the dotted line, along the width of protected property. The actual erosion cannot be predicted, so the total erosion of the bluff must be approximated by the average annual long-term erosion of the bluff multiplied by the number of years that the structure will be in place. Finally, since the main concern is with the sand component of this material, the total material will be multiplied by the percentage of bluff material which is sand, giving the total amount of sand which would have been supplied to the littoral system if the proposed device were not installed.

Figure 4-4 Material Added to Littoral System from Natural Bluff Erosion.



Volume of sand denied the beach by the protective device (V_b) is equal to the percentage of sand in the bluff material (S) times the total width of the protected property (W) times the area between the solid and dotted lines in Figure 4-4 directly landward of the device [$R \times h_s$], plus the area between the solid and dotted area above the device [$1/2h_u \times (R + (R_{cu} - R_{cs}))$]. Since the dimensions and retreat rates are usually given in feet and volume of sand is usually given in cubic yards, the total volume of sand must be divided by 27 to provide this volume in cubic yards, rather than cubic feet. This can be expressed by the following equation:

$$V_b = (S \times W \times L) \times [(R \times h_s) + (1/2h_u \times (R + (R_{cu} - R_{cs})))]/27$$

In most cases, the quantified analysis of impacts to sand supply will stop with these calculations of lost beach area (the encroachment loss plus the long term loss of beach area with a fixed back beach) and the lost volume of beach sand. If there is an existing local or regional beach nourishment program in the area where the shoreline protective devices are being proposed, the areas of beach loss could be converted to the volume of sand needed to rebuild this same area of beach in the general area of the protective device. As mitigation for loss of beach area and beach sand, the analyst could prepare a condition which would require the applicant to contribute to the local or regional beach nourishment effort for a volume of sand equivalent to the volume of sand needed to rebuild the total amount of lost beach area plus the amount of material which would be kept from the littoral system.

To convert between area of beach and volume of sand to rebuild an area of beach, coastal engineers use a conversion value, v , which is in units of cubic yards per square foot of beach. The value is based on regional characteristics and is often assumed to be between 1 and 1.5, when there is not regional data to help quantify this value better. The value of v is based on the regional beach and nearshore profiles. To build a beach seaward one foot, there must be enough sand to provide a one foot wedge of sand through the entire region of onshore - offshore transport. If the range of reversible sediment movement is from -30 feet msl to +10 feet msl, then a one foot beach addition must be added for the full range from -30 to +10 feet, or 40 feet total. This 40 foot by 1 foot square parallelogram could be built with 1.5 cubic yards of sand (40 cubic feet divided by 27 cubic feet per cubic yard). If the range of reversible sediment transport is less than 40 feet, it will take less than 1.5 cubic yards of sand to rebuild one square foot of beach and if the range of reversible sediment transport is larger than 40 feet it will take more than 1.5 cubic yards of sand to rebuild one square foot of beach.

The volume of sand to rebuild the area of beach lost due to encroachment (V_e) is equal to the encroachment area (A_e) times the area to volume conversion (v). This can be expressed by the following equation:

$$V_e = A_e \times v$$

The volume of sand to rebuild the area of beach lost due to long-term erosion (V_w) is equal to the area of beach lost due to long-term erosion (A_w) times the area to volume conversion (v). This can be expressed by the following equation:

$$V_w = A_w \times v$$

Finally, if the condition will require that the applicant pay a fee for sand rather than provide the actual volume, the fee can be established as the total volume of sand ($V_e + V_w + V_b$) multiplied by the cost of transporting a cubic yard of sand (C) to the shoreline in the project vicinity.

C. METHODOLOGY BASED ON SCIENCE

The premise behind the sand mitigation program is that structural solutions to shoreline erosion, such as seawalls, revetments, cliff retaining walls, etc., alter natural shoreline processes. The shoreline processes which are affected by such shoreline protective devices include the formation and retention of sandy beaches and bluff retreat which adds bluff material to the shoreline. Shoreline armoring impedes these natural processes by fixing the back of the beach and preventing the landward migration of the beach profile, and by preventing bluff erosion from contributing to the sand supply.

Simply stated, the methodology which has been developed as part of the mitigation program is designed to calculate the beach area displaced and the amount of bluff material which does not reach the beach, as a result of a seawall; and to calculate the amount of sand which would be required to replace that lost beach area in the project vicinity. This amount of material is converted to a fee by multiplying the amount of material times the cost of transporting that material to the beach. The methodology quantifies some of the impact caused by the proposed armoring in terms of area of beach and volume of sand. To derive these amounts, the methodology utilizes the information specific to the proposed protective device, such as the design life, and to the project site, such as height of bluff, width of property, etc., and the predicted rate of erosion that was used to determine the need for protection of the existing structure.

The predicted rate of erosion is based upon historic trends and past shoreline responses. The erosion rate is predicted using the same methodology that is used to predict an erosion rate for purposes of concluding that an existing structure is threatened by erosion. Thus, the methodology uses site specific information and a scientifically sound prediction of erosion rates to quantify the amount of sand that will be lost as a result of the shoreline protective device. The fee is the money needed to buy an amount of sand equal to the sand lost as a result of the protective device. Since the amount of sand lost is quantified, the fee is directly related in extent to the impact of the project. Because the mitigation fee is used for beach replenishment in the same littoral cell where the impact occurs, the fee is also related to the type of impact of the project.



D. APPLICATION OF MITIGATION PROGRAM IN SAN DIEGO COUNTY

As stated previously, the in-lieu fee has been required by the Coastal Commission through conditions of approval of coastal development permits for seawalls in the City of Encinitas and Solana Beach as mitigation for the impacts of the approved seawalls. This report is examining the use of a fee to be deposited in a mitigation fund in-lieu of placing sand on the beach to mitigate for the impacts of seawalls on natural shoreline processes in San Diego County. The shoreline in San Diego County is eroding. The concerns associated with the County's eroding beaches have been addressed in the Shoreline Preservation Strategy adopted by the San Diego Association of Governments (SANDAG). The SANDAG Shoreline Erosion Committee has agreed to administer the fund and help identify beach replenishment projects which could be funded by the mitigation fees.

The Shoreline Erosion Committee of SANDAG is made up of representatives from each of the local coastal jurisdictions, the Port and the Navy with the representatives from the Coastal Commission, State Department of Boating and Waterways and the Department of Fish and Game serving as advisory members. One of the committee's functions is to identify sources of beach quality material for purposes of replenishing the County's eroding shoreline. Additionally, the committee is working on a Long Term Beach Replenishment Strategy. There are currently several sources of significant quantities of beach quality material identified, including the Navy Homeporting Project and the Sand for Trash project, which could augment the County's beaches and provide an ongoing source for beach replenishment in the future. Also, there are opportunistic sources of beach sand reported at every committee meeting, many of which require funding to get the material transported to and deposited on the beach. It is these kinds of beach replenishment efforts which will be funded by the Beach Sand Mitigation Fund established through approvals of shoreline armoring in San Diego County. The Memorandum of Understanding approved by the Executive Director of the Coastal Commission and by the SANDAG Board establishing a process for the administration of the Beach Sand Mitigation Fund is attached as Attachment 2.

The situation is critical in San Diego and may be as critical in other areas along California's coast. Because most of the County beaches are disappearing, there is no longer an adequate buffer between the waves and shorefront or blufftop development. As the buffer disappears, homeowners are likely to seek permission to build seawalls. If a fee to provide for beach replenishment is not pursued on a regional basis, this situation will likely result in an increased amount of shoreline armoring with no remaining sandy beach. This is why there is currently an increased amount of attention being focused on the need for beach replenishment in San Diego County by SANDAG and other Federal, State and local entities.

Therefore, in review of future proposals for shoreline armoring, the Commission staff in the San Diego District office will consider the site and project specific circumstances of each proposal for shoreline altering devices, determine what the impacts are and whether they can be quantified using the developed methodology. The staff will then consider whether payment of a fee in-lieu of placing sand on the beach is an appropriate mitigation for the long-term impacts to sand supply. Even when an impact is identified through application of the methodology, there may be other reasons why an in-lieu fee is not the best means to mitigate impacts to sand supply and/or access

opportunities and other mitigation measures should be pursued. Additionally, there may be some instances when payment of a fee alone is not adequate mitigation and it should be coupled with additional measures, such as project redesign and/or a lateral access offer to dedicate, to address all the adverse impacts resulting from the proposed armoring. The analysts must use their judgment and project analyses to determine whether or not to recommend payment of the mitigation fee as a condition of approval.

The following are examples of several projects which have been reviewed by the Commission since the in-lieu fee beach sand mitigation fund was established, and were approved without a condition requiring payment of a mitigation fee. In one case², the staff did not recommend mitigation in the form of a in-lieu fee on a public seawall project in Carlsbad because adverse impacts to public access and recreational opportunities were being offset by project design, including public access improvements. In another case³ involving a private residential structure, the fee was not required and a lateral access dedication was determined to be sufficient mitigation. In that particular case, there was private sandy beach located seaward of the structure and the project was infill development. In a third case⁴, the project was replacement of a previously approved seawall in La Jolla, where the original Commission approval did not require a mitigation fee; however, the project was required to be located as far inland as possible and a lateral access dedication was required as mitigation. And in a fourth case⁵, the Commission required redesign from a revetment to a vertical seawall and the applicant was required to construct a public stairway providing vertical access as a condition of approval of the City-issued coastal development permit. Thus, staff determined adequate mitigation was being provided to offset the impacts of the seawall on public access. Also, because the bluffs are mostly rocky headlands, they do not make a significant contribution of beach material in the project location.

In summary, the proposed methodology uses the site specific conditions and the proposed project design as factors to determine some of the impacts to sand supply resulting from any proposal for a shoreline protective device. The impacts are quantified in terms of area of beach and volume of sand lost as a result of the seawall. The component of the methodology which addresses the contribution to sand supply from coastal bluffs would obviously not be applicable to armoring on beaches not backed by such bluffs; however, the impacts to sand supply resulting from direct beach encroachment and fixing the inland extent of the beach can still be determined.

The decision to convert the quantified impacts to a dollar amount, and require payment of a fee in-lieu of placing sand on the beach to mitigate the identified impacts, will be based on a variety of other factors, including but not limited to, the degree of impact; the availability of design modifications to eliminate or lessen the impact; whether or not actual beach replenishment could

² Coastal Development Permit # 6-94-91 City of Carlsbad (Sheet pile seawall and revetment totaling 3,185 ft. in length at Carlsbad State Beach to protect public highway)

³ Coastal Development Permit # 6-96-30 California Lutheran Homes (Seawall as western wall of residential structure, infill of vacant lot on Ocean Blvd. in Carlsbad)

⁴ Coastal Development Permit Amendment #6-84-408-A Zien (Replacement design for previously-approved but not constructed seawall in La Jolla)

⁵ Coastal Development Permit # 6-96-89 Casa De La Playa Homeowners Assn. (Revetment and upper bluff retaining wall with public access path and stairway in Ocean Beach)



serve as mitigation; the availability of other forms of mitigation; the ownership of the beach and bluffs; and age and type of shoreline protection on surrounding properties. In some cases, it may be difficult to support payment of a fee in an area that has been historically armored and/or the bluffs have not contributed to sand supply for years. However, because the impacts to the long-term beach width are ongoing, it may be appropriate to quantify the impacts from fixing the back of the beach for the remaining life of the proposed structure. The appropriateness of the in-lieu fee as mitigation should be assessed on a project by project basis using past Commission action, consultation with staff legal counsel and the Procedural Guidance Document on Review of Permit Applications for Shoreline Protective Devices as guidance.

IV. RECOMMENDATIONS FOR USE OF THE MITIGATION PROGRAM IN OTHER LOCATIONS

As discussed in the preceding sections, the methodology utilized in the San Diego County Beach Sand Mitigation Program provides a means to quantify some of the impacts to sand supply caused by construction of shoreline protective devices. The methodology is also contained in the Procedural Guidance Document on Review of Permit Applications for Shoreline Protective Devices and can be used with any proposal involving a shoreline protective device as long as the information is available. Factors which will affect the degree of impact identified through the methodology include, but are not limited to, whether or not the project is proposed on an eroding shoreline; the availability of beach sand seaward of the protective device; the predicted erosion rate; and the percentage of sand in the bluff material. On beaches which are not backed by coastal bluffs, the impacts to sand supply resulting from direct beach encroachment and fixing the inland extent of the beach can still be determined. Impacts of shoreline protective devices located on wide, sandy beaches will be less; however, properties fronted by such beaches are also not likely to require a seawall to protect endangered development.

RECOMMENDATIONS

- 1. When a shoreline protective device is required to protect existing structures in danger from erosion, assure mitigation for impacts to public beaches and long-term public recreational opportunity is adequately addressed.**

The results of the ReCAP study showed that the Commission has not historically addressed the cumulative impacts of shoreline armoring in its review of coastal development permit applications for seawalls and revetments. The typical mitigation measure applied to seawall projects has been a condition of approval requiring the applicant to offer to dedicate a lateral access easement to cover the privately-owned sandy beach seaward of the approved protective device. This practice does not insure mitigation of impacts to sand supply and could result in significant cumulative and adverse effects on shoreline sand supply if adequate mitigation is not required with future armoring. The quantification of impacts discussed in this report can be used to support a variety of mitigation measures which will reduce or eliminate the effects of the project on shoreline sand supply.

2. **Utilize the Procedural Guidance Document on Review of Permit Applications for Shoreline Protective Devices to determine mitigation measures to address impacts on sand supply and public access.**

The above referenced document contains an analytical process and sample conditions of approval which can be utilized by the permit analyst to develop the staff recommendation on projects involving shoreline protective devices. Examples of other forms of mitigation which can reduce or eliminate impacts to sand supply and access contained in that document include, but are not limited to, redesign from a revetment to a vertical seawall, relocation or realignment further inland, provision of lateral access in the design, offer to dedicate a lateral access easement seaward of the structure, deposition of beach material, and an in-lieu fee or user fee to compensate for encroachment on public beach. Support for alternative forms of mitigation can result from utilizing the methodology to quantify impacts and determine the significance of the impact and, thus, the appropriate mitigation.

3. **Work with Local Governments and Public Beach Property Owners to Develop Mitigation Programs Designed to Protect Public Beaches and Recreational Opportunity**

The primary constraint to using the in-lieu fee as mitigation in locations other than San Diego County is the absence in other areas of an established program and a public entity, such as SANDAG, which has agreed to collect the fees and spend the funds on beach replenishment projects. However, when a shoreline protective device encroaches directly on State tidelands or publicly-owned beach, the permit analyst could coordinate with the public property owner, such as the local government, State Lands Commission or State Department of Parks and Recreation. The public agency, as property owner, may be interested in establishing a fund to compensate for the use of the public property and mitigate the impacts of the protective device on public beach. This idea has not been widely used in the past, but may be an appropriate response today given that some public beach areas are disappearing. The fee in this case could be a user or rental fee and should be roughly-proportional to the value of beach area lost as a result of the approved shoreline protective device. The fee should be used for projects within the same local or State jurisdiction or littoral cell, on projects involving public access improvements or for beach nourishment or maintenance. The methodology discussed in this report could be suggested as a means to quantify the amount of sand necessary to replace the beach area and bluff material lost as a result of the protective device and to derive an appropriate mitigation fee to offset the loss of public beach.

Another option would be for a local government to incorporate into their Local Coastal Program (LCP), measures to encourage beach replenishment and to mitigate the effects of armoring on sand supply. The LCP could contain a beach replenishment program which is financed, in part, by fees from property protection which encroaches on publicly-owned beach or otherwise adversely affects public beaches. The District staff should investigate the potential for working with local governments and State Parks to encourage those agencies to seek compensation for occupation of publicly-owned beach by seawalls. If the fees are then used for beach replenishment or access improvements, they are mitigation for impacts to public access and sand supply in accordance with Section 30235 and the public access and recreation policies of the Coastal Act.



V. REFERENCES

Everts, Craig, "Memo by Dr. Everts dated 3/14/94 re: Review of Methodology for Quantifying Impacts to Sand Supply from Bluff Armoring"

Kraus, Nicholas C. and Pilkey, Orrin H., "The Effects of Seawalls on the Beach", Journal of Coastal Research, Autumn, 1988

San Diego Association of Governments, "Shoreline Preservation Strategy for the San Diego Region" with Appendices, July, 1993



VI. ATTACHMENTS

Attachment 1

IMPACT ANALYSIS FOR SHORELINE PROTECTIVE DEVICES

[Site Address]

$V_e =$ Volume of sand to rebuild the area of beach lost due to encroachment by the seawall; based on the seawall design and beach and nearshore profiles (cubic yards)

$$V_e = A_e \times v$$

$A_e =$ The encroachment area which is equal to the width of the properties which are being protected (W) times the seaward encroachment of the protection (E)

$$A_e = W \times E$$

W = Width of property to be armored (ft.)

E = Encroachment by seawall, measured from the toe of the bluff or back beach to the seaward limit of the protection (ft.)

$v =$ Volume of material required, per unit width of beach, to replace or reestablish one foot of beach seaward of the seawall; based on the vertical distance from the top of the beach berm to the seaward limit of reversible sediment movement (cubic yards/ft of width and ft. of retreat). The value of v is often taken to be 1 cubic yard per square foot of beach. If a vertical distance of 40 feet is used for the range of reversible sediment movement, v would have a value of 1.5 cubic yards/square foot (40 feet x 1 foot x 1 foot / 27 cubic feet per cubic yard). If the vertical distance for reversible sand movement is less than 40 feet, the value of v would be less than 1.5 cubic yards per square foot. The value of v will vary from one coastal region to another, but should not vary from lot to lot.¹

$V_w =$ Volume of sand to rebuild the area of beach lost due to long-term erosion (V_w) of the beach and near-shore, resulting from stabilization of the bluff face and prevention of landward migration of the beach profile; based on the long-term regional bluff retreat rate, and beach and nearshore profiles (cubic yards).

$$V_w = A_w \times v$$

$A_w =$ The area of beach lost due to long-term erosion is equal to the long-term average annual erosion rate (R) times the number of years that the back beach or bluff will be fixed (L) times the width of the property that will be protected (W) rate (ft./yr.).

$$A_w = R \times L \times W$$

R = The retreat rate which must be based on historic erosion, erosion trends, aerial photographs, land surveys, or other accepted techniques and documented by the applicant. The retreat rate should be the same as the predicted retreat rate used to estimate the need for shoreline armoring.

L = The length of time the back beach or bluff will be fixed or the design life of armoring without maintenance (yr.) For repair and maintenance projects, the design life should be an estimate of the additional length of time the proposed maintenance will allow the seawall to remain without further repair or replacement.

¹ A value of 0.9 cubic yards per square foot has been suggested for the Oceanside Littoral Cell (Oceanside Littoral Cell Preliminary Sediment Budget Report, December 1997, prepared as part of the Coast of California Storm and Tide Wave Study); a value of 0.4 cubic yards per square foot has been suggested for the Mission Bay Cell (State of the Coast Report: San Diego Region, September 1991).

$V_b =$ Volume of sand denied the beach by the protective device is equal to the percentage of sand in the bluff material (S) times the total width of the protected property (W) times the years the structure will be in place (L) times the area between the solid and dotted lines in Figure 4-4 directly landward of the device $[R \times h_s]$, plus the area between the solid and dotted area above the device $[1/2h_u \times (R + (R_{cu} - R_{cs}))]$. Since the dimensions and retreat rates are usually given in units of feet and volume of sand is usually given in cubic yards, the total volume of sand must be divided by 27 to provide this volume in cubic yards, rather than cubic feet. This can be expressed by the following equation:

$$V_b = (S \times W \times L) \times [(R \times h_s) + (1/2h_u \times (R + (R_{cu} - R_{cs})))]/27$$

$S =$ Fraction of beach quality material in the bluff material, based on analysis of bluff material to be provided by the applicant

$h_s =$ Height of the seawall from the base to the top (ft)

$h_u =$ Height of the unprotected upper bluff, from the top of the seawall to the crest of the bluff (ft)

$R_{cu} =$ Predicted rate of retreat of the crest of the bluff, during the period that the seawall would be in place, assuming no seawall were installed (ft/yr). This value can be assumed to be the same as R unless the applicant provides site specific geotechnical information supporting a different value.

$R_{cs} =$ Predicted rate of retreat of the crest of the bluff, during the period that the seawall would be in place, assuming the seawall has been installed (ft/yr). This value will be assumed to be zero unless the applicant provides site specific geotechnical information supporting a different value.

$V_t =$ Total volume of sand required to replace losses due to the structure, through reduction in material from the bluff, reduction in nearshore area and loss of available beach area (cubic yards). Derived from calculations provided above.

$$V_t = V_b + V_w + V_e$$

$$M = V_t \times C$$

$C =$ Cost, per cubic yard of sand, of purchasing and transporting beach quality material to the project vicinity (\$ per cubic yard). Derived from the average of three written estimates from sand supply companies within the project vicinity that would be capable of transporting beach quality material to the subject beach, and placing it on the beach or in the near shore area.

Attachment 2

**Memorandum of Agreement Between
the San Diego Association of Governments (SANDAG)
and the California Coastal Commission
(herein referred to as the Commission)
Establishing a Process for the Administration of the
Beach Sand Mitigation Fund**

WHEREAS, the Beach Sand Mitigation Fund consists of fees collected by the California Coastal Commission through its coastal development permit process pursuant to special conditions of various permits, as mitigation for the adverse impacts of shoreline protective structures, such as seawalls and revetments, on the beaches within San Diego County;

WHEREAS, the mitigation fees are deposited in an interest bearing account created at SANDAG, with all interest earned payable to the account for purposes stated below;

WHEREAS, the purpose of the account is to establish a beach sand mitigation fund to aid local governments, working cooperatively through SANDAG, in the restoration of the beaches within San Diego County;

WHEREAS, the funds shall be solely used to implement projects which provide sand to the region's beaches, not to fund operation, research, maintenance or planning studies;

WHEREAS, the funds shall be allocated as provided for in this memorandum of agreement (MOA) between SANDAG and the Commission, setting forth terms and conditions to assure that the mitigation fees will be expended in the manner intended by the Commission; NOW, THEREFORE

BE IT RESOLVED that it is the intent of the Coastal Commission and SANDAG to participate in the administration of the Beach Sand Mitigation Fund as follows:

1. Fund Administration

The Commission and SANDAG agree, that the mitigation fees will be held by SANDAG in a trust fund maintained and operated by SANDAG as one fund; however, SANDAG agrees to establish a separate accounting for monies within the fund for each coastal

jurisdiction in the San Diego region. Mitigation fees from approved shoreline protection projects within each coastal jurisdiction shall be accounted for by jurisdiction;

Money from a coastal jurisdiction's account cannot be spent without that jurisdiction's formal approval through resolution by City Council or Board of Supervisors;

The money in the fund will be invested by SANDAG in accordance with applicable law. Income and/or interest will be credited to each coastal jurisdiction's account on a pro-rated basis. A copy of the annual accounting review shall be submitted, upon completion, to the Executive Director of the Commission.

2. Fund Allocation

The Commission and SANDAG agree, that the region's coastal jurisdictions, working together through the Shoreline Erosion Committee, will evaluate proposed beach replenishment projects, and determine how much, if any, money from the fund should be allocated to a project, and how much of the total allocation should come from each jurisdiction's account. No funds shall be allocated from a jurisdiction's account without that jurisdiction's formal approval through resolution by City Council or Board of Supervisors;

The Commission and SANDAG agree that, prior to allocation of any funds, the recommendation of the Shoreline Erosion Committee, after adoption by SANDAG, must be submitted to the Executive Director of the Commission for review and approval. The Executive Director must provide written concurrence with each allocation, before any allocation occurs;

The Commission and SANDAG agree that each disbursement will be made to the recipient with conditions that guarantee that the fees are used as intended by the Shoreline Erosion Committee, SANDAG and the Executive Director. Any unused funds shall be returned to the contributing coastal jurisdictions' account(s) on a pro-rated basis.

3. Eligible Projects

Only projects which meet all of the following will be considered by the Shoreline Erosion Committee and SANDAG for funding:

a. Only projects that are recommended to the Shoreline Erosion Committee after formal action by a local coastal jurisdiction will be considered for funding. Projects may be carried out by the local jurisdictions themselves; by other agencies, including, but not limited to, the Corps of Engineers, the U.S. Navy, the California Coastal Conservancy or

the State Department of Boating and Waterways; or by private parties and/or non-profit organizations;

b. Only projects that involve sand replenishment for beaches in San Diego County will be considered for funding. Since the fees that will go into the fund are intended to mitigate adverse impacts of shoreline protective structures on beach sand supply, only projects that add sand to the region's beaches shall be supported by the fund; and

c. Only capital projects will be considered for funding. Mitigation fees cannot be used for operations, research, maintenance or planning studies. The Committee may recommend that funds should be allocated to engineering or permitting (e.g. environmental documentation) costs directly related to the implementation of a capital project, under extraordinary circumstances only.

Sand projects like those listed in the "Update on Opportunistic Sand Projects" which appear on the Shoreline Erosion Committee's agenda each meeting may be considered for funding. These projects typically have sand available but require additional funds to move the sand to the beach;

Any project considered for funding must obtain a coastal development permit, waiver or exemption from the local government having jurisdiction, or the Commission, prior to initiation of construction.

4. Project Funding Criteria

The Commission and SANDAG agree the objectives, policies and recommendations contained in the Shoreline Preservation Strategy dated July 1993, and the guiding principles adopted in 1995 by the Shoreline Erosion Committee, should be used by the coastal jurisdictions in deciding how to allocate the fund to projects. SANDAG staff will provide an evaluation of how a particular project meets these criteria. The Shoreline Erosion Committee shall use this evaluation as a basis for their discussions and decisions on funding allocation.

The Commission and SANDAG agree that funds generated within a coastal jurisdiction from a specific littoral cell shall be used only for projects affecting that same littoral cell.

BE IT FURTHER RESOLVED that it is the intent of this Memorandum of Agreement to assure consistency in the administration and allocation of mitigation fees from the Beach Sand Mitigation Fund.

BE IT FURTHER RESOLVED that this Memorandum of Agreement may be altered, changed or amended by mutual consent of the parties hereto. Either party may terminate this MOA by providing written notification 30 days prior to termination.

BE IT FURTHER RESOLVED that in the event of termination of this Memorandum of Agreement by either party, any and all remaining funds shall be transferred by SANDAG to the Commission or a Commission-approved alternate entity.

SAN DIEGO ASSOCIATION OF
GOVERNMENT

CALIFORNIA COASTAL
COMMISSION

Executive Director

Executive Director

Date

Date

Attachment 3

Beach Sand Mitigation Fund

Applicant's Name	Address	Mitigation Fee Total	Amount Paid	Amount Due	Permit Number	Date Next Payment
		\$	\$	\$		
Evelth	312 Neptune, Encinitas	\$ 2,918	\$ 2,918	\$ -	6-93-85	
Pierce	370 Neptune, Encinitas	2,876	2,876	-	6-93-85	
Rose	378 Neptune, Encinitas	3,004	360	2,644	6-93-85	9/1/1996
Auerbach	396 Neptune, Encinitas	2,982	2,982	-	6-93-85	
Frickman	402 Neptune, Encinitas	3,004	3,004	-	6-93-85	
Mills (Farmer)	470 Neptune, Encinitas	5,406	5,406	-	6-93-131	
Knotts	478 Neptune, Encinitas	3,862	3,862	-	6-93-131	
Harlow	492 Neptune, Encinitas	6,178	6,178	-	6-93-131	
Oakley	498 Neptune, Encinitas	3,089	3,089	-	6-93-131	
Klinck	502 Neptune, Encinitas	3,089	3,089	-	6-93-131	
Sbordone	510 Neptune, Encinitas	3,089	3,089	-	6-93-131	
Sbordone	518 Neptune, Encinitas	4,634	4,634	-	6-93-131	
Richards(Barshick)	522 Neptune, Encinitas	7,990	7,990	-	6-93-131	
Favero	452 Neptune, Encinitas	7,776	7,776	-	6-93-136	
Hann	386 Neptune, Encinitas	3,069	3,069	-	6-95-66	
Coleman	680 Neptune, Encinitas	4,051	4,051	-	6-90-100	
Clayton	638 Neptune, Encinitas	4,881	4,881	-	6-93-36-G	
Wood	521 Pacific, Solana Bch	5,770	5,770	-	6-92-212	
	TOTAL	\$ 77,666	\$ 75,023	\$ 2,644		
City of Encinitas *	N. El Portal (Low Est.)	\$ 2,000	\$ -	\$ 2,000	6-94-88	Jan-95
City of Encinitas *	N. El Portal (High Est.)	\$ 10,979	\$ -	\$ 10,979	6-94-88	Jan-95

*The City of Encinitas has not yet submitted figures to calculate the exact mitigation fee due. Thus, they have not been included.