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Hearing Date:	November 2-4, 2011

STAFF REPORT AND RECOMMENDATION ON APPEAL

LOCAL GOVERNMENT: City of Carlsbad

DECISION: Approval with conditions

APPEAL NO.: A-6-CII-10-043

APPLICANT: Dean Goetz and Marshall Sylver

PROJECT DESCRIPTION: Follow-up coastal development permit for work authorized pursuant to an emergency permit for the construction of a 97' long and 17-24' high, colored and textured seawall on the public beach fronting two coastal blufftop lots currently developed with two single family homes.

PROJECT LOCATION: 5323/5327 Carlsbad Boulevard, Carlsbad, San Diego County.

APPELLANTS: Commissioner Sara Wan and Commissioner Esther Sanchez, Surfrider Foundation.

SUMMARY OF STAFF RECOMMENDATION:

The staff recommends that the Commission, after public hearing, determine that substantial issue exists with respect to the grounds on which the appeal has been filed. The main concern associated with the project is that construction of a seawall was approved by the City to protect the public beach, and not for protection of the existing blufftop homes. The City's LCP policy addressing the preservation of coastal bluffs mirrors Coastal Act Policy 30235. The City, therefore, limits the circumstances for when a seawall shall be approved. Traditionally, seawalls are proposed on residentially-designated, ocean-fronting lots to protect an existing structure immediately threatened and in danger from erosion. Based on the provided geotechnical analysis, neither of the existing blufftop homes is currently threatened or in danger. In this case the City determined that a seawall was required to protect a *public beach in danger from erosion*. Specifically, the City found that the pocket beach in front of the coastal bluff was in danger in danger from erosion in that the bluff could have an episodic failure, resulting in a significant volume of sand falling onto the above described pocket beach and potentially injuring beachgoers. In other words, the City approved a seawall to protect

the beach-going public from the dangers associated with naturally occurring bluff erosion. However, the City made contradictory findings in citing that the beach in front of this bluff is, in fact, a private beach. Thus, how can a public beach be in danger from erosion and at the same time, be private? Regardless, even if the beach is public, the evidence does not support a finding that the proposed seawall is required to protect the public beach in danger from erosion. Thus, if the City or Commission on appeal is not required to approve the seawall, its construction must be reviewed against all other applicable LCP policies. The City's LCP requires that all such developments include an alternatives analysis, and no specific alternatives were adequately discussed or explored. Furthermore, the construction of the seawall will require both grading and fill on a coastal bluff, inconsistent with the City's LCP. Additionally, the construction of the seawall will result in impacts to sand supply, and potential impacts to public access. As approved by the City, impacts to sand supply and public access were not mitigated appropriately, also inconsistent with the City's LCP.

Commission staff recommends **denial** of the application on de novo. The proposed project will result in the adverse impacts described above. While the seawall has already been constructed pursuant to a emergency coastal development permit, the subject appeal is the result of a *follow-up* regular coastal development permit to the emergency permit issued by the City of Carlsbad in 2009. As previously stated, based on the provided geotechnical analysis, neither of the existing blufftop homes is currently threatened or in danger from erosion, instead, construction of the proposed seawall was approved on the basis of its finding that the seawall was required to protect people using the public beach. Such is not one of the basis for requiring approval of a seawall pursuant to the certified LCP; and, is therefore inconsistent with the applicable provisions of the City's certified LCP as well as with the public access and recreation polices of the Coastal Act.

Standard of Review: Certified Carlsbad LCP and the public access and recreation policies of the Coastal Act.

SUBSTANTIVE FILE DOCUMENTS: Geotechnical report prepared by Converse Consultants dated September 20, 1984; Coastal Commission comment letter sent June 26, 2009; Coastal Commission reviewed City of Carlsbad appealable coastal development permit Nos. 6-CII-97-084/Jensen, 6-CII-00-038/Jensen, 6-CII-00-044/Jensen, 6-CII-01-093/Jensen; 6-CII-11-137/Jensen, 6-CII-02-028/Goetz; 6-CII-09-060/Goetz & Dean; Irrevocable Offer to Dedicate Lateral Beach Access Easement recorded as Document #2000-0346365 on June 30, 2000; Report prepared by the California Coastal Commission titled California's Battered Coast dated 1985; Scientific article published in Shore and Beach Vol. 74, No.1 prepared by Jenifer Dugan and David Hubbard, 2006; City of Carlsbad Resolution No. 6677; Appeal forms.

I. Appellants' Contentions:

There are a number of concerns raised by the appellants. The primary concern related to the approval of the seawall is the merits on which the construction of the seawall was approved. The seawall is not necessary to protect the existing structures in that the existing blufftop residences are located approximately 45 feet away from bluff edge and are not in danger from erosion. Seawalls are only required to be approved when the evidence shows that there is a threat to an existing principal structure or to protect a public beach in danger of erosion. In this case, the City approved the seawall to protect beach goers from failing bluff material falling down onto the public beach below. Breakwaters and groins have previously been approved to protect public beaches, but the construction of a seawall on a bluff fronting a residential lot has never been approved by the Coastal Commission to protect a public beach. In fact, the City also did not approve the seawall on this basis, it found, instead, that the seawall was needed to protect the public using the beach, which is not one of the situations in which seawalls are required to be approved. Approving a seawall on the basis that it is constructed to protect the public using the beach, and the precedent it could establish, are the primary concerns raised by the appellants. Because the construction of the seawall isn't permitted through the City's LCP Policy 4-1, mirroring Coastal Act policy 30235, the project would have to be found consistent with all other applicable Carlsbad LCP and Coastal Act policies as it is not required to be approved. As such, a number of additional concerns are raised, and discussed below.

The appellants contend that the project approval violates Carlsbad's Local Coastal Program in that there are numerous other environmentally superior alternatives that could be used to protect people from the alleged risk. Additionally, the appellants contend that the project cannot comply with the LCP because the LCP requires the project to dedicate to the public for public access at least 25 feet of beach width in front of the seawall. No such dedication was included in the City's approval. The appellants further contend that the project is inconsistent with the City's LCP because construction of the seawall required grading and filling, and development of a permanent structure, on a bluff face. As approved by the City, the construction of the seawall included grading to be removed and then replaced on top of the coastal bluff. The project fails to mitigate adverse impacts to shoreline sand supply. Specifically, the City required $2,469 as mitigation for impacts of the seawall on shoreline sand supply, which was based on a questionable calculation of the erosion rate and an estimate of sand replenishment costs of $3 per cubic yards of sand, which is not supported by adequate evidence and is significantly lower than estimates for the cost of sand obtained by other applicants for prior projects.

In addition, the appellants question the seawall's impact on biological resources, as well as the project's affect on public views from the water back to the coast and along the ocean.

II. Local Government Action. The local government reviewed and approved an emergency permit for the project on April 16, 2009. This permit expired on May 16, 2009 due to failure to exercise and comply with all of the conditions of the permit. On June 10, 2009 the Planning Director issued another Emergency Coastal Development

Permit. The finding of emergency was upheld by the City Council on June 16, 2009. The City's staff report indicates that two Notices of Final Action were sent to the Coastal Commission immediately following approval of both emergency permits. The Carlsbad Planning Commission approved the follow-up Coastal Development Permit No. 09-13 on April 7, 2010 with a number of special conditions that included the payment of a sand mitigation fee in the amount of $2,469.00, a monitoring and maintenance program for the seawall, and the recordation of a deed restriction memorializing these requirements. On April 19, 2010 an appeal of the Coastal Development Permit was received by the City. On May 25, 2010 the City Council upheld the Planning Commissions approval of CDP No. 09-13.

III. Appeal Procedures.

After certification of a municipality's Local Coastal Program (LCP), the Coastal Act provides for limited appeals to the Coastal Commission of certain local government actions on coastal development permit applications. One example is that the approval of projects within cities and counties may be appealed if the projects are located within mapped appealable areas. The grounds for such an appeal are limited to the assertion that "development does not conform to the standards set forth in the certified local coastal program or the [Coastal Act] public access policies." Cal. Pub. Res. Code § 30603(b)(1).

After the local government has taken final action on an appealable project, it must send a notice of that final action (NOFA) to the Commission. Cal. Pub. Res. Code § 30603(d); 14 C.C.R. § 13571. Upon proper receipt of a valid NOFA, the Commission establishes an appeal period, which runs for 10 working days. Cal. Pub. Res. Code § 30603(c); 14 C.C.R. § 13110 and 13111(b). If an appeal is filed during the appeal period, the Commission must "notify the local government and the applicant that the effective date of the local government action has been suspended," 14 C.C.R. § 13572, and it must set the appeal for a hearing no later than 49 days after the date on which the appeal was filed, unless the applicant waives this deadline. Cal. Pub. Res. Code § 30621(a).

Section 30625(b)(2) of the Coastal Act requires the Commission to hear an appeal of the sort involved here unless the Commission determines that no substantial issue is raised by the appeal. If the staff recommends "substantial issue" and no Commissioner objects, the Commission will proceed directly to the de novo portion of the hearing on the merits of the project then, or at a later date.

If the staff recommends "no substantial issue" or the Commission decides to hear arguments and vote on the substantial issue question, proponents and opponents will have 3 minutes per side to address whether the appeal raises a substantial issue. It takes a majority of Commissioners present to find that no substantial issue is raised. If substantial issue is found, the Commission will proceed to a full public hearing on the merits of the project either immediately or at a subsequent meeting. If the Commission conducts the de novo portion of the hearing on the permit application, the applicable test

for the Commission to consider is whether the proposed development is in conformity with the certified Local Coastal Program.

In addition, for projects located between the sea and the first public road paralleling the sea, Sec. 30604(c) of the Coastal Act requires that, for a permit to be granted, a finding must be made by the approving agency, whether the local government or the Coastal Commission on appeal, that the development is in conformity with the public access and public recreation policies of Chapter 3 of the Coastal Act.

The only persons qualified to testify before the Commission at the "substantial issue" stage of the appeal process are the applicant, persons who opposed the application before the local government (or their representatives), and the local government. Testimony from other persons must be submitted in writing. At the time of the de novo portion of the hearing, any person may testify.

IV. Staff Recommendation On Substantial Issue.

The staff recommends the Commission adopt the following resolution:

MOTION: ***I move that the Commission determine that Appeal No. A-6-CII-10-043 raises NO substantial issue with respect to the grounds on which the appeal has been filed under § 30603 of the Coastal Act.***

STAFF RECOMMENDATION:

Staff recommends a **NO** vote. Failure of this motion will result in a de novo hearing on the application, and adoption of the following resolution and findings. Passage of this motion will result in a finding of No Substantial Issue and the local action will become final and effective. The motion passes only by an affirmative vote of the majority of the appointed Commissioners present.

RESOLUTION TO FIND SUBSTANTIAL ISSUE:

The Commission hereby finds that Appeal No. ***A-6-CII-10-043*** presents a substantial issue with respect to the grounds on which the appeal has been filed under § 30603 of the Coastal Act regarding consistency with the Certified Local Coastal Plan and/or the public access and recreation policies of the Coastal Act.

V. Findings and Declarations.

The Commission finds and declares as follows:

1. Project Description/History. The development being reviewed on appeal includes construction of a seawall originally approved by the City under an Emergency Coastal Development Permit (CDP). The follow-up CDP approved by the City includes the construction of a 97-foot long by 17 to 24-foot high bluff-colored and textured seawall anchored in place with tiebacks. Between the top of the seawall and the bluff top is a 1:1.5 fill slope, which has been landscaped to prevent erosion. The seawall is located on a beach highly utilized by the public and fronting 5323 and 5327 Carlsbad Boulevard, and the lots (1.01 acres) are currently developed with a single family detached residence on each.

The seawall was determined to be necessary as a result of a previous bluff failure. On or about December 19, 2008, a 50 foot long by 32 foot high bluff failure occurred. An additional bluff failure occurred on December 30, 2008. A wave runup analysis submitted with the follow-up coastal development permit stated that as a result of the bluff failures the bluff retreated as much as five feet and deposited approximately 150 cubic yards of bluff material on the beach. The City of Carlsbad reviewed and approved an emergency coastal development on April 16, 2009. However, this permit expired due to failure to exercise and comply with all of the conditions of the permit. On June 10, 2009 the City of Carlsbad issued a second Emergency Coastal Development Permit (ref. City CDP 09-11) to allow for the construction of a seawall to prevent further bluff failures. This permit was released and the wall was completed on or about September 18, 2009. A decision by a local government to issue an emergency permit is not appealable to the Commission.

The general topography of the site is a near vertical coastal bluff with a relatively flat area to the east, with elevations ranging from approximately 54 feet above mean sea level (MSL) in the east portion of the residential site to approximately 39 feet MSL at the western bluff top. West of the bluff and at the toe of the seawall there is a portion of beach described by the City as a “private beach” to approximately +6 feet MSL. However, the portion of the beach is not delineated as such, and the public utilizes all the beach west of the existing coastal bluff universally. West of this area of the beach there is a dedicated lateral public access way between 15- and 20-feet west of the seawall and approximately 15’ wide. This lateral access was required by the City associated with the previous subdivision of the lot. It is unclear, however, why the lateral access was required by the City at that specific location or for that specific width.

The site is adjacent to single family homes to the north, Carlsbad Blvd. and single family homes to the east, and an improved concrete public access stairway from the bluff top to the beach to the south (ref. Exhibit #4). A highly utilized “pocket beach” and ocean are to the west. During higher tides, the dry sand available in the surrounding area is often limited to this pocket beach. Additionally, there is a good quality reef break west of the pocket beach. Given the combination of the improved public accessway, the pocket beach and the break, beach goers, surfers, families etc., visit this location on a regular basis.

Site History

There is extensive permit history for these sites. Between 1996 and the present, seven coastal development permits have been issued by the City at this location. In 1996, the City issued a permit for the construction of a public beach access stairway from the top of the coastal bluff to the beach (ref. Commission review No. 6-CII-97-084). This stairway was subsequently constructed and exists today. In 1998 the City issued a coastal development permit for the subdivision of the 1.6 acre lot into three single family lots (ref. Commission review No. 6-CII-00-044). It appears that a lateral access was required associated with this approval, and was recorded in 2000. Subsequently in 2000, the City issued permits for the construction of single family homes of two of the lots (ref. Commission review No. 6-CII-00-037/Jensen, 6-CII-00-038/Jensen). In 2001, the City approved the construction of the third home (ref. Commission review No. 6-CII-02-028). The geotechnical reports for these 3 homes found that the proposed setback for the homes would not be affected by the estimated maximum coastal bluff retreat rate during their economic lifetime (75 years). Specifically, the homes are setback 45' from the bluff edge, and this setback was found to be adequate to assure safety of the homes (without construction of a shoreline protective device) for their estimated design life. No appeals were filed for any of the above described City-issued permits.

The local government reviewed and approved an emergency permit for the project on April 16, 2009. This permit expired on May 16, 2009 due to a failure to exercise and comply with all of the conditions of the permit. On June 10, 2009 the Planning Director issued another Emergency Coastal Development, and sent a Notice of Final Action to the Commission's San Diego District Office (ref. Commission review No. 6-CII-09-060). After reviewing the NOFA, Commission staff sent a letter to the property owners and the City, informing them that the work being approved under emergency, may be: 1) only temporary until a follow up regular coastal development permit is approved; 2) the project may be located within the Coastal Commission's original jurisdiction; 3) the work may not be able to be found consistent with the City's LCP; and, thus, 4) given these circumstances the property owner may be required to alter or remove such development.

2. Shoreline Development/Hazards. The appellants contend that the City's approval of the proposed new seawall on the subject site is inconsistent with the City's certified LCP as it pertains to shoreline development/hazards. Because the construction of a seawall has innate impacts to shoreline processes and sand supply, the City's LCP limits and stringently evaluates the proposal for any new shoreline protective device. The Mello II LUP contains policies that address bluff preservation. Policy 4-1 is most applicable and provides:

> 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. As a condition of approval, permitted shoreline structures may be required to replenish the beach with imported

sand. Provisions for the maintenance of any permitted seawalls shall be included as a condition of project approval. As a further condition of approval, permitted structures shall be required to provide public access.

[…]

(d) Undevelopable Shoreline Features

No development shall be permitted on any sand or rock beach or on the face of any ocean bluff, with the exception of accessways to provide public beach access and of limited public recreation facilities.

The City of Carlsbad also certified a Coastal Shoreline Development Overlay Zone as a component of its LCP. This overlay has two policies pertaining to the subject appeal and state in part:

21.204.030 - Permitted beach uses. Permitted uses and developments are limited to the following uses and require a coastal development permit according to the requirements of this zone:

A. Steps and stairways for access from the top of the bluff to the beach.
B. Toilet and bath houses.
C. Parking lots, only if identified as an appropriate use in the local coastal program Mello II Segment land use plan; (see Policy 2-3).
D. Temporary refreshment stands, having no seating facilities within the structure.
E. Concession stands for the rental of surfboards, air mattresses and other sports equipment for use in the water or on the beach.
F. Lifeguard towers and stations and other lifesaving and security facilities.
G. Fire rings and similar picnic facilities.
H. Trash containers.
I. Beach shelters.

21.204.040 - Conditional beach uses.

A. Uses substantially similar to the permitted uses listed above may be permitted on the beach subject to this chapter and Chapters 21.42 and 21.50
B. 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. As a condition of approval, permitted shoreline structures may be required to replenish the beach with imported sand. Provisions for the maintenance of any permitted seawalls shall be included as a condition of project approval. As a further condition of approval, permitted shoreline

structures shall be required to provide public access. Projects which create dredge spoils shall be required to deposit such spoils on the beaches if the material is suitable for sand replenishment. Seawalls shall be constructed essentially parallel to the base of the bluff and shall not obstruct or interfere with the passage of people along the beach at any time. [emphasis added]

Section 21.204.110 – Geotechnical reports.

A. Geotechnical reports shall be submitted to the planning director as part of an application for plan approval. Geotechnical reports shall be prepared and signed by a professional civil engineer with expertise in soils and foundation engineering, and a certified engineering geologist or a registered geologist with a background in engineering applications. The report document shall consist of a single report, or separate but coordinated reports. The document should be based on an onsite inspection in addition to a review of the general character of the area and it shall contain a certification that the development as proposed will have no adverse effect on the stability of the bluff and will not endanger life or property, and professional opinions stating the following:

1. The area covered in the report is sufficient to demonstrate the geotechnical hazards of the site consistent with the geologic, seismic, hydrologic and soil conditions at the site;

2. The extent of potential damage that might be incurred by the development during all foreseeable normal and unusual conditions, including ground saturation and shaking caused by the maximum credible earthquake;

3. The effect the project could have on the stability of the bluff.

B. At a minimum the geotechnical report(s) shall consider, describe and analyze the following:

1. Cliff geometry and site topography, extending the surveying work beyond the site as needed to depict unusual geomorphic conditions that might affect the site.

2. Historic, current and foreseeable cliff erosion including investigation of recorded land surveys and tax assessment records in addition to the use of historic maps and photographs where available and possible changes in shore configuration and sand transport.

[…]

14. The effect the project could have on the stability of the bluff.

15. **Mitigating measures and alternative solutions for any potential impact.** [emphasis added]

> The report shall also express a professional opinion as to whether the project can be designed or located so that it will neither be subject to nor contribute to significant geologic instability throughout the lifespan of the project. The report shall use a currently acceptable engineering stability analysis method, shall describe the degree of uncertainty of analytical results due to assumptions and unknowns, and at a minimum, shall cover an area from the toe of the bluff inland to a line described on the bluff top by the intersection of a plane inclined at a twenty-degree angle from horizontal passing through the toe of the bluff or fifty feet inland from the bluff edge, whichever is greater. The degree of analysis required shall be appropriate to the degree of potential risk presented by the site and the proposed project. If the report does not conclude that the project can be designed and the site be found to be geologically stable, no coastal shoreline development permit shall be issued.

The appellants' primary contention is that the justification used for approval of the seawall is inconsistent with the City's LCP. Specifically, the City found that the construction of a seawall is consistent with its certified LCP because it would provide protection to a "public beach in danger of erosion." This language, contained in both the City's LCP and the Coastal Act, has historically been interpreted to include shoreline protective devices such as groins, breakwaters, or jetties constructed to protect large-scale beaches from erosion as a result of natural sand migration via ocean currents, specific geographic features, etc. Additionally, the Commission has interpreted the above sections taken together to mean that when reviewing shoreline protective devices for coastal bluffs fronting residentially located lots, such devices are only required when they are designed to protect existing primary structures like an existing home, but not to prevent naturally occurring bluff erosion from depositing bluff material on public beaches.

The bluff stability for this region in Carlsbad has been well documented over time. One such report is the 1985 California Coastal Commission Meeting Publication at San Diego. This, combined with the various geotechnical reports submitted over time, for various developments in the area, allows the Commission to estimate an average rates of retreat. The Commission's 1985 report was based on the time interval of about 50 to 75 years and confirmed that the overall rate of retreat for both upper and lower parts of the bluff at this location was 1 to 3 inches per year. The studies also confirmed that this rate tended to *decrease* slightly in areas after episodic rapid erosion and/or retreat. These reports also indicated that there was a previous episodic erosion occurrence between 1977 and 1983. The combination of the slow gradual and episodic retreat extrapolates out to a 75 year rate of retreat of about 6 to 19 feet. As such, the homes can still be found adequately setback from the bluff edge, without relying on protective devices, for the remainder of their expected life.

Additionally, an interpretation allowing for construction of a seawall solely to protect a public beach area from bluff instability and erosion would set a significant precedent. Bluff erosion is a common and natural process for the majority of California's coastal bluffs. In fact, such failures are an important method for sand to be supplied to beaches

so that they do not erode away over time. If the City's interpretation of the regulations pertaining to shoreline protective devices is upheld, any coastal bluff could be proposed for armoring, citing the same rationale. One of the primary objectives of the City's Coastal Shoreline Development Zone (Section 21.204.010 of the zoning ordinance), and ultimately the Coastal Act, is to provide and promote the protection of coastal bluffs in their natural state. Again, if the City's interpretation of its policies is accepted, all remaining natural coastal bluffs that are adjacent to a beach could be armored to protect the beach going public, which is inconsistent with the City's LCP.

As previously stated, the development is located within and thus subject to the City's regulations contained within the Coastal Shoreline Development Overlay Zone. This overlay is intended to provide land use regulations along the Carlsbad shoreline including beaches, bluffs and the land area immediately landward. The purpose of the overlay zone is to ensure that the public's interest in maintaining the shoreline as a unique recreational and scenic resource is adequately protected. The overlay contains a list of permitted uses within the Shoreline Development Overlay Zone, of these seawalls are not a permitted use; rather, seawalls are listed as a conditionally permitted use, subject to the regulations contained within that chapter. The language contained within the overlay mirrors the language of LUP Policy 4-1 and Coastal Act Policy 30235 identically. As such, as explained above, because the project is not consistent with LUP policy 4-1, it is also not consistent with Zoning Ordinance Section 21.204.040. Therefore, the appellants have raised a substantial issue regarding the conformity of the development with the policies of the certified LCP.

Because the project cannot be considered for approval through the City's LCP policy 4-1 and cannot be considered a permitted use through Zoning Ordinance 21.204.040 (which requires that the City approve a seawall when necessary to protect existing development), the City is not required to approve the seawall. Instead, the City can still approve a seawall but only if it can be found consistent with all other sections of the City's LCP, and the applicable policies of the Coastal Act. The seawall must be found consistent with these policies, including designing the seawall in the appropriate and least environmentally damaging feasible alternative, mitigating for all unavoidable impacts, prohibiting development on the face of a bluff, requiring the minimization/mitigation of impacts to local sand supply, and the inclusion of new lateral public accessways associated with developments such as seawalls. To this end, the appellants' contend that the approved of the seawall is inconsistent with the City's LCP in that it is not the least environmentally damaging feasible alternative, adequate mitigation has not been provided for all unavoidable impacts, and the approval will have a significant adverse effect on the shoreline sand supply and the stability of the bluff system, and, therefore, it is inconsistent with the City's LCP.

Alterative Design Options

Regarding finding the least damaging alternative, the City's staff report indicates that two alternative designs were analyzed. While review of such alternative designs could be sufficient to comply with the City's LCP, no technical reports were included in this

analysis, and in fact, no geotechnical reports were provided at the time the emergency permit application was considered. The result of this being that no technical evaluation could have been analyzed prior to issuance of the permit, so no alternatives could have been adequately analyzed nor could the City determined whether the seawall was even necessary. The two alternatives discussed in the City's staff report included a rock revetment and the placing of geotextile bags filled with sand and stacked similar to a revetment. However, both of these alternatives were eliminated because they would not eliminate the hazard of bluff failure on the upper bluff portion, would require additional maintenance, and would occupy more of the useable beach area. However, again, no technical alternative designs for the seawall were included, nor was a no project alternative considered. Therefore, there may be alternative designs that could maintain the natural shoreline features and processes, and include all potential mitigating measures for any potential impact. Because the City failed to require or analyze adequate alternatives, the project, as approved by the City, cannot be found consistent with the City's LCP. Therefore, the appellants have raised a substantial issue regarding the conformity of the development with the policies of the certified LCP.

Impacts to Sand Supply

The appellants contend that the seawall will have several adverse impacts to sand supply. Specifically, the appellants contend that the natural shoreline processes, such as the formation and retention of sandy beaches will be altered by construction of a seawall, especially given that bluff retreat is one of the ways that beach areas and beach quality sand is added to these types of shorelines. Generally speaking, this retreat is a natural process resulting from many different factors, such as erosion by wave action and eventual collapse, saturation of the bluff soil from ground water causing the bluff to slough off, and natural bluff deterioration from wind and rain. When a seawall is constructed on the beach at the toe of the bluff, these natural processes are impeded and may result in scour, end effects and modification of the beach profile. An additional concern is that passive erosion will no longer occur once a hard structure is built along a shoreline undergoing long-term net erosion. The structure fixes the back of the beach and stops the landward migration of the beach in front of the seawall. This results in the gradual loss of beach in front of the seawall. In looking at the properties to the north of this site, many of which already have shoreline protective devices, the majority of the armored properties do not have any beach area available during medium or high tides. Whereas the coastal bluff at this location is located further landward than neighboring bluffs and has a wide sandy beach west of the bluff. It appears that the lack of armoring, combined with natural processes, has resulted in the retention of this wide sandy area, and therefore this area may be available to beach goers during all but the highest tides. At any rate, the construction of the seawall will result in some impacts to shoreline sand supply. These impacts should first be eliminated to the maximum extent practicable and the remaining impacts mitigated appropriately.

The City included some mitigation requirements for the impacts of the seawall on local shoreline sand supply. However, the appellants contend that the mitigation required by the City is not sufficient to offset the impacts of the seawall. As proposed, the applicant

will pay a sand mitigation fee in the amount of $2,469.00. This amount is based on an erosion rate of 0.16ft/year, and a sand fee of $3.00 per cubic yards. The erosion rate of 0.16 was obtained by first determining an erosion rate of 0.05 ft/yr by combining a zero foot erosion from 1890 to present (based on a USGS report), plus 6 feet of erosion that occurred in 2008 (6/120 = 0.05 feet/yr) and averaged it with the Coastal Commission's erosion rate used for other recent project (0.27 ft/year). Commission technical staff has reviewed this calculation and has indicated that the USGS report used to determine the zero foot erosion rate should not be included in this calculation because the report was not undertaken at a scale that can appropriately determine individual parcel erosion rates. Therefore, taking the average among the USGS report, the bluff failure in 2008, and the Commission's recently accepted erosion rates for the region to determine the final erosion rate for the property is both arbitrary and unsupported by the evidence. Thus, the erosion rate of 0.16 ft/yr utilized by the City is not accurate.

The appellants further contend that the cost of sand supported by the City is not adequate. The City approved the sand mitigation fee calculations using $3.00 per cubic yard. The sand fee was determined by the applicant using San Diego Association of Government's (SANDAG) sand fee for regional, large-scale sand replenishment programs. Using this sand fee is not appropriate in that not all nourishment occurs on large-scale projects, and; if replenishment of this site was included in a region sand replenishment effort, the estimate would also have to factor in the $1,000,000 for mobilization/demobilization of the equipment necessary for sand replenishment projects. The result of using this arbitrarily low figure to calculate the cost of sand results in a mitigation payment that is not adequate to mitigate for the impacts to shoreline supply associated with the construction of the seawall. As a comparison, in 2008, the Commission approved a revetment on de novo review in the City of Carlsbad, which required a mitigation fee of $29,027.63 for a 63-foot long revetment and cited the cost of sand at $18.23 per cubic yard (ref. CDP A-6-CII-08-028). The Commission's coastal engineer reviewed the calculations and agrees that the price of sand utilized by the City in this case is not adequate or realistic. As such, the City approved an unsupported erosion rate and an insufficient cost of sand, therefore resulting in an inadequate sand mitigation fee, inconsistent with the City's LCP, and therefore, has raised a substantial issue regarding the contentions raised by the appellants.

An additional contention raised by the appellants relates to further impacts associated with shoreline sand supply. Specifically, and, as previously discussed, the construction of a seawall on an eroding shoreline will result in loss of beach in front of the seawall. The appellants contend that the City failed to identify and mitigate for the impacts to the marine organisms that either live, breed or forage in these sand beach areas. It has been found that the loss of beach associated with the construction of coastal armoring results in a reduction of biodiversity, abundance of species, and prey for shorebirds. In addition, the sandy beach area also provides habitat for several species of fish, such as the California grunion, among others, that lay their eggs in this region of the beach. Beach wrack (stands of decomposing seaweed stranded on the sandy beach during high tides) is another key resource for beach invertebrates and the loss of this habitat zone due to armoring likely results in a significant reduction of intertidal diversity and alteration of

community structure and function (ref. Exhibit #5). The City failed to include any discussion regarding these impacts, alternatives to minimize such impacts, or mitigation for such impacts inconsistent with the City's LCP, and therefore, the appeal raises a substantial issue regarding the project's consistency with the City's LCP.

3. Development of the Bluff Face. The appellants contend that the project as approved by the City is inconsistent with the City of Carlsbad's certified LCP regarding development on the bluff face. Specifically the appellants contend that the City has approved a permanent structure on the bluff face, which includes grading and fill on the actual bluff face. Substantial grading and development on a coastal bluff face is not permitted by the City's LCP. Section 21.204.050 of the Coastal Shoreline Development Overlay Zone and policies of the Mello II LCP state:

Mello II LUP Policy 4-1(d):

No development shall be permitted on sand or rock beach or on the face of any ocean bluff, with the exception of access ways to provide public beach access and of limited public recreational facilities.

Section 21.204.050 of the Coastal Shoreline Development Overlay Zone provides:

a. Grading and Excavation - Grading and excavation **shall be the minimum necessary** (emphasis added) to complete the proposed development consistent with the provisions of this zone and the following requirements:

2) No excavation, grading or deposit of natural materials shall be permitted on the beach or the face of the bluff except to the extent necessary to accomplish construction pursuant to this section.

The appellants contend that the seawall will require a significant amount of grading on a coastal bluff, inconsistent with the City's LCP. Development on coastal bluffs can result in impacts, such as degradation and instability of the bluff. As described above, the City's LCP limits development on a coastal bluff to accessways to provide public beach access and limited public recreational facilities. Additionally, the Commission has interpreted the above stated City of Carlsbad LCP policies to mean that only at-grade structures are permitted on a bluff face, which do not require grading. The Commission has found that "the minimum necessary" for new development on the bluff face means at-grade and ephemeral structures that do not require excavation which results in more permanent developments. In this case the City approved grading of a coastal bluff for a shoreline protective device. As proposed, the seawall will require substantial grading and subsequent back fill of the coastal bluff (ref. Exhibit #2), and, as such, raises a substantial issue on the grounds raised by the appellants.

4. Public Access. The public access and recreation policies of the Coastal Act are applicable because the proposed development is located between the sea and the first public road. Section 30604(c) requires that a specific access finding be made. In

addition, the City's LCP contains numerous policies protecting public access to and along the beach and state in part:

Carlsbad's certified Mello II LCP Policy 7-2 states:

> The Coastal Conservancy and the California State Department of Transportation (CALTRANS) have undertaken a comprehensive program designed to provide appropriate signs designating the shore access points. It is recommended that they identify the existing access points in the Carlsbad coastal zone, and upon approval of future sites of access it is recommended that these also be identified with signs.

Carlsbad's certified Mello II LCP Policy 7-3 states:

> The city will cooperate with the state to ensure that lateral beach access is protected and enhanced to the maximum degree feasible, and will continue to formalize shoreline prescriptive rights……..

The "Coastal Shoreline Development Overlay Zone", an implementing measure of Carlsbad's LCP - Section 21.204.110 4b states:

> 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. As a condition of approval, permitted shoreline structures may be required to replenish the beach with imported sand. Provisions for the maintenance of any permitted seawalls shall be included as a condition of project approval. As a further condition of approval, ***permitted structures shall be required to provide public access.*** [emphasis added]

The "Coastal Shoreline Development Overlay Zone", an implementing measure of Carlsbad's LCP - Section 21.204.060 - Requirements for public access – states:

> One or more of the following types of public access shall be required as a condition of development:
>
> A. Lateral Public Access.
>
> 1. Minimum Requirements. Developments shall be conditioned to provide the public with the right of access to a minimum of twenty-five feet of dry sandy beach at all times of the year. The minimum requirement applies to all new developments proposed along the shoreline requiring any type of local permit including a building permit, minor land division or any other type of discretionary or nondiscretionary action.

2. Additional Requirements. New developments as specified below shall be conditioned to provide the public with lateral public access in addition to minimum requirements.

a. Applicability

(1) Seawalls and other shoreline protective devices.

[…]

b. Required Standards. In determining the amount and type of additional lateral public access to be required (e.g., area for additional parking facilities, construction of improvements to be made available to the public, increased dry sandy beach area, or type of use of the dry sandy beach) the city shall make findings of fact considering all of the following:

(1) The extent to which the development itself creates physical and visual impediments to public access which has not been mitigated through revisions in design or plan changes.

(2) The extent to which the development discourages the public from visiting the shoreline because of the physical and visual proximity of the development to the shoreline.

(3) The extent to which the development burdens existing road capacity and on street parking areas thereby making it more difficult to gain access to and use of the coast by further congesting access roads and other existing public facilities such as beaches, parks and road or sewer capacities.

(4) The extent to which the development increases the intensity of use of existing beach and upland areas, thereby congesting current support facilities.

(5) **The potential for physically impacting beach and other recreational areas inherent in the project affecting shoreline wave and sand movement processes**. [emphasis added]

B. Bluff Top Access

1. Minimum requirements. Development adjacent to a shorefront bluff top lot where no beach exists or where beach is inaccessible because stairways have not or cannot be provided, shall be conditioned to provide the public with the right of access of at least twenty-five feet along the current bluff edge for coastal scenic access to the shoreline. The minimum requirements applies to all new developments proposed on bluff tops along the shoreline requiring any type of local permit including a building permit, a minor subdivision permit or any other type of discretionary or non-discretionary action.

Sections 30210, 30211 and 30212(a) of the Coastal Act state:

> **Section 30210:** In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.
>
> **Section 30211:** Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.
>
> **Section 30212(a):** Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects…

The appellants contend that the City's approval of the seawall is also inconsistent with its LCP in that the construction of the seawall will result in impacts to public access and that no mitigation for impacts of the seawall on public recreation were identified or required. The City's approval concluded that because the seawall would be located essentially parallel and at the toe of the existing bluff, it would not result in any impacts to public recreation opportunities. However, this determination is not accurate.

The project site is located on a beach that is utilized by local residents and visitors for a variety of recreational activities such as swimming, surfing, jogging, walking, surf fishing, beachcombing and sunbathing. In addition, the site is located directly adjacent to a public access stairway. The proposed seawall, which will be 97 ft.-long and 1 ft. wide will be constructed on sandy beach area that might be used by the public, and, therefore, the seawall will have both immediate and long-term adverse impacts on public access and recreational opportunities.

The constructed portion of the proposed seawall will extend approximately 1 ft. seaward of the toe of the bluff. In addition, the seawall also proposes coloring and texturing of the seawall to match the existing bluff. However, the exact amount of beach the texturing will occupy has not been documented. It is important to note that the beach along this area of the coast is narrow, and at high tides and winter beach profiles, the public may be forced to walk virtually at the toe of the bluff or the area could be impassable. As such, an encroachment of any amount, especially a minimum of 1 ft. for a length of 97 feet, onto the sandy beach reduces the small beach area available for public use and is therefore a significant adverse impact. This is particularly true given the existing beach profiles and relatively narrow beach where access is sometimes only available at low tides. In addition, however, were it not for the seawall, the seaward face of the bluff would naturally recede, making additional beach area potentially available for public use. During the life of the seawall, as the beach area available to the public is reduced, dry sandy beach will become less available seaward of the seawall such that beachgoers will not want to sit or lay a towel in this area. This process will be further exacerbated with

sea level rise. The City failed to identify, minimize or mitigate for any of these factors when considering the impacts to public recreation on an existing and highly used beach, inconsistent with the City's LCP.

One reason that the City failed to require appropriate mitigation for the public access impacts of this seawall is that it found that a portion of the beach westward of the seawall is private property. There is an existing public access easement over a portion of this area, however, and there is some evidence that there may have been an implied dedication of this beach area to the public through the public's long-time use of this beach. In addition, there are times when the mean high tide line is at least close to the toe of this bluff, if not at the toe of the bluff, making the area seaward of the bluff potentially open to the public trustopen to public access at least some of the time. Thus, public access will be adversely impacted by this seawall, even if the wall is located in an area that may be considered to be private property, at least some of the time.

The appellants also raised concerns regarding the lack of a lateral public access dedication. Section 21.204.060 (Coastal Shoreline Development Overlay Zone) of the City's certified implementation plan requires that all shoreline developments provide the public with the right of access to a minimum of twenty-five feet of dry sandy beach at all times of the year. This section further states that *additional* lateral public access shall be required for the development of seawalls. However, the City failed to require any lateral access. The City's staff report makes the following conclusion:

> The existing beach area is and has been subject to tidal action and does not provide twenty-five feet of dry sandy beach at all times of the year. The project is not able to increase the extent of the beach to provide a permanent twenty-five feet of dry sandy beach as area does not exist within the cove for the creation of such a beach that would not be susceptible to wash and erosion from wave action.

Thus, the City has concluded that because there was not sufficient beach area available, no mitigation, in the form of an offer to dedicate a lateral accessway, needed to be provided. However, the City's LCP states that if no beach exists, the project shall be conditioned to provide the public with a right of access of at least twenty-five feet along the current *bluff edge*. As stated above, the bluff top has previously been developed with two single family homes. The homes are, however, set back 45' from the bluff edge, so providing access along the bluff top could be feasible. Further, if the case is that the combination of lack of beach and previous development has rendered it infeasible to provide the 25' of lateral access, the required mitigation should not be eliminated; instead, opportunities for offsite mitigation, such as improved view points, stairways, etc. should be identified and required. It is important to note that the project site currently has an improved vertical accessway at the southern end of the site associated with a previously issued coastal development permit. That being said, mitigation associated with the impacts created by construction of the seawall should be required. The City not only failed to require the standard 25' lateral access associated with all new developments, it also failed to provide the *additional* lateral access mitigation required associated with seawalls and specifically, and, lastly, it also failed to require any kind of

replacement mitigation, and therefore, this raises a substantial issue of the project's consistency with the certified LCP.

4. Conclusions. In conclusion, the City approved project is inconsistent with the City's LCP for a number reasons including, that the seawall cannot be approved through the City's LUP Policy 4-1, nor zoning ordinance 21.204.040 which only support the construction of shoreline protective devices for a limited number of circumstances. The project is further inconsistent with the City's LCP in that the approval is not necessary to protect an existing structure or public beach in danger from erosion, and will facilitate grading of a coastal bluff, impact shoreline sand supply, change the profile of an existing highly-utilized "pocket beach", will not provide mitigation for impacts to public access, and fails to eliminate all feasible and less damaging alternatives. Therefore, the Commission finds that the appeal does raise a substantial issue on the grounds presented by the appellants.

I. STAFF RECOMMENDATION ON THE COASTAL PERMIT

The staff recommends the Commission adopt the following resolution:

MOTION: ***I move that the Commission approve Coastal Development Permit No. A-6-CII-10-043 for the development proposed by the applicant.***

STAFF RECOMMENDATION OF DENIAL:

Staff recommends a **NO** vote. Failure of this motion will result in denial of the permit and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO DENY THE PERMIT:

The Commission hereby denies a coastal development permit for the proposed development on the ground that the development will not be in conformity with the adopted Local Coastal Program and the public access and recreation policies of the Coastal Act. Approval of the permit would not comply with the California Environmental Quality Act because there are feasible mitigation measures or alternatives that would substantially lessen the significant adverse impacts of the development on the environment.

II. Findings and Declarations.:

The Commission finds and declares as follows:

1. Project Description. The project description and history is described above under the substantial issue findings on Pages 5-7 of this report and is incorporated herein by reference.

2. Shoreline Development/Hazards. The Project as proposed includes the construction of a new 97' long and 17-24' tall textured and colored seawall. The City's LCP contains policies addressing the construction of new shoreline protective devices. These policies state in part that:

The Mello II LUP contains policies that address bluff preservation. Policy 4-1 provides:

> 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. As a condition of approval, permitted shoreline structures may be required to replenish the beach with imported sand. Provisions for the maintenance of any permitted seawalls shall be included as a condition of project approval. As a further condition of approval, permitted structures shall be required to provide public access.
>
> […]
>
> (e) Undevelopable Shoreline Features
>
> No development shall be permitted on any sand or rock beach or on the face of any ocean bluff, with the exception of accessways to provide public beach access and of limited public recreation facilities.

The City of Carlsbad also certified a Coastal Shoreline Development Overlay Zone as a component of its LCP; this overlay has two policies pertaining to the construction of seawalls and state in part:

> 21.204.030 - Permitted beach uses. Permitted uses and developments are limited to the following uses and require a coastal development permit according to the requirements of this zone:
>
> A. Steps and stairways for access from the top of the bluff to the beach.
> B. Toilet and bath houses.
> C. Parking lots, only if identified as an appropriate use in the local coastal program Mello II Segment land use plan; (see Policy 2-3).
> D. Temporary refreshment stands, having no seating facilities within the structure.
> E. Concession stands for the rental of surfboards, air mattresses and other sports equipment for use in the water or on the beach.
> F. Lifeguard towers and stations and other lifesaving and security facilities.

G. Fire rings and similar picnic facilities.
H. Trash containers.
I. Beach shelters.

21.204.040 - Conditional beach uses.

A. Uses substantially similar to the permitted uses listed above may be permitted on the beach subject to this chapter and Chapters 21.42 and 21.50
B. 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. As a condition of approval, permitted shoreline structures may be required to replenish the beach with imported sand. Provisions for the maintenance of any permitted seawalls shall be included as a condition of project approval. As a further condition of approval, permitted shoreline structures shall be required to provide public access. Projects which create dredge spoils shall be required to deposit such spoils on the beaches if the material is suitable for sand replenishment. Seawalls shall be constructed essentially parallel to the base of the bluff and shall not obstruct or interfere with the passage of people along the beach at any time. [emphasis added]

21.204.110 – Geotechnical Reports

A. Geotechnical reports shall be submitted to the planning director as part of an application for plan approval. Geotechnical reports shall be prepared and signed by a professional civil engineer with expertise in soils and foundation engineering, and a certified engineering geologist or a registered geologist with a background in engineering applications. The report document shall consist of a single report, or separate but coordinated reports. The document should be based on an onsite inspection in addition to a review of the general character of the area and it shall contain a certification that the development as proposed will have no adverse effect on the stability of the bluff and will not endanger life or property, and professional opinions stating the following:

1. The area covered in the report is sufficient to demonstrate the geotechnical hazards of the site consistent with the geologic, seismic, hydrologic and soil conditions at the site;

2. The extent of potential damage that might be incurred by the development during all foreseeable normal and unusual conditions, including ground saturation and shaking caused by the maximum credible earthquake;

3. The effect the project could have on the stability of the bluff.

B. As a minimum the geotechnical report(s) shall consider, describe and analyze the following:

1. Cliff geometry and site topography, extending the surveying work beyond the site as needed to depict unusual geomorphic conditions that might affect the site.

2. Historic, current and foreseeable cliff erosion including investigation of recorded land surveys and tax assessment records in addition to the use of historic maps and photographs where available and possible changes in shore configuration and sand transport.

[…]

14. The effect the project could have on the stability of the bluff.

15. **Mitigating measures and alternative solutions for any potential impact.** [emphasis added]

The report shall also express a professional opinion as to whether the project can be designed or located so that it will neither be subject to nor contribute to significant geologic instability throughout the lifespan of the project. The report shall use a currently acceptable engineering stability analysis method, shall describe the degree of uncertainty of analytical results due to assumptions and unknowns, and at a minimum, shall cover an area from the toe of the bluff inland to a line described on the bluff top by the intersection of a plane inclined at a twenty-degree angle from horizontal passing through the toe of the bluff or fifty feet inland from the bluff edge, whichever is greater. The degree of analysis required shall be appropriate to the degree of potential risk presented by the site and the proposed project. If the report does not conclude that the project can be designed and the site be found to be geologically stable, no coastal shoreline development permit shall be issued.

The primary concern regarding the proposal for construction of a seawall at this location is the purpose for which the seawall is proposed. Specifically, the construction of the seawall has been proposed to provide protection to a "public beach in danger of erosion." This language, contained in both the City's LCP and the Coastal Act, has historically been interpreted to include shoreline protective devices such as groins, breakwaters, or jetties constructed to protect large-scale beaches from erosion as a result of natural sand migration via ocean currents, specific geographic features, etc. Additionally, the Commission has interpreted the above sections of the City's LCP taken together to mean that when reviewing coastal bluffs fronting residentially located lots, shoreline protective devices are permissible to protect existing primary structures like an existing home, but not to prevent naturally occurring bluff erosion from depositing bluff material on public beaches.

The bluff stability for this region in Carlsbad has been very well documented over time. One such report is the 1985 California Coastal Commission Meeting Publication at San Diego. This, combined with the various geotechnical reports submitted with various developments in the area, allows the Commission to estimate an average rate of retreat. The Commission's 1985 report was based on the time interval of about 50 to 75 years and confirmed that the overall rate of retreat for both upper and lower parts of the bluff was 1 to 3 inches per year. The studies also confirmed that this rate tended to *decrease* slightly in areas after episodic rapid erosion and/or retreat. These reports also indicated that there was a previous episodic erosion occurrence between 1977 and 1983. The combination of the slow gradual and episodic retreat extrapolates out to a 75 year rate of retreat of about 6 to 19 feet. As such, the homes can still be found adequately setback from the bluff edge without needing protective devices for the remainder of their expected life.

Additionally, an interpretation allowing for construction of a seawall solely to protect a public beach area from bluff instability and erosion would set a significant precedent. Bluff erosion is a common and natural process for the majority of California's coastal bluffs. In fact, such failures are an important method for sand to be supplied to beaches so that they do not erode away over time. If the City's interpretation of the regulations pertaining to shoreline protective devices is upheld, any coastal bluff could be proposed for armoring citing the same rationale. One of the primary objectives of the City's Coastal Shoreline Development Zone (Section 21.204.010 of the zoning ordinance), and ultimately the Coastal Act is to provide and promote the protection of coastal bluffs in their natural state. Again, if the City's interpretation of its policies was accepted, all remaining natural coastal bluffs that are adjacent to a beach could be armored, which is not only inconsistent, but in direct conflict with the City's LCP.

As previously stated, the development is located within and thus subject to the City's regulations contained within the Coastal Shoreline Development Overlay Zone. This overlay is intended to provide land use regulations along the Carlsbad shoreline including beaches, bluffs and the land area immediately landward. The purpose of the overlay zone is to ensure that the public's interest in maintaining the shoreline as a unique recreational and scenic resource is adequately protected. The overlay contains a list of permitted uses within the Shoreline Development Overlay Zone, of these seawalls are not a permitted use; rather, seawalls are listed as a conditionally permitted use, and shall be permitted only with the regulations contained within that chapter. The language contained within the overlay mirrors the language of LUP Policy 4-1 and Coastal Act Policy 30235 identically. As such, as explained above, because the project cannot be considered for approval through LUP policy 4-1, it also cannot be found as a permitted use through Zoning Ordinance Section 21.204.040.

Because the project cannot be approved through the City's LCP policy 4-1 and cannot be considered a permitted use through Zoning Ordinance 21.204.040 (which requires that the City approve a seawall when necessary to protect existing development), the project must be reviewed for consistency with all other sections of the City's LCP, and the applicable policies of the Coastal Act. The seawall must be found consistent with these

policies, including designing the seawall in the appropriate and least environmentally damaging feasible alternative, mitigating for all unavoidable impacts, prohibiting development on the face of a bluff, requiring the minimization/mitigation of impacts to local sand supply, and the inclusion of new lateral public accessways associated with developments such as seawalls. The project as proposed cannot be found consistent with these policies in that it is not the least environmentally damaging feasible alternative, adequate mitigation has not been provided for all unavoidable impacts, and the approval will have a significant adverse effect on the shoreline sand supply and the stability of the bluff system, and, therefore, it is inconsistent with the City's LCP. The above mentioned impacts are reviewed in greater detail below.

Alterative Design Options

Regarding finding the least damaging alternative, the seawall proposal included no formal review of alternatives. The City of Carlsbad informally described two alternative designs, but no technical alternatives to the seawall design were provided by the applicant. In addition, no geotechnical analysis was submitted prior to issuance of the permit. Therefore, it is unclear if the seawall is necessary, or if there are alternative, less damaging project designs. The two alternatives discussed by the City's include a rock revetment and the placing of geotextile bags filled with sand and stacked similar to a revetment. Both of these alternatives were eliminated because they would not eliminate the hazard of bluff failure on the upper bluff portion, would require additional maintenance, and would occupy more of the useable beach area. However, again, no technical alternative designs for the seawall were included, nor was a no project alternative considered. Therefore, potential alternatives designs could maintain the natural shoreline features and processes and have fewer environmental impacts. Because the proposed project does not include an adequate alternatives analysis, it is not clear that the approved project is the least environmentally damaging feasible alternative. As such, the project cannot be found consistent with the City's LCP and shall be denied.

Impacts to Sand Supply

The proposed seawall will have several adverse impacts to sand supply. Specifically, several natural shoreline processes, such as the formation and retention of sandy beaches, can be altered by construction of a seawall, given that bluff retreat is one of the ways that beach areas and beach quality sand are added to the shoreline. Generally speaking, this retreat is a natural process resulting from many different factors, such as erosion by wave action and eventual collapse, saturation of the bluff soil from ground water causing the bluff to slough off, and natural bluff deterioration from wind and rain. When a seawall is constructed on the beach at the toe of a bluff, these natural processes are impeded and may result in scour and modification of the beach profile. An additional concern, passive erosion, will no longer occur when a hard structure is built along a shoreline undergoing long-term net erosion. The structure fixes the back of the beach and stops the landward migration of the beach in front of the seawall. This results in the gradual loss of beach in front of the seawall. In looking at the properties to the north of this site, many of which already have shoreline protective devices, the majority of the armored properties do not

have any beach area available during medium or high tides. Whereas, the coastal bluff at this location is located further landward, and has a wide sandy beach west of the bluff. It appears that the lack of armoring, combined with natural processes, has resulted in the wide sandy area, and therefore, this area may be available to beach goers during all but the highest tides. At any rate, the construction of the seawall will result in some impacts to shoreline sand supply. These impacts should first be eliminated to the maximum extend practicable and the remaining impacts mitigated appropriately. As discussed above, the project cannot be permitted through LUP policies 4-1, or zoning ordinance 21.204. 040 and did not include an adequate alternatives analysis, inconsistent with the City's LCP.

The applicant is proposing some mitigation for these impacts of the seawall on local shoreline sand supply. However, the mitigation proposed is not sufficient to offset the impacts of the seawall. As proposed, the applicant will pay a sand mitigation fee in the amount of $2,469.00. This amount is based on an erosion rate of 0.16ft/year, and a sand fee of $3.00 per cubic yard. The erosion rate of 0.16 was obtained by first determining an erosion rate of 0.05 ft/yr by combining a zero foot erosion from 1890 to present (based on a USGS report), plus 6 feet of erosion that occurred in 2008 (6/120 = 0.05 feet/yr) and averaged it with the Coastal Commission's erosion rate used for other recent projects (0.27 ft/year). Commission technical staff has reviewed this calculation and has indicated that the USGS report used to determine the zero foot erosion rate should not be included in this calculation because the report was not undertaken at a scale that can appropriately determine individual parcel erosion rates. Therefore, taking the average among the USGS report, the bluff failure in 2008, and the Commission's recently accepted erosion rates for the region to determine the final erosion rate for the property is both arbitrary and unsupported by the evidence. Thus, the erosion rate of 0.16 ft/yr utilized by the City cannot be considered accurate and cannot be found consistent with the City's LCP.

Additionally, the proposed sand supply mitigation includes the cost of sand for sand replenishment at $3.00 per cubic yard. The applicant did not present sufficient evidence to support such a low figure for the cost of sand, which is typically closer to $18 per cubic yard. The sand fee was determined by the applicant using San Diego Association of Government's (SANDAG) sand fee for regional, large-scale sand replenishment programs. Using this sand fee is not appropriate in that not all nourishment occurs on large-scale projects, and; if replenishment of this site was included in a region sand replenishment effort, the estimate would also have to factor in the $1,000,000 for mobilization/demobilization of the equipment necessary for sand replenishment projects. The result of using this arbitrarily low figure for the cost of sand replenishment results in inadequate mitigation for the impacts to shoreline supply associated with the construction of the seawall. As a comparison, in 2008, the Commission approved a revetment on de novo review in the City of Carlsbad, which included a mitigation fee of $29,027.63 for a 63-foot long revetment and cited the cost of sand at $18.23 per cubic yard (ref. CDP A-6-CII-08-028). The Commission's coastal engineer reviewed the calculations used by the City and agrees that the price of sand is not adequate or realistic. As such, the proposed mitigation includes an unsupported erosion rate and an inaccurate cost for sand

replenishment, therefore resulting in an inadequate sand mitigation fee, inconsistent with the City's LCP, and therefore, the project shall be denied.

An additional concern associated with the construction of the seawall is also is related to potential impacts to local shoreline sand supply. Specifically, and as previously discussed, the construction of a seawall on an eroding shoreline will result in loss of beach in front of the seawall. Not only is there value in the sand for recreational purposes, but also biological and ecological value. As proposed, impacts to the marine organisms that either live, breed or forage in these sand beach areas were neither discussed nor were impacts to these species mitigated. It has been found that the loss of beach associated with the construction of coastal armoring results in a reduction of biodiversity, abundance of species, and prey for shorebirds. In addition, the sandy beach area also provides habitat for several species of fish, such as the California grunion, among others, that lay their eggs in this region of the intertidal zone. Additionally, beach wrack (stands of decomposing seaweed stranded on the sandy beach during high tides) is another key resource for beach invertebrates and the animals that prey upon these invertebrates. The loss of this habitat zone due to armoring will likely result in significant reduction of intertidal diversity and will result in alteration of community structure and function (ref. Exhibit #5). Because the seawall will result in loss of sand supply, and thus impacts to marine resources, the project cannot be found consistent with the City's LCP, and therefore, shall be denied.

3. Development of the Bluff Face. The construction of the seawall will require both grading and the placement of fill on a coastal bluff. Additionally, the construction of the seawall will result in a permanent structure on the bluff face. Substantial grading and permanent development on a coastal bluff face are not permitted by the City's LCP provisions. Section 21.204.050 of the Coastal Shoreline Development Overlay Zone and policies of the Mello II LCP state:

> Mello II LUP Policy 4-1(d):
>
> No development shall be permitted on sand or rock beach or on the face of any ocean bluff, with the exception of access ways to provide public beach access and of limited public recreational facilities.

Section 21.204.050 of the Coastal Shoreline Development Overlay Zone provides:

b. Grading and Excavation - Grading and excavation **shall be the minimum necessary** (emphasis added) to complete the proposed development consistent with the provisions of this zone and the following requirements:

    3) No excavation, grading or deposit of natural materials shall be permitted on the beach or the face of the bluff except to the extent necessary to accomplish construction pursuant to this section.

As proposed, the construction of the seawall will require significant amounts of grading of a coastal bluff, inconsistent with the City's LCP. Development on coastal bluffs can result in impacts such as degradation and instability of the bluff. As described above, the City's LCP limits development on a coastal bluff to accessways to provide public beach access and limited public recreational facilities. The Commission has interpreted the above stated City of Carlsbad LCP policies to mean that only at-grade structures are permitted on a bluff face, which do not require grading. The Commission has found that "the minimum necessary" for new development on the bluff face means at-grade and ephemeral structures that do not require excavation which results in more permanent developments. As proposed, the seawall will require substantial grading and subsequent back fill of the coastal bluff (ref. Exhibit #2), and will be maintained as a permanent structure on the bluff face, and; as such, the proposal cannot be found consistent with the City's LCP and shall be denied.

4. Public Access. In addition to the adverse impacts on local sand supply, shoreline protective devices also have significant adverse impacts to public access and recreation. The public access and recreation policies of the Coastal Act are applicable because the proposed development is located between the sea and the first public road. Section 30604(c) requires that a specific access finding be made. In addition, the City's LCP contains numerous policies protecting public access to and along the beach and state in part:

Carlsbad's certified Mello II LCP Policy 7-2 states:

> The Coastal Conservancy and the California State Department of Transportation (CALTRANS) have undertaken a comprehensive program designed to provide appropriate signs designating the shore access points. It is recommended that they identify the existing access points in the Carlsbad coastal zone, and upon approval of future sites of access it is recommended that these also be identified with signs.

Carlsbad's certified Mello II LCP Policy 7-3 states:

> The city will cooperate with the state to ensure that lateral beach access is protected and enhanced to the maximum degree feasible, and will continue to formalize shoreline prescriptive rights……..

The "Coastal Shoreline Development Overlay Zone", an implementing measure of Carlsbad's LCP - Section 21.204.110 4b states:

> 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. As a condition of approval, permitted shoreline structures may be required to replenish the beach with imported sand. Provisions for the maintenance of any permitted seawalls shall be included as

a condition of project approval. As a further condition of approval, ***permitted structures shall be required to provide public access.*** [emphasis added]

The "Coastal Shoreline Development Overlay Zone", an implementing measure of Carlsbad's LCP - Section 21.204.060 - Requirements for public access – states:

One or more of the following types of public access shall be required as a condition of development:

A. Lateral Public Access.

1. Minimum Requirements. Developments shall be conditioned to provide the public with the right of access to a minimum of twenty-five feet of dry sandy beach at all times of the year. The minimum requirement applies to all new developments proposed along the shoreline requiring any type of local permit including a building permit, minor land division or any other type of discretionary or nondiscretionary action.

2. Additional Requirements. New developments as specified below shall be conditioned to provide the public with lateral public access in addition to minimum requirements.

a. Applicability

(1) Seawalls and other shoreline protective devices.

[…]

b. Required Standards. In determining the amount and type of additional lateral public access to be required (e.g., area for additional parking facilities, construction of improvements to be made available to the public, increased dry sandy beach area, or type of use of the dry sandy beach) the city shall make findings of fact considering all of the following:

(1) The extent to which the development itself creates physical and visual impediments to public access which has not been mitigated through revisions in design or plan changes.

(2) The extent to which the development discourages the public from visiting the shoreline because of the physical and visual proximity of the development to the shoreline.

(3) The extent to which the development burdens existing road capacity and on street parking areas thereby making it more difficult to gain access to and use of the coast by further congesting access roads and other existing public facilities such as beaches, parks and road or sewer capacities.

> (4) The extent to which the development increases the intensity of use of existing beach and upland areas, thereby congesting current support facilities.
>
> (5) **The potential for physically impacting beach and other recreational areas inherent in the project affecting shoreline wave and sand movement processes**. [emphasis added]

Sections 30210, 30211 and 30212(a) of the Coastal Act state:

> **Section 30210:** In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.
>
> **Section 30211:** Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.
>
> **Section 30212(a):** Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects…

The project site is located on a beach that is utilized by local residents and visitors for a variety of recreational activities, such as swimming, surfing, jogging, walking, surf fishing, beachcombing and sunbathing. The site is located directly adjacent to a public access stairway. The proposed seawall, which will be 97 ft. long and at least 1 ft. wide, will be constructed on sandy beach area that might otherwise be available for public use and, therefore, will have both immediate and long-term adverse impacts on public access and recreational opportunities. While the applicant claims that the seawall is located on private property, there is evidence that the public may have obtained rights to use this property through an implied dedication, at high tide much of the beach is inundated, and there is an existing lateral public accessway on a portion of the beach. Thus, the public does access this beach for recreational purposes (and the public's use of the area near the bluff face was the basis for the City's approval of the seawall).

The proposed seawall will extend a minimum of 1 ft. seaward of the toe of the bluff. In addition, the beach along this area of the coast is narrow, and at high tides and winter beach profiles, the public may be forced to walk virtually at the toe of the bluff or the area could be impassable. As such, an encroachment of any amount especially 1 ft. for a length of 97 feet, onto the sandy beach reduces the small beach area available for public use and is therefore a significant adverse impact. In addition, were it not for the seawall and infill structure, the seaward face of the bluff would naturally recede, potentially making additional beach area available for public use. During the life of the seawall, as the beach area available to the public is reduced, dry sandy beach will become less

available seaward of the seawall such that beachgoers will not want to sit or lay a towel in this area.

Section 21.204.060 (Coastal Shoreline Development Overlay Zone) of City's certified implementation plan requires that all developments provide the public with the right of access to a minimum of twenty-five feet of dry sandy beach at all times of the year. This section further states that *additional* lateral public access shall be required for the development of seawalls. However, no lateral access has been provided as proposed. While there is an opportunity for an additional public access easement area between the seawall and the existing lateral access easement, this mitigation alone is not sufficient to find the project consistent with the City's LCP, and it therefore shall be denied.

5. Local Coastal Planning. Pursuant to Sections 30170(f) and 30171 of the Public Resources Code, the Commission prepared and approved two portions of the Carlsbad LCP, the Mello I and II segments in 1980 and 1981. However, the City of Carlsbad found several provisions of the Mello I and Mello II segments unacceptable and, therefore, did not adopt the LCP until 1997. In the intervening period, the Coastal Act was amended to include Section 30519.1 which specifies that for projects within the jurisdiction of the Mello I and Mello II segments of the LCP, coastal development permit applications are to be reviewed for their consistency with the certified local coastal program.

The certified Carlsbad LCP Mello II segment contains a number of land use policies and is also subject to the Coastal Shoreline Development Overlay Zone, which has been discussed in this report. The purpose of this zone is, among other purposes, to provide regulations for development and land uses along the coastline in order to maintain the shoreline as a unique recreational and scenic resource, affording public safety and access, and to avoid the adverse geologic and economic effects of bluff erosion.

The policies and ordinances of the City's LCP contain detailed regulations regarding the construction of revetments, seawalls, cliff-retaining walls, and other similar shoreline structures. Specifically, the ordinance allows for the construction of seawalls only when they are required in order to serve coastal dependent uses or to protect existing structures or public beaches in danger from erosion. As noted, in this case, the seawall was not required to protect existing structures and the evidence did not support a finding that it was required to protect a beach that was in danger of eroding, therefore, the Commission finds that the project cannot be found consistent with the City's certified Local Coastal Program. Therefore, the Commission finds that approval of the proposed development will prejudice the ability of the City to continue implementation of its certified LCP and as such, the project is denied.

6. California Environment Quality Act (CEQA). Section 13096 of the California Code of Regulations requires Commission approval of a coastal development permit to be supported by a finding showing the permit to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if

there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

As stated previously, and incorporated herein by reference, the development as proposed is inconsistent with the Certified LCP policies pertaining to construction of shoreline protective devices, sand supply, public access, coastal views. The project as proposed includes development of a seawall for the purpose of protecting beachgoers from bluff failure. The Commission finds that there are other feasible alternatives available, including potential design alternatives to reduce impacts to the maximum degree feasible. In addition, the no "no project" alternative" is feasible in that the existing blufftop homes are not threatened. This would allow the bluff to continue to erode naturally. As such, there are feasible alternatives or mitigation measures available which would substantially decrease the significant adverse effects that the project would have on the environment. The proposed project therefore is not consistent with the requirements of the California Environmental Quality Act (CEQA)

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EXHIBIT NO. 1
APPLICATION NO.
A-6-CII-10-043
Location Map
California Coastal Commission

CDP 09-13/SUP09-05

GRADING NOTES

(IN ADDITION TO THE REQUIREMENTS OF CHAPTER 15.16 OF THE CARLSBAD MUNICIPAL CODE)

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. NO WORK SHALL BE COMMENCED UNTIL ALL PERMITS HAVE BEEN OBTAINED FROM THE CITY AND OTHER APPROPRIATE AGENCIES.
7. APPROVAL OF THESE PLANS BY THE CITY ENGINEER DOES NOT AUTHORIZE ANY WORK OR GRADING TO BE PERFORMED UNTIL THE PROPERTY OWNER'S PERMISSION HAS BEEN OBTAINED AND A VALID GRADING PERMIT HAS BEEN ISSUED.
8. NO REVISIONS WILL BE MADE TO THESE PLANS WITHOUT THE WRITTEN APPROVAL OF THE CITY ENGINEER, NOTED WITHIN THE REVISION BLOCK, ON THE APPROPRIATE SHEET OF THE PLANS AND THE TITLE SHEET.
9. ORIGINAL DRAWINGS SHALL BECOME THE PROPERTY OF THE CITY UPON BEING SIGNED BY THE CITY ENGINEER.
10. THE ORIGINAL DRAWING SHALL BE REVISED TO REFLECT AS-BUILT CONDITIONS BY THE ENGINEER-OF-WORK PRIOR TO FINAL ACCEPTANCE OF THE WORK BY THE CITY.
11. ACCESS FOR FIRE AND OTHER EMERGENCY VEHICLES SHALL BE MAINTAINED TO THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.
12. [illegible]
13. [illegible]
14. [illegible]
15. ALL INSPECTION REQUESTS, OTHER THAN FOR PRECONSTRUCTION, MEETING WILL BE MADE BY CALLING THE ENGINEERING 24-HOUR INSPECTION REQUEST LINE AT (760) 438-1991. INSPECTION REQUEST MUST BE RECEIVED PRIOR TO 2:00 P.M. ON THE DAY BEFORE THE INSPECTION IS NEEDED. INSPECTIONS WILL BE MADE THE NEXT WORK DAY UNLESS YOU REQUEST OTHERWISE. REQUESTS MADE AFTER 2:00 P.M. WILL BE SCHEDULED FOR TWO FULL WORK DAYS LATER.
16. THE OWNER AND/OR APPLICANT THROUGH THE DEVELOPER AND/OR CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.
17. THE CONTRACTOR SHALL CONFORM TO LABOR CODE SECTION 6705 BY SUBMITTING A DETAILED PLAN TO THE CITY ENGINEER AND/OR DESIGNATED AGENCY SHOWING THE DESIGN OF SHORING, BRACING, SLOPING OR OTHER PROVISIONS TO BE MADE FOR WORKER PROTECTION FROM THE HAZARD OF CAVING GROUND DURING THE EXCAVATION OF SUCH TRENCH OR TRENCHES OR DURING THE PIPE INSTALLATION THEREIN. THIS PLAN MUST BE PREPARED FOR ALL TRENCHES FIVE FEET (5') OR MORE IN DEPTH AND APPROVED BY THE CITY ENGINEER AND/OR DESIGNATED AGENCY PRIOR TO EXCAVATION. IF THE PLAN VARIES FROM THE SHORING SYSTEM STANDARDS ESTABLISHED BY THE CONSTRUCTION SAFETY ORDERS, TITLE 8, DIVISION OF INDUSTRIAL SAFETY, THE PLAN SHALL BE PREPARED BY A REGISTERED CIVIL ENGINEER. A COPY OF THE DISTRUCTION ENGINEER'S AS THE CONTRACTOR'S EVIDENCE. A COPY OF THE DISTRUCTION PERMIT MUST BE SUBMITTED TO THE INSPECTOR PRIOR TO EXCAVATION.
18. [illegible]
19. [illegible]
20. [illegible]
21. [illegible]
22. [illegible]
23. [illegible]
24. [illegible]
25. [illegible]
26. [illegible]
27. [illegible]
28. [illegible]
29. THE OWNER/APPLICANT SHALL INSURE THAT ALL CONTRACTORS SHALL COORDINATE THE WORK OF THESE GRADING PLANS WITH THAT SHOWN ON BOTH THE LANDSCAPE AND IRRIGATION PLANS AND THE IMPROVEMENT PLANS AS REQUIRED FOR THIS WORK IN ACCORDANCE WITH THE LANDSCAPE MANUAL TIME REQUIREMENTS.
30. STORM DRAIN PIPE SHALL BE REINFORCED CONCRETE PIPE WITH A MINIMUM D-LOAD OF 1,350, FOR PRIVATE STORM DRAIN PIPES UP TO 15" PVC MAY BE UTILIZED PROVIDED DEPTH IS LESS THAN 15 FEET AND BACKFILLED WITH 3/4" ROCK PER SDRSD S-4 TYPE "C" AND PIPE MEETS ASTM STANDARD 3034 FOR SDR 35 SOLID WALL PIPE.
31. WHERE ANY EXISTING PIPE LINE IS TO BE ABANDONED AS A RESULT OF THE GRADING OPERATION, IT SHALL BE REMOVED WITHIN TWENTY FEET OF BUILDING OR STREET AREAS AND REPLACED WITH PROPERLY COMPACTED SOILS. IN OTHER AREAS THE PIPE WILL BE PLUGGED WITH CONCRETE OR REMOVED AS APPROVED BY THE CITY ENGINEER.
32. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING FACILITIES (ABOVE GROUND AND UNDER GROUND) WITHIN THE PROJECT SITE SUFFICIENTLY AHEAD OF GRADING TO PERMIT THE REVISION OF THE GRADING PLANS IF IT IS FOUND THAT THE ACTUAL LOCATIONS ARE IN CONFLICT WITH THE PROPOSED WORK.
33. THE CONTRACTOR SHALL NOTIFY AFFECTED UTILITY COMPANIES (SEE BELOW) AT LEAST 2 FULL WORKING DAYS PRIOR TO STARTING GRADING NEAR THEIR FACILITIES AND SHALL COORDINATE THE WORK WITH A COMPANY REPRESENTATIVE.

UNDERGROUND SERVICE ALERT	(800)422-4133
SDG&E	(800)650-7343
AT&T	(800)922-0123
TIME WARNER CABLE	(760)438-7747
COX COMMUNICATIONS	(760)806-9909
CITY OF CARLSBAD(STREETS & STORM DRAIN)	(760)434-2980
CITY OF CARLSBAD(RECYCLED WATER & RECLAIMED WATER)	(760)438-2722
"SAN DIEGUITO WATER DISTRICT	(760)633-2632
"LEUCADIA WASTEWATER DISTRICT	(760)753-0155
"MOLLEGITIMO WATER DISTRICT	(760)744-0460
"OLIVENHAIN WATER DISTRICT	(760)753-5466
"BUENA SANITATION DISTRICT	(760)729-1340

"AS APPROPRIATE

34. PERMIT COMPLIANCE REQUIREMENTS:
    A. FOR CONTROLLED GRADING – THE APPLICANT HIRES A CIVIL ENGINEER, SOILS ENGINEER, AND/OR GEOLOGIST TO GIVE TECHNICAL ADVICE, OBSERVE AND CONTROL THE WORK IN PROGRESS (15.16.120 A.M CARLSBAD MUNICIPAL CODE.
    B. PRIOR TO FINAL APPROVAL OF A GRADING PERMIT – THE FOLLOWING REPORTS MUST BE SUBMITTED TO THE CITY ENGINEER VIA THE PROJECT INSPECTOR (15.16.120 A.10) CARLSBAD MUNICIPAL CODE:
        (1) FINAL REPORT BY SUPERVISING GRADING ENGINEER STATING ALL GRADING IS COMPLETE. ALL EROSION CONTROL, SLOPE PLANTING AND IRRIGATION ARE INSTALLED IN CONFORMANCE WITH CITY CODE AND THE APPROVED PLANS (OBTAIN SAMPLE OF COMPLIANCE LETTER FROM CITY ENGINEERING DEPARTMENT).
        (2) AS-BUILT GRADING PLAN.
        (3) REPORT FROM THE SOILS ENGINEER, WHICH INCLUDES RECOMMENDED SOIL BEARING CAPACITIES, A STATEMENT AS TO THE EXPANSIVE QUALITY OF THE SOIL AND SUMMARIES OF FIELD AND LABORATORY TESTS. THE REPORT SHALL ALSO INCLUDE A STATEMENT BY THE SOILS ENGINEER THAT THE GRADING HAS BEEN DONE IN ACCORDANCE WITH THE REQUIREMENTS AND RECOMMENDATIONS OUTLINED IN THE PRELIMINARY SOILS REPORT AND ANY SUPPLEMENTS THERETO.
        (4) REPORT WITH AS-BUILT GEOLOGIC PLAN, IF REQUIRED BY THE CITY.
35. UNLESS A GRADING PERMIT FOR THIS PROJECT IS ISSUED WITHIN ONE (1) YEAR AFTER THE CITY ENGINEER'S APPROVAL THESE PLANS MAY BE REQUIRED TO BE RESUBMITTED FOR PLANCHECK. PLANCHECK FEES WILL BE REQUIRED FOR ANY SUCH RECHECK.
36. THE SOILS REPORT TITLED "EMERGENCY UPDATE GEOTECHNICAL DESIGN PARAMETERS AND PLANS, PREPARED BY GEOSOILS, INC., DATED FEBRUARY 27, 2009 AND RESPONSE LETTER DATED APRIL 3, 2009, SHALL BE CONSIDERED TO BE A PART OF THIS GRADING PLAN. ALL GRADING SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS AND SPECIFICATIONS CONTAINED IN SAID SOILS REPORT.

"DECLARATION OF RESPONSIBLE CHARGE"

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF CARLSBAD DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

FIRM: CHARLES J. RANDLE
ADDRESS: 234 WEST JUNIPER ST., SUITE 101
CITY, STATE: SAN DIEGO, CA 92101
TELEPHONE: (619) 246-7497

BY: _____ DATE: _____
CHARLES J. RANDLE

R.C.E. NO.: 22096
REGISTRATION EXPIRATION DATE: 09/30/11

SOILS ENGINEER'S CERTIFICATE

I, DAVID SKELLY, A REGISTERED (CIVIL/ GEOTECHNICAL) ENGINEER OF THE STATE OF CALIFORNIA, PRINCIPALLY DOING BUSINESS IN THE FIELD OF APPLIED SOILS MECHANICS, HEREBY CERTIFY THAT A SAMPLING AND STUDY OF THE SOIL CONDITIONS PREVALENT WITHIN THIS SITE WAS MADE BY ME OR UNDER MY DIRECTION BETWEEN THE DATES OF _____, 20__ AND _____, 20__. TWO COPIES OF THE SOILS REPORT COMPILED FROM THIS STUDY, WITH MY RECOMMENDATIONS, HAS BEEN SUBMITTED TO THE OFFICE OF THE CITY ENGINEER.

SIGNED: _____

G.E./P.E. NO.: 47857

DATE: _____

LICENSE EXPIRATION DATE: 12/31/11

OWNER'S CERTIFICATE

I, (WE), HEREBY CERTIFY THAT A REGISTERED SOILS ENGINEER OR GEOLOGIST HAS BEEN OR WILL BE RETAINED TO SUPERVISE OVER-ALL GRADING ACTIVITY AND ADVISE ON THE COMPACTION AND STABILITY OF THIS SITE.

_____ _____
DEAN A. GOETZ/BARBARA J. GOETZ DATE

OWNER'S CERTIFICATE

I, (WE), HEREBY CERTIFY THAT A REGISTERED SOILS ENGINEER OR GEOLOGIST HAS BEEN OR WILL BE RETAINED TO SUPERVISE OVER-ALL GRADING ACTIVITY AND ADVISE ON THE COMPACTION AND STABILITY OF THIS SITE.

_____ _____
MARSHALL SYLVER DATE

EROSION CONTROL NOTES

1. IN CASE EMERGENCY WORK IS REQUIRED, CONTACT _____ RAY PILES _____ AT (760) 729-1683 (PHONE NUMBER)
2. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS EMINENT.
3. DEVICES SHOWN ON PLANS SHALL NOT BE MOVED OR MODIFIED WITHOUT THE APPROVAL OF THE ENGINEERING INSPECTOR.
4. THE CONTRACTOR SHALL RESTORE ALL EROSION CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.
5. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL MEASURES AS MAY BE REQUIRED BY THE CITY ENGINEER DUE TO UNCOMPLETED GRADING OPERATIONS OR UNFORESEEN CIRCUMSTANCES WHICH MAY ARISE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.
7. ALL EROSION CONTROL MEASURES PROVIDED PER THE APPROVED GRADING PLAN SHALL BE MAINTAINED THEREON.
8. GRADED AREAS AROUND THE PROJECT PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
9. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE FIVE (5) DAY RAIN PROBABILITY FORECAST EXCEEDS FORTY PERCENT (40%). DIRT AND OTHER DEBRIS SHALL BE REMOVED AFTER EACH RAINFALL.
10. ALL GRAVEL BAGS SHALL BE BURLAP TYPE WITH 3/4 INCH MINIMUM AGGREGATE.
11. SHOULD GERMINATION OF HYDROSEEDED SLOPES FAIL TO PROVIDE EFFECTIVE COVERAGE OF GRADED SLOPES (90% COVERAGE) PRIOR TO NOVEMBER 15, THE SLOPES SHALL BE STABILIZED BY RUNOFF STRAW INSTALLED IN ACCORDANCE WITH SECTION 33.033 OF THE EROSION AND SEDIMENT CONTROL HANDBOOK OF THE DEPARTMENT OF CONSERVATION, STATE OF CALIFORNIA.

TEMPORARY EROSION CONTROL PLANTING AND IRRIGATION

ALL PERMANENT AND TEMPORARY EROSION CONTROL PLANTING AND IRRIGATION SHALL BE INSTALLED AND MAINTAINED AS REQUIRED IN SECTION 212 OF THE STANDARD SPECIFICATIONS AND THE FOLLOWING:

A. HYDROSEEDING SHALL BE APPLIED TO:
   1. ALL SLOPES THAT ARE GRADED 6:1 (HORIZONTAL TO VERTICAL) OR STEEPER WHEN THEY ARE:
      a. THREE FEET OR MORE IN HEIGHT AND ADJACENT TO A PUBLIC WALL OR STREET.
      b. ALL SLOPES 4 FEET OR MORE IN HEIGHT.
   2. AREAS GRADED FLATTER THAN 6:1 WHEN ANY OF THE FOLLOWING CONDITIONS EXIST:
      a. NOT SCHEDULED FOR IMPROVEMENTS/CONSTRUCTION OR GENERAL LANDSCAPING) WITHIN 90 DAYS OF ROUGH GRADING.
      b. IDENTIFIED BY THE PARKS AND RECREATION DIRECTOR AS HIGHLY VISIBLE TO THE PUBLIC.
      c. HAVE ANY SPECIAL CONDITION IDENTIFIED BY THE CITY ENGINEER THAT WARRANTS BAREDATE TREATMENT.

B. HYDROSEEDED AREAS SHALL BE IRRIGATED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
   1. ALL SLOPES THAT ARE GRADED 6:1 OR STEEPER AND THAT ARE:
      a. THREE TO EIGHT FEET IN HEIGHT SHALL BE IRRIGATED BY HAND WATERING FROM DUCK COVE/DRS/HOSE BIBS OR A CONVENTIONAL SYSTEM OF LOW PRECIPITATION SPRINKLER HEADS PROVIDING 100% COVERAGE.
      b. GREATER THAN 8 FEET IN HEIGHT SHALL BE WATERED BY A CONVENTIONAL SYSTEM OF LOW PRECIPITATION SPRINKLER HEADS PROVIDING 100% COVERAGE.
   2. AREAS SLOPED LESS THAN 6:1 SHALL BE IRRIGATED AS APPROVED BY THE CITY ENGINEER, PRIOR TO HYDROSEEDING. THE DEVELOPER SHALL SUBMIT A PROPOSED SCHEME TO PROVIDE IRRIGATION TO THE CITY ENGINEER. THE PROPOSAL SHALL BE SPECIFIC REGARDING THE NUMBERS, TYPES AND COSTS OF THE ELEMENTS OF THE PROPOSED SYSTEM.
   3. IRRIGATION SHALL MAINTAIN THE MOISTURE LEVEL OF THE SOIL AT THE OPTIMUM LEVEL FOR THE GROWTH OF THE HYDROSEEDED GROWTH.

C. HYDROSEEDING MIX SHALL CONSIST OF ALL OF THE FOLLOWING:
   1. SEED MIX SHALL CONSIST OF NO LESS THAN:
      a. 20 lbs. PER ACRE OF ROSE CLOVER
      b. 20 lbs. PER ACRE OF CRIMSON FESCUE
      c. 3 lbs. PER ACRE OF E. SCHOOL CA CALIFORNICA
      d. 4 lbs. PER ACRE OF CAROLLA LUPITOLA
      e. 3 lbs. PER ACRE OF ALYSSUM (CARPET OF SNOW)
      f. 1/2 lb. PER ACRE OF DIMORPHOTHECA
      g. ITEMS (a) & (b) ARE OF THE TYPE THAT SUBSECTION MAY BE OMITTED ON LOCATIONS WHERE THE AREA BEING HYDROSEEDED IS NOT VISIBLE FROM EITHER A PUBLIC STREET OR RESIDENTIAL STRUCTURES.
      h. ITEM (g) OF THIS SUBSECTION MUST BE INOCULATED WITH A NITROGEN FIXING BACTERIA AND APPLIED DRY EITHER BY DRILLING OR BROADCASTING BEFORE HYDROSEEDING.
      i. ALL SEED MATERIALS SHALL BE TRANSPORTED TO THE JOBSITE IN UNOPENED CONTAINERS WITH THE CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE CERTIFICATION TAG ATTACHED TO, OR PRINTED ON SAID CONTAINERS.
      j. NON-PHYTO-TOXIC BETTING AGENTS MAY BE ADDED TO THE HYDROSEED SLURRY AT THE DISCRETION OF THE CONTRACTOR.
   2. TYPE 1 MULCH APPLIED AT THE RATE OF NO LESS THAN 2000 lbs PER ACRE. TYPE B MULCH (STRAW) MAY BE SUBSTITUTED, ALL OR PART, FOR HYDRAULICALLY APPLIED FIBER MATERIAL. WHEN STRAW IS USED IT MUST BE ANCHORED TO THE SLOPE BY MECHANICALLY PUNCHING NO LESS THAN SIZE OF THE STRAW INTO THE SOIL.
   3. FERTILIZER CONSISTING OF AMMONIUM PHOSPHATE SULFATE, 16-20-0, WITH 15% SULPHUR APPLIED AT THE RATE OF 500 lbs PER ACRE.

D. AREAS TO BE HYDROSEEDED SHALL BE PREPARED PRIOR TO HYDROSEEDING BY:
   1. ROUGHENING THE SURFACE TO BE PLANTED BY ANY OR A COMBINATION OF:
      a. TRACK WALKING SLOPES STEEPER THAN 6:1
      b. HARROWING AREAS 3:1 OR FLATTER THAT ARE SUFFICIENTLY FRIABLE.
      c. RIPPING AREAS THAT WILL NOT BREAK UP USING ITEMS a OR b ABOVE
   2. CONDITIONING THE SOILS SO THAT IT IS SUITABLE FOR PLANTING BY:
      a. ADJUSTING THE SURFACE SOIL MOISTURE TO PROVIDE A DAMP BUT NOT SATURATED SEED BED.
      b. THE ADDITION OF SOIL AMENDMENTS, PH ADJUSTMENT, LEACHING COVERING SALINE SOILS TO PROVIDED WORKABLE CONDITIONS FOR GROWTH.

E. HYDROSEEDED AREAS SHALL BE MAINTAINED TO PROVIDE A VIGOROUS GROWTH UNTIL THE PROJECT IS PERMANENTLY LANDSCAPED OR, FOR AREAS WHERE HYDROSEEDING IS THE THE PERMANENT LANDSCAPING, UNTIL THE PROJECT IS COMPLETED AND ALL BONDS RELEASED.

SITE ZONING & LOTS AREA:

LAND USE DESIGNATION: RLM
ZONING: R-1-7,500

LOTS AREA (PER PARCEL MAP 18236):

5723 CARLSBAD BLVD. GROSS 0.481 AC
CARLSBAD, CA 92008 NET 0.248 AC

5327 CARLSBAD BLVD. GROSS 0.53 AC
CARLSBAD, CA 92008 NET 0.266 AC

LEGAL DESCRIPTION

PARCELS 2 & 3 OF PARCEL MAP 18236

SOURCE OF TOPOGRAPHY

THESE PLANS ARE BASED ON TOPOGRAPHICAL SURVEY DRAWINGS PREPARED BY:

MELCHOR LAND SURVEYING INC.
5731 PALMER WAY, SUITE C
CARLSBAD, CA 92010
DATED: JULY 7, 2009

AND

CROWLE SURVEYING
164 S. ESCONDIDO BLVD
ESCONDIDO, CA 92025

TOPOGRAPHY SHOWN HEREON CONFORMS TO NATIONAL ACCURACY STANDARDS.

PROJECT LOCATION

THIS PROJECT IS LOCATED WITHIN ASSESSORS PARCEL NUMBER(S) 210-120-33 AND 210-120-34

THE CALIFORNIA COORDINATE INDEX OF THIS PROJECT IS:
N = 1,992,700 E = 6,229,900

BENCH MARK

DESCRIPTION: BRASS CAP STAMPED CLSB-137, LS 6215
LOCATION: IN CENTER OF TURN AROUND CIRCLE, SOUTH BOUND CARLSBAD BLVD. IN THE 1ST EMBAYMENT OF 1ST JUNCTION W/PALOMAR RD.
RECORDED: POINT 137 PER RECORD OF SURVEY No. 17271
ELEVATION: 80.700 DATUM: NGVD 29

REFERENCE DRAWINGS

GRADING PLAN NO. 402-0A
GRADING PLAN NO. 400-4A

EARTHWORK QUANTITIES

CUT: 0 CY
FILL: 1820 CY
IMPORT: 1820 CY
EXPORT: _____ CY
REMEDIAL: _____ CY

WORK TO BE DONE

THE GRADING WORK SHALL CONSIST OF THE CONSTRUCTION OF ALL CUTS AND FILLS, REMEDIAL GRADING, DRAINAGE FACILITIES, EROSION CONTROL FACILITIES, AND PLANTING OF PERMANENT LANDSCAPING AND PREPARATION OF AS-BUILT GRADING PLANS, AS-BUILT GEOLOGIC MAPS AND REPORTS, ALL AS SHOWN OR REQUIRED ON THIS SET OF PLANS AND THE CITY STANDARDS, SPECIFICATIONS, REQUIREMENTS, RESOLUTIONS AND ORDINANCES CITED ON THESE PLANS.

THE GRADING WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING DOCUMENTS, CURRENT AT THE TIME OF CONSTRUCTION, AS DIRECTED BY THE CITY ENGINEER.

1. CARLSBAD MUNICIPAL CODE
2. CITY OF CARLSBAD ENGINEERING STANDARDS
3. THIS SET OF PLANS
4. RESOLUTION NO. 6672 DATED 4-7-10
5. THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK).
6. SOILS REPORT AND RECOMMENDATIONS BY GEOSOILS, INC., DATED FEBRUARY 27, 2009 AND RESPONSE LETTER DATED APRIL 3, 2009.
7. THE SAN DIEGO REGIONAL STANDARD DRAWINGS AND AS MAY BE MODIFIED BY THE CITY OF CARLSBAD STANDARDS.
8. CALIFORNIA COASTAL COMMISSION DEVELOPMENT PERMIT CONDITIONS DATED N/A
9. ENVIRONMENTAL APPROVAL DOCUMENTS DATED _____
10. STORM WATER POLLUTION PREVENTION PLAN PREPARED BY GEOSOILS, INC. 1-15-2010
    WDID NO. 9 3?? N/A
11. STORM WATER MANAGEMENT PLAN PREPARED BY N/A DATED _____
12. CALIFORNIA STORM WATER QUALITY ASSOCIATION BMP CONSTRUCTION HANDBOOK AND CALTRANS CONSTRUCTION SITE BMP MANUAL

LEGEND

DESCRIPTION	DWG.NO.	SYMBOL	QUANTITY
EXISTING BUILDING LINE			
EXISTING CAISSON, 32"ø		0	
CENTERLINE			
PROPERTY LINE			
EASEMENT LINE			
EXISTING CONTOUR		50	
SPOT ELEVATIONS		36.69	
		(36.69)	
EXISTING SPOT ELEVATIONS			
EXISTING WALL			
PROPOSED SHOTCRETE WALL			2553 SF
PROPOSED SHOTCRETE SLOPE			
EAST		E	
WEST		W	
NORTH		N	
SOUTH		S	
EXISTING ELEVATION		(25.3)	
FLOWLINE		FL	
TOP OF GRATE		TG	
TOP OF WALL		TW	
TOP OF SLOPE		TS	
BOTTOM OF WALL		BW	
BOTTOM OF FOOTING		BF	
MEAN HIGH WATER (8.3ft)		MHW	
MEAN HIGH TIDE LEVEL (5.36)		MHTW	

REQUIRED TREATMENT CONTROL BMP TABLE

TYPE	DESCRIPTION	OWNERSHIP	MAINTENANCE AGREEMENT	SHEET NO.	MAINTENANCE FREQUENCY
N/A					

SWPPP PROJECT PRIORITY: HIGH

PLANNING DEPARTMENT APPROVAL

_____ DATE / /
PLANNING DIRECTOR

_____ DATE / /
ENGINEER

RECOMMENDED BY: _____ (PRINT NAME)

"AS BUILT"

RCE 22096 EXP. 9-30-10 DATE

REVIEWED BY:

INSPECTOR DATE

PLANS PREPARED BY

CHARLES J. RANDLE
234 WEST JUNIPER STREET, SUITE 101
SAN DIEGO, CA 92101
(619) 246-7497

1/15/2010

DATE	INITIAL	REVISION DESCRIPTION	DATE	INITIAL	DATE	INITIAL
ENGINEER OF WORK			OTHER APPROVAL		CITY APPROVAL	

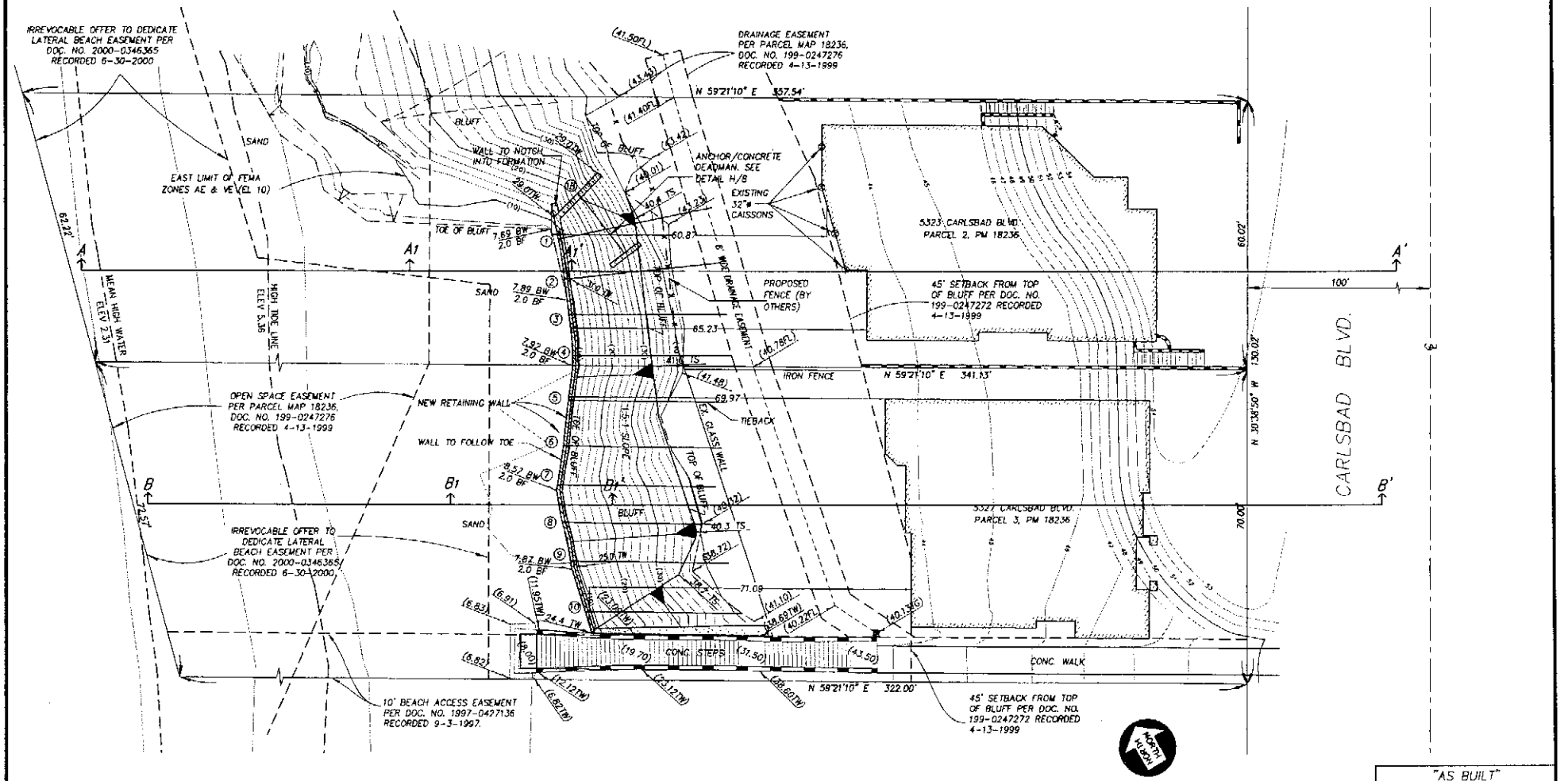
SHEET 1 | CITY OF CARLSBAD ENGINEERING DEPARTMENT | SHEETS 6

GRADING PLANS FOR
GOETZ SEAWALL
TITLE SHEET

APPROVED: GLEN K. VAN PESKI
SENIOR CIVIL ENGINEER RCE 41204 EXPIRES 3/31/11 DATE

DWN BY: _____ CHKD BY: _____ RVWD BY: _____
PROJECT NO. CDP 09-13/SUP09-05
DRAWING NO. 463-2A

EXHIBIT NO. 2
APPLICATION NO.
A-6-CII-10-043
Site Plans
Page 1 of 6
California Coastal Commission



LEGEND:

E	EAST
W	WEST
N	NORTH
S	SOUTH
(25.3)	EXISTING ELEVATION
FL	FLOWLINE
TG	TOP OF GRATE
TW	TOP OF WALL
TS	TOP OF SLOPE
BW	BOTTOM OF WALL
BF	BOTTOM OF FOOTING
MHW	MEAN HIGH WATER (2.31)
MHTW	MEAN HIGH TIDE LEVEL (5.36)

BUILDING LINE
CAISSON, 32"ø
CENTERLINE
PROPERTY LINE
EASEMENT LINE
34.89 (35.89) SPOT ELEVATIONS
EXISTING SPOT ELEVATIONS
EXISTING WALL
PROPOSED SHOTCRETE WALL
PROPOSED SHOTCRETE SLOPE

SURVEY REFERENCES:

THESE PLANS ARE BASED ON TOPOGRAPHICAL SURVEY DRAWINGS PREPARED BY:

MELCHOR LAND SURVEYING INC.
5731 PALMER WAY, SUITE G
CARLSBAD, CA 92010
DATED: JULY 7, 2009

AND

CHEMELE SURVEYING
164 S. ESCONDIDO BLVD.
ESCONDIDO, CA 92025

BASIS OF BEARINGS:

THE BASIS OF BEARING FOR THIS SURVEY IS TIE LINE BETWEEN POINT 137 AND POINT 138 PER RECORD OF SURVEY NO. 17271 I.E. N 74°27'43" W

BENCHMARK:

POINT 137 PER RECORD OF SURVEY NO. 17271. FOUND BRASS CAP STAMPED CLSB-137 LS 6218 IN CENTER OF TURN AROUND CIRCLE, SOUTH BOUND CARLSBAD BLVD., IN THE SOUTHWEST QUADRANT OF THE JUNCTION WITH PALOMAR AIRPORT ROAD.
EL= 60.700 NGVD 29

GRAPHIC SCALE
10 0 5 10 20 40
1" = 10'

"AS BUILT"

RCE 22096 EXP. 9-30-10 DATE
REVIEWED BY:
INSPECTOR DATE

PLANS PREPARED BY
CHARLES J. RANDLE
234 WEST JUNIPER STREET, SUITE 101
SAN DIEGO, CA 92101
(619) 246-7497
1/15/2010

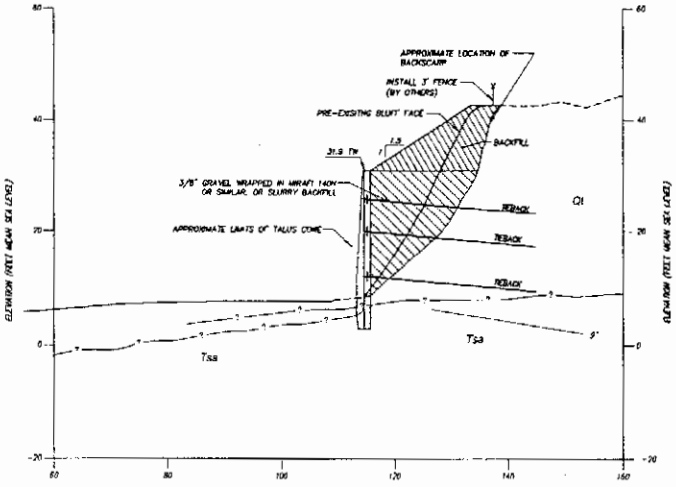
DATE	INITIAL	REVISION DESCRIPTION	DATE	INITIAL	DATE	INITIAL
ENGINEER OF WORK			OTHER APPROVAL		CITY APPROVAL	

SHEET 2 | CITY OF CARLSBAD ENGINEERING DEPARTMENT | SHEETS 6

GRADING PLANS FOR:
GOETZ SEAWALL
SITE PLAN

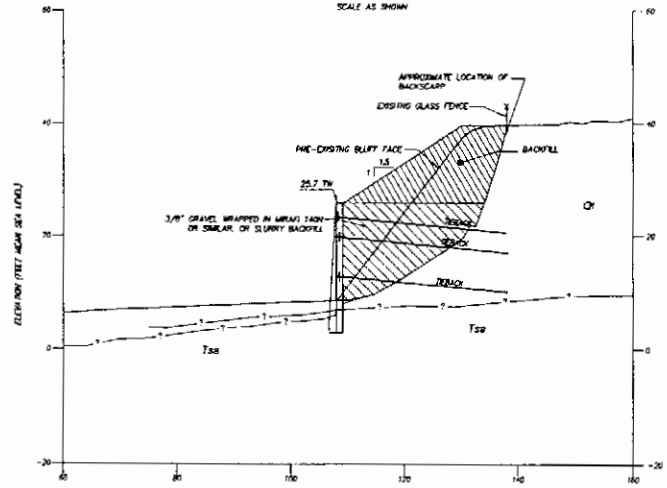
APPROVED: GLEN K VAN PESKI
SENIOR CIVIL ENGINEER RCE 41204 EXPIRES 3/31/11 DATE

DWN BY: CHKD BY: RVWD BY:
PROJECT NO. CDP 09-13/SUP09-05
DRAWING NO. 463-2A



PROPOSED REPAIR SECTION A1-A1'

SCALE AS SHOWN



PROPOSED REPAIR SECTION B1-B1'

SCALE AS SHOWN

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST LOCAL BUILDING AND SAFETY CODES AND TO THE RULES AND REGULATIONS OF ALL AGENCIES HAVING JURISDICTION.
2. CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE PRIOR TO CONSTRUCTION AND REPORT ANY VARIATIONS TO THE DESIGN ENGINEER. OWNER TO PROVIDE THE NECESSARY CONSTRUCTION STAGES FOR WALL LOCATIONS.
3. GENERAL SITE EXCAVATION SHALL BE COORDINATED WITH INSTALLATION OF SHOTCRETE WALL TO ENSURE SAFE WORKING CONDITIONS AND PREVENT LOSS OF GROUND AND CAVING OF BANKS.
4. THE SOIL CONDITIONS SHALL BE VERIFIED IN THE FIELD BY THE OWNER'S SOIL ENGINEER. SHOTCRETE WALL DESIGN SHALL BE REVISED IF DIFFERENT SITE CONDITIONS ARE ENCOUNTERED.
5. A THOROUGH SITE UTILITY LOCATION INVESTIGATION SHALL BE COMPLETED BY THE OWNER BEFORE ANY WORK COMMENCES AND ANY CONFLICT BETWEEN UTILITIES OR OTHER STRUCTURES AND EXCAVATION SUPPORT SYSTEM SHALL BE REPORTED TO THE DESIGN ENGINEER.
6. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES AND EXISTING IMPROVEMENTS TO PROTECT FROM HARM, AS REQUIRED, TO PREVENT DAMAGE AND TO MAINTAIN THEIR USE. CONSULT THE DESIGN ENGINEER IF UTILITY LINES OR OTHER IMPROVEMENTS ARE ENCOUNTERED DURING DRILLING OF ANCHORS.
7. THE CONTRACTOR SHALL NOTIFY "DIG ALERT" FOR "MARK-UP" AT 1-800-227-2600, 48 HOURS PRIOR TO ANY EXCAVATION, TRENCHING OR DRILLING.
8. NO WORK TO BE PERFORMED ON BEACH PUBLIC ACCESS STAIRS.

WORK DESCRIPTION AND SUGGESTED SEQUENCE

1. CONTRACTOR'S CONSTRUCTION SEQUENCE TO BE PROVIDED TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCEMENT OF WORK.
2. EXCAVATE FOOTING GRADE BEAM 4-FEET MINIMUM INTO REDROCK.
3. PLACE FOOTING GRADE BEAM STEEL AND POUR CONCRETE UP TO EXISTING GRADE OR 5-FEET BELOW LOWER TIEBACK, WHICH EVER IS LOWER.
4. IDENTIFY LOCATION AND BEARING OF THE TIEBACKS.
5. EXCAVATE TO NATIVE MATERIAL BEHIND THE PROPOSED WALL.
6. DRILL TIEBACKS TO DESIGN DEPTH.
7. INSTALL THE STRAND OR THE ROD WITH CORROSION RESISTANCE AND SEPARATORS.
8. PRESSURE GROUT THE TIEBACK UP TO EXISTING GROUND SURFACE.
9. TEST TIEBACKS AGAINST EXISTING GROUND.
10. INSTALL WALL STEEL REINFORCEMENT, FORMS AND POUR CONCRETE.
11. AFTER 21 DAYS LOCK LOWER TENSION RODS TO 60% OF DESIGN LOAD.
12. INSTALL BURRITO TYPE DRAIN AT BACK OF WALL.
13. BACKFILL WALL UP TO 5 FEET ABOVE LOWER TIEBACK.
14. LOAD LOWER TENSTION RODS TO DESIGN LOAD AND LOCK OFF.
15. LOCK UPPER TENSION RODS TO 60% OF DESIGN LOAD.
16. BACKFILL WALL UP TO 5 FEET ABOVE UPPER TIEBACK.
17. LOAD UPPER TENSTION RODS TO DESIGN LOAD AND LOCK OFF.
18. BACKFILL WALL TO FINISHED PAD ABOVE WALL.
19. PLACE THE WEAR COURSE TO MATCH THE SURROUNDING NATURAL BLUFF EXPOSURES.
20. CONTRACTION JOINTS SHALL BE PROVIDED AT INTERVAL NOT TO EXCEED 30 FEET AND EXPANSION JOINTS AT INTERVALS NOT TO EXCEED 90 FEET.

SPECIAL INSPECTION

A. SPECIAL INSPECTION OF THE FOLLOWING SHALL BE IN ACCORDANCE WITH CALIFORNIA BUILDING CODE 2007, CHAPTER 17
- PLACING AND SPLICING OF REINFORCING STEEL (CBC CHAPTER 17, TABLE 1704.4)
- 4000 PSI CONCRETE

B. DRILLING AND INSTALLATION OF ROCK ANCHORS (DESIGN ENGINEER)

C. FIELD WELDING (IF REQUIRED)

D. TESTING OF TIEBACKS (DESIGN ENGINEER).

E. BOTTOM OF EXCAVATION (SOILS ENGINEER).

REINFORCED CONCRETE

1. CEMENT SHALL CONFORM TO ASTM C 150, TYPE V.
2. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C 33.
3. CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C 94.
4. CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", EXCEPT AS MODIFIED BY THESE NOTES.
5. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS FOLLOWS:

   GRADE BEAM AND WALL: 4000 PSI
   W/C RATIO 0.40 PER 2007 CBC
   SLUMP: 5" TO 7"

   FOR CONCRETE OVER 2500 PSI SPECIAL INSPECTION IS REQUIRED.
6. ADMIXTURES SHALL BE USED WITH PRIOR WRITTEN APPROVAL OF THE ENGINEER. ADMIXTURES SHALL COMPLY WITH ASTM C 494 AND BE OF A TYPE THAT INCREASES THE WORKABILITY OF THE CONCRETE, BUT WHICH SHALL NOT REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT. CALCIUM CHLORIDE SHALL NOT BE USED.
7. CONTRACTOR SHALL SUBMIT MIX DESIGNS FOR REVIEW BEFORE FABRICATION AND INSTALLATION.
8. ALL CONCRETE MAY (OPTIONAL) HAVE 4 GALLONS OF GRADE 80" CORROSION INHIBITOR PER CUBIC YARD. CORROSION INHIBITOR SHALL MEET THE REQUIREMENTS OF ASTM C 494, TYPE C.

TIEBACK MATERIALS:

1. TIEBACKS SHALL BE DYWIDAG DSI MULTISTRAND ANCHOR WITH ULTIMATE STRENGTH OF 775 KIPS OR 1" EPOXY COATED TREATED ROD WITH ULTIMATE STRENGTH OF 150 KIPS. BOTH ALTERNATES SHALL BE DCP CORROSION PROTECTED. SIMILAR MANUFACTURES MAY BE USED.
2. TIEBACKS WEDGES, WEDGE PLATES, NUTS, COUPLERS, ETC., SHALL BE AS RECOMMENDED BY THE MANUFACTURE FOR LOADS OF THE DESIGN LOADS SHOWN HEREIN.
3. TIEBACKS SHALL MEET THE REQUIREMENTS OF PART 2 OF THE PROJECT MINIMUM PERFORMANCE SPECIFICATIONS FOR EARTH ANCHORS.
4. TIEBACK GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 4 DAYS.
5. MISCELLANEOUS STEEL SHALL CONFORM TO REQUIREMENTS OF ASTM A-36 AND SHALL BE EPOXY COATED.
6. WELDING, ELECTRIC ARC USING ELECTRODES E70-XX AND PLACED BY A CERTIFIED WELDER. FIELD WELDING TO BE CONTINUOUSLY INSPECTED.

PROCEDURE FOR ROCK ANCHOR PLACEMENT & TESTING:

CONTRACTOR SHOULD TEST ONE TIEBACK FIRST TO VERIFY SOIL FRICTION CAPACITY PRIOR TO PLACING REMAINING TIEBACKS. IF THIS IS WAIVED, THE BALANCE OF THE TIEBACKS WILL BE AT THE CONTRACTOR'S RISK.

1. CLEAR EXISTING WALL SURFACE OF LOOSE SOIL, DEBRIS, AND ORGANIC MATERIALS.
2. DRILL ANCHOR SHAFTS TO MINIMUM DEPTHS SHOWN HEREIN.
3. TIEBACKS SHAFT SHALL BE CLEAR OF DEBRIS PRIOR TO PLACEMENT OF ROD. INSTALLATION OF THE ROD SHALL BE IN ACCORDANCE WITH THE MANUFACTURE RECOMMENDATIONS.
4. FILL ANCHOR LENGTH BEYOND THE FAILURE PLANE WITH STRUCTURAL GROUT. BACKFILL THE REMAINDER OF ANCHOR SHAFT WITH SLURRY.
5. START EXCAVATION FOR WALL FOOTING AND/OR EMBEDMENT.
6. EACH TIEBACK SHALL BE SATISFACTORILY PROOF TESTED TO A MINIMUM OF 150% OF THE DESIGN LOAD IN ACCORDANCE WITH THE LATEST EDITION OF THE POSTTENSIONING INSTITUTE.
7. A MINIMUM OF 2 ANCHORS SHALL BE SATISFACTORILY PERFORMANCE TESTED TO A MINIMUM OF 150% OF THE DESIGN LOAD IN ACCORDANCE WITH THE LATEST EDITION OF THE POST TENSIONING INSTITUTE.
8. LOCK-OFF ANCHOR TO THE DESIGN LOAD SHOWN AFTER THE CONCRETE HAS REACH THE MINIMUM DESIGN STRENGTH AND AS INDICTED ABOVE.
13. PLACE THE ARCHITECTURAL SURFACING TO MATCH THE SURROUNDING NATURAL ROCK EXPOSURES (WHERE APPLICABLE).
14. CONTRACTION JOINTS SHALL BE PROVIDED AT INTERVAL NOT TO EXCEED 30 FEET AND EXPANSION JOINTS AT INTERVALS NOT TO EXCEED 90 FEET.

REINFORCING STEEL

1. BAR REINFORCEMENT SHALL BE ASTM A 615, GRADE 60.
2. ALL REINFORCING BARS SHALL BE EPOXY COATED PER ASTM A 775.
1. MINIMUM LAP SPLICES OF REINFORCING BARS SHALL BE AS FOLLOWS: CLASS B AS DEFINED IN ACI 318-05.
2. REINFORCEMENT DETAILING, BENDING, AND PLACEMENT SHALL BE IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE", LATEST EDITION.
3. REINFORCING STEEL SHALL BE PROVIDED WITH THE FOLLOWING AMOUNTS OF COVER:
   A. CONCRETE DEPOSITED AGAINST EARTH: 3 IN. MIN.
   B. CONCRETE SURFACE EXPOSED TO EARTH OR WEATHER: 3 IN. MIN.
4. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND INSERTS SHALL BE WELL-SECURED IN POSITION BEFORE PLACING CONCRETE.

CATHODIC PROTECTION

1. ALL EXPOSED STEEL TO BE EPOXY COATED OR HOT DIP GALVANIZED.

EPOXY COATING

1. FUSION BONDED EPOXY COATING OF STEEL BARS TO HELP PREVENT CORROSION HAS BEEN SUCCESSFULLY EMPLOYED IN MANY APPLICATIONS BECAUSE OF THE CHEMICAL STABILITY OF EPOXY RESINS.
2. EPOXY COATED BARS AND FASTENERS SHOULD BE DONE INACCORDANCE WITH ASTM A-775 OR ASTM 934.
3. COATING THICKNESS IS SPECIFIED BETWEEN 7 TO 12 MILS.
4. EPOXY COATED BARS AND COMPONENTS ARE SUBJECT TO DAMAGE IF DRAGGED ON THE GROUND OR MISHANDLED.
5. HEAVY PLATES AND NUTS ARE OFTEN GALVANIZED EVEN THOUGH THE BAR MAY BE EPOXY COATED SINCE THEY ARE DIFFICULT TO PROTECT AGAINST ABRASION IN THE FIELD.
6. EPOXY COATING PATCH KITS ARE TO BE USED IN THE FIELD TOP REPAIRING NICKED OR SCRATCHED EPOXY SURFACES.

BEST MANAGEMENT PRACTICES

1. MEASURES WILL BE IMPLEMENTED TO PREVENT FOREIGN MATERIALS ASSOCIATED WITH THE DEFINED WORK FROM FOULING OR ENTERING THE OCEAN DURING CONSTRUCTION.
2. CONTRACTOR WILL ENSURE THAT ALL WORK CREWS ARE BRIEFED ON THE IMPORTANCE OF OBSERVING THE APPROPRIATE RECAUTIONS, IMPLEMENTING THESE MEASURES, AND REPORTING ANY ACCIDENTAL SPILLS.
3. CONSTRUCTION CONTRACTS SHALL CONTAIN PENALTY PROVISIONS, SUFFICIENT TO PROVIDE FOR THE RETRIEVAL AND OR CLEAN UP OF IMPROPERLY CONTAINED FOREIGN MATERIALS.

SPECIAL CONDITION NOTES

1. THE PROPOSED SHOTCRETE WALL SHALL CONFORM AS CLOSELY TO THE NATURAL TOE OF SLOPE AND AS FAR LANDWARD AS POSSIBLE. PROPOSED SHOTCRETE WILL GRADUALLY BLEND/TAPER INTO EXISTING BLUFF.
2. NO LOCAL SAND, COBBLES OR SHORELINE ROCKS SHALL BE USED FOR BACKFILL OR FOR ANY OTHER PURPOSE AS CONSTRUCTION MATERIAL OR FOR MAINTENANCE TO SAND AND INTERTIDAL AREAS SHALL BE MINIMIZED TO THE MAXIMUM EXTENT POSSIBLE.
3. ANY EXISTING PERMANENT IRRIGATION SYSTEMS LOCATED WITHIN THE GEOLOGIC SETBACK AREA (50 FEET FROM THE BLUFF EDGE) SHALL BE REMOVED OR CAPPED.
4. ALL RUNOFF FROM IMPERVIOUS SURFACES ON THE SITE SHALL BE COLLECTED AND DIRECTED AWAY FROM THE BLUFF EDGE AS SHOWN ON RECORDED DRAINAGE PLAN NO. 402-04.
5. THE SHOTCRETE SHALL BE COLORED AND TEXTURED TO MATCH, TO THE EXTENT POSSIBLE, THE SURROUNDING BLUFF AREAS. COLORING OF THE HAND SCULPTED SHOTCRETE WILL BE PERFORMED USING INTEGRAL COLORATION SYSTEM.
6. NO STAGING OF EQUIPMENT OR MATERIALS SHALL OCCUR ON SANDY BEACH OR PUBLIC PARKING AREAS, DURING BOTH CONSTRUCTION AND THE REMOVAL STAGES OF THE PROJECT. THE PERMITTEE AND OR CONTRACTOR SHALL NOT STORE ANY CONSTRUCTION MATERIALS OR WASTE WHERE IT WILL BE OR COULD POTENTIALLY BE SUBJECT TO WAVE EROSION AND DISPERSION. NO MACHINERY SHALL BE PLACED, STORED OR OTHERWISE LOCATED IN THE INTERTIDAL ZONE AT ANY TIME.
7. CONSTRUCTION CORRIDORS SHALL BE LOCATED IN A MANNER THAT HAS THE LEAST IMPACT ON PUBLIC ACCESS TO AND ALONG THE SHORELINE.
8. NO WORK UNLESS APPROVED BY THE CITY OF CARLSBAD AND THE CALIFORNIA COASTAL COMMISSION STAFF, SHALL OCCUR ON THE BEACH BETWEEN MEMORIAL DAY WEEKEND AND LABOR DAY OF ANY YEAR.
9. VEHICULAR ACCESS SHALL BE FROM THE LIFEGUARD ACCESS ROAD LOCATED NORTHWEST OF THE ENCINAS POWER PLANT.

"AS BUILT"

RCE 22096 EXP. 9-30-10 DATE

REVIEWED BY:

INSPECTOR DATE

PLANS PREPARED BY

CHARLES J. RANDLE
234 WEST JUNIPER STREET, SUITE 101
SAN DIEGO, CA 92101
(619) 246-7497

1/15/2010

DATE	INITIAL	REVISION DESCRIPTION	DATE	INITIAL	DATE	INITIAL
ENGINEER OF WORK			OTHER APPROVAL		CITY APPROVAL	

SHEET 3 | CITY OF CARLSBAD ENGINEERING DEPARTMENT | SHEETS 6

GRADING PLANS FOR

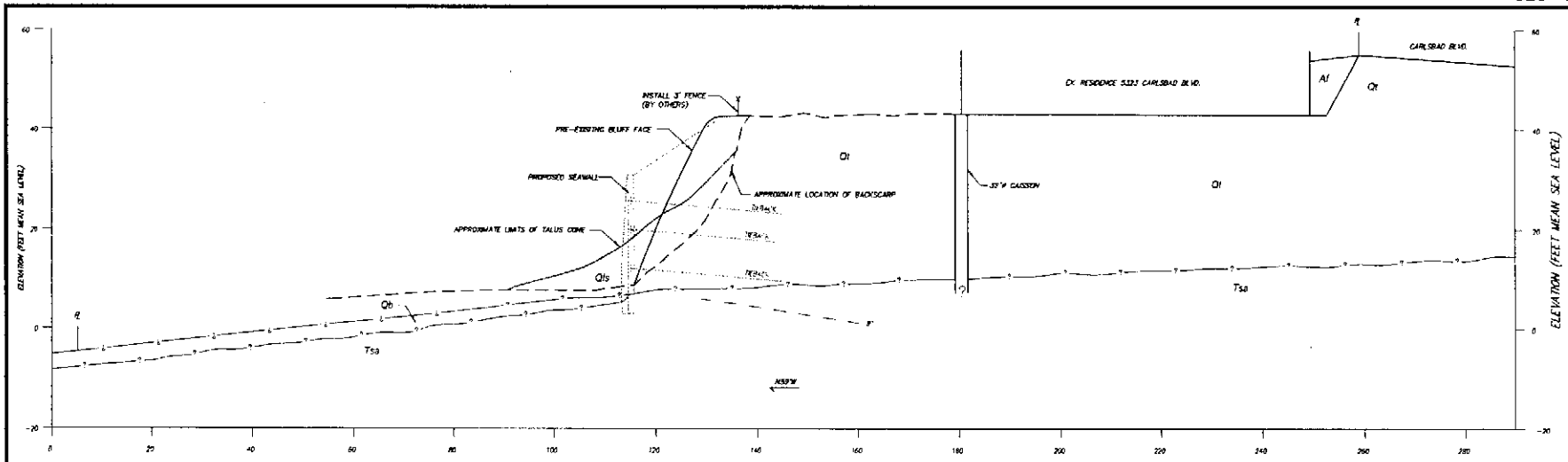
GOETZ SEAWALL

RETAINING WALL CROSS SECTIONS AND NOTES

APPROVED: GLEN R. VAN PESKI

SENIOR CIVIL ENGINEER RCE 41204 EXPIRES 3/31/11 DATE

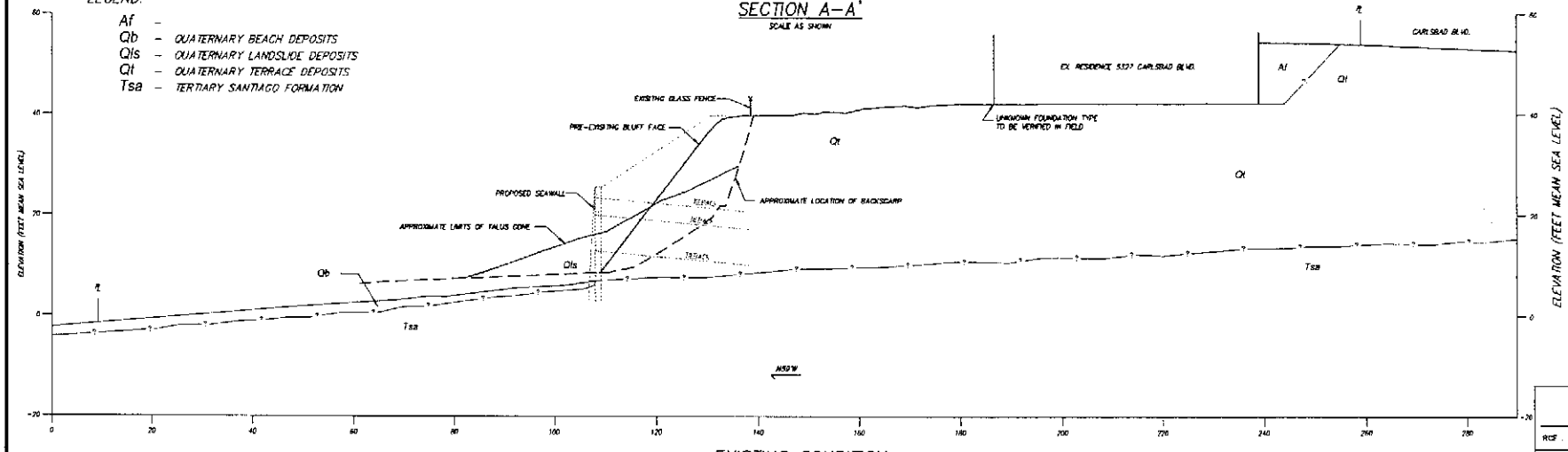
DWN BY: | CHKD BY: | REVWD BY: | PROJECT NO. CDP 09-13/SUP09-05 | DRAWING NO. 463-2A



EXISTING CONDITION
SECTION A–A'
SCALE AS SHOWN

LEGEND:

- Af – ARTIFICIAL FILL
- Qb – QUATERNARY BEACH DEPOSITS
- Qls – QUATERNARY LANDSLIDE DEPOSITS
- Qt – QUATERNARY TERRACE DEPOSITS
- Tsa – TERTIARY SANTIAGO FORMATION



EXISTING CONDITION
SECTION B–B'
SCALE AS SHOWN

"AS BUILT"

RCE 22096 EXP. 9-30-10 DATE

REVIEWED BY:

INSPECTOR DATE

PLANS PREPARED BY

CHARLES J. RANDLE
234 WEST JUNIPER STREET, SUITE 101
SAN DIEGO, CA 92101
(619) 246-7497

1/12/2010

ENGINEER OF WORK

REVISION DESCRIPTION

OTHER APPROVAL | CITY APPROVAL

SHEET 4 | CITY OF CARLSBAD ENGINEERING DEPARTMENT | SHEETS 6

GRADING PLANS FOR:

GOETZ SEAWALL

EXISTING CROSS SECTIONS

APPROVED: GLEN K VAN PESKI

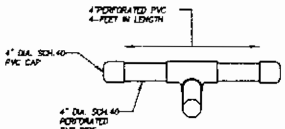
SENIOR CIVIL ENGINEER RE 41204 EXPIRES 3/31/11 DATE

DWN BY: CHKD BY: RVWD BY:

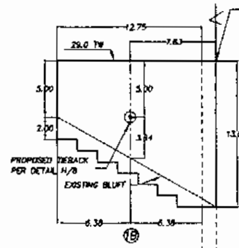
PROJECT NO. CDP 09-13/SUP09-05

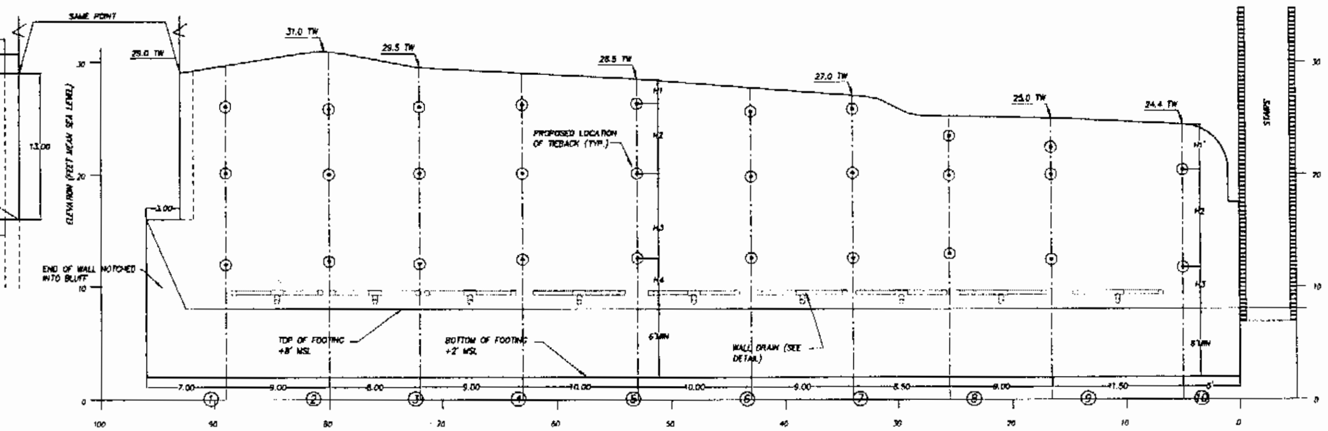
DRAWING NO. 463-2A

CDP 09-13/SUP09-05



DETAIL C/7
TYPICAL WALL DRAIN
N.T.S.



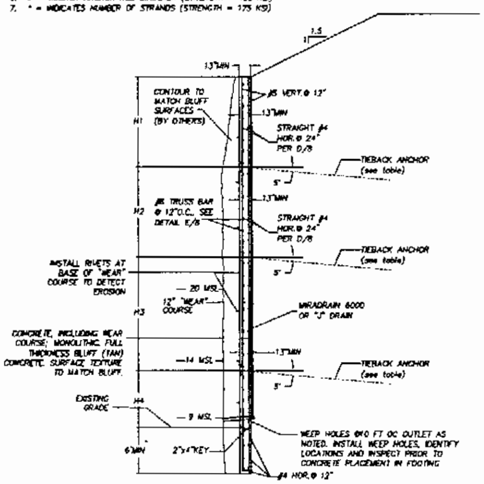


BLUFF REPAIR
ELEVATION VIEW
N.T.S.

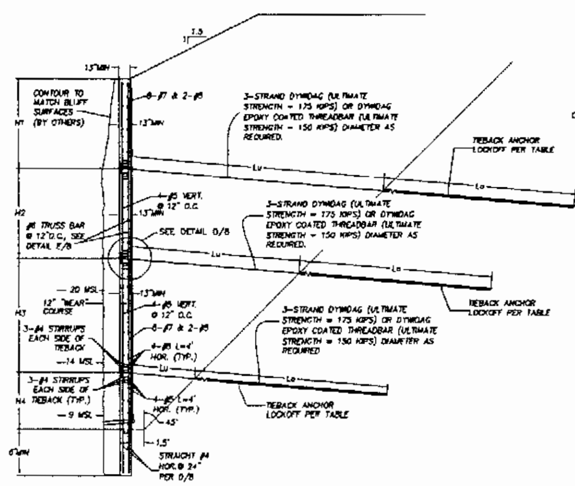
SEC #	RETAINED HEIGHT Total FT	H1 FT	H2 FT	H3 FT	H4 FT	TOP TIEBACK # IN	H FT	Lb FT	Load KIPS	MIDDLE TIEBACK # IN	H FT	Lb FT	Load KIPS	BOTTOM TIEBACK # IN	H FT	Lb FT	Load KIPS
1B	9.0	5.0	3.6	–	–	8	17.0	–	21.0	DEADMAN L=4 H=4				–	–	–	–
1	21.7	3.7	5.9	7.1	5.0	3*	17.5	32.5	50.0	3*	12.5	37.5	60.0	10	5.5	44.5	90.0
2	22.9	5.1	5.5	7.8	4.5	3*	17.5	32.5	50.0	3*	12.0	38.0	60.0	10	5.0	45.0	90.0
3	21.5	3.5	5.9	8.1	4.0	3*	17.5	32.5	50.0	3*	12.5	37.5	60.0	10	5.0	45.0	90.0
4	21.0	2.0	8.1	7.7	4.4	3*	18.0	32.0	50.0	3*	13.0	37.0	60.0	10	5.0	45.0	90.0
5	20.5	2.2	6.9	6.0	4.5	3*	18.0	32.0	50.0	3*	12.0	38.0	60.0	10	5.0	45.0	90.0
6	19.7	2.7	5.6	7.0	4.5	3*	17.5	32.5	50.0	3*	12.0	38.0	60.0	10	5.5	44.5	90.0
7	19.0	1.4	5.7	7.6	4.5	3*	15.5	34.5	50.0	3*	11.0	39.0	60.0	10	6.0	44.0	90.0
8	17.0	1.6	3.5	7.0	4.9	3*	15.0	35.0	50.0	3*	12.0	38.0	60.0	10	5.5	44.5	90.0
9	17.0	2.6	3.4	7.6	4.4	3*	14.5	35.5	50.0	3*	12.0	38.0	60.0	10	5.0	45.0	90.0
10	16.4	8.7	8.7	3.7	–	3*	12.5	37.5	50.0	3*	5.0	45.0	60.0	–	–	–	–

TIEBACK TABLE

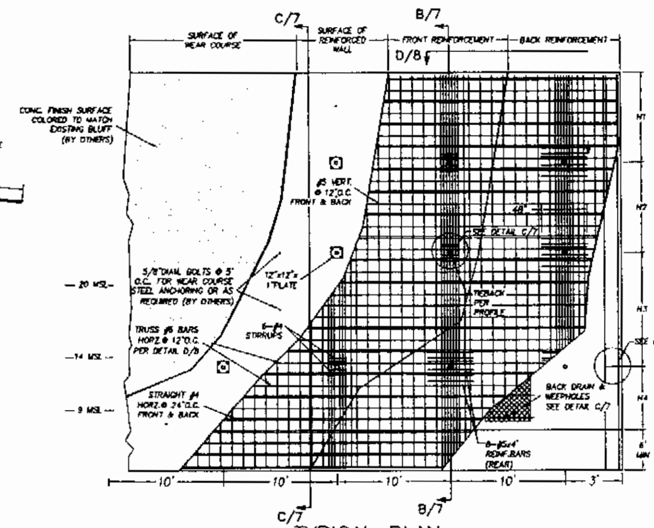
NOTE:
1. THE LOADS SHOWN IN TABLE ARE THE TIEBACK DESIGN LOAD (LOCK-OFF LOAD).
2. ALL TIEBACKS SHALL BE PROOF TESTED TO 125% OF DESIGN LOAD.
3. TIEBACK UNBOND LENGTH (Lu) SHOWN IN TABLE IS MINIMUM.
4. TIEBACK BOND LENGTH (Lb) SHOWN IN TABLE MAY VARY BASED ON FIELD PROOF TESTS.
5. TIEBACK SKIN FRICTION PER FIELD TEST RESULTS = 1000 PSF (SEE INSPECTION REPORT)
6. # = TIEBACK ANCHOR ROD DIAMETER (STRENGTH = 150 KSI)
7. * = INDICATES NUMBER OF STRANDS (STRENGTH = 175 KSI)



TYPICAL SECTION C/7
N.T.S.



TYPICAL SECTION B/7
N.T.S.



TYPICAL PLAN
N.T.S.

"AS BUILT"

RCE 22096 EXP. 9-30-10 DATE

REVIEWED BY:

INSPECTOR DATE

PLANS PREPARED BY

CHARLES J. RANDLE
234 WEST JUNIPER STREET, SUITE 101
SAN DIEGO, CA 92101
(619) 246-7497

1/13/2010

DATE	INITIAL	REVISION DESCRIPTION	DATE	INITIAL	DATE	INITIAL
ENGINEER OF WORK			OTHER APPROVAL		CITY APPROVAL	

SHEET 5 | CITY OF CARLSBAD ENGINEERING DEPARTMENT | SHEETS 6

GRADING PLANS FOR:

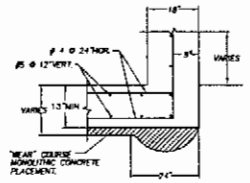
GOETZ SEAWALL

RETAINING WALL PROFILE & DETAILS

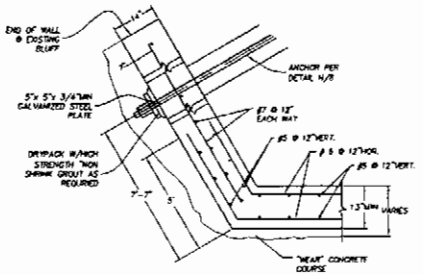
APPROVED: GLEN K VAN PESKI

SENIOR CIVIL ENGINEER PE 41204 EXPIRES 3/31/11 DATE

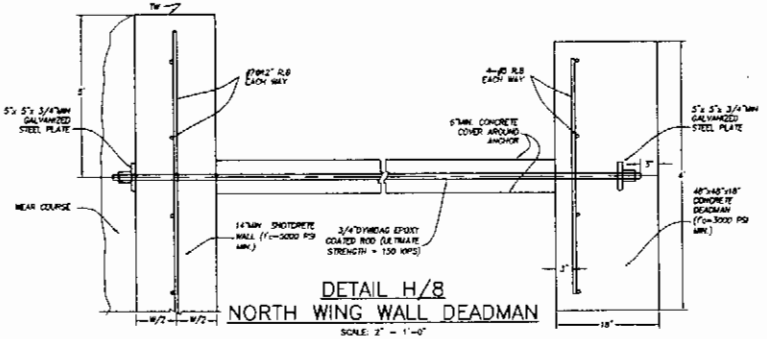
DWN BY: CHKD BY: RVWD BY: | PROJECT NO. CDP 09-13/SUP09-05 | DRAWING NO. 463-2A



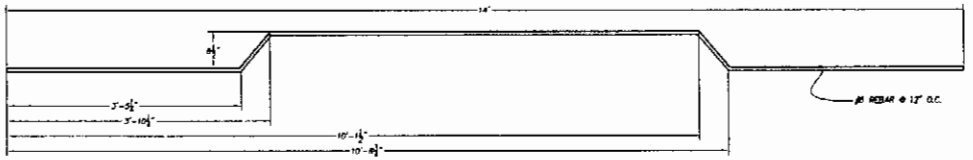
DETAIL F/8
N.T.S.



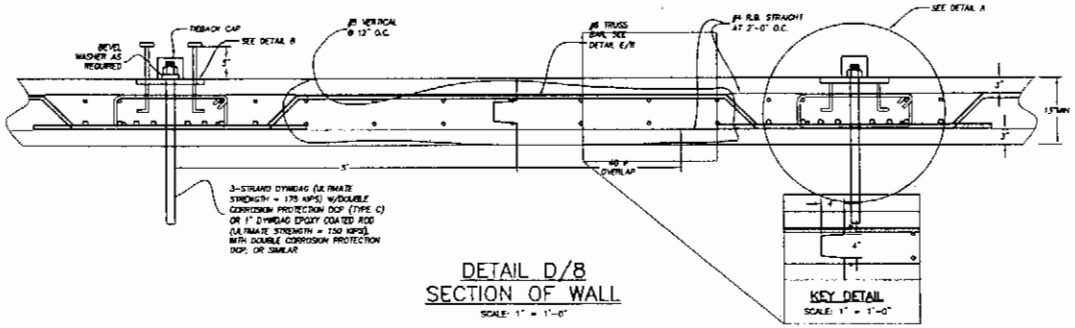
DETAILG/8
N.T.S.



DETAIL H/8
NORTH WING WALL DEADMAN
SCALE: 2" = 1'-0"

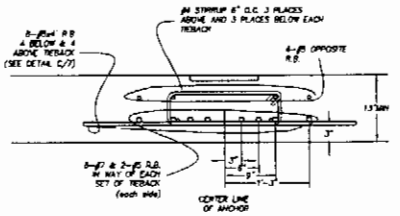


DETAIL E/8
TRUSS BAR
SCALE: 1" = 1'-0"

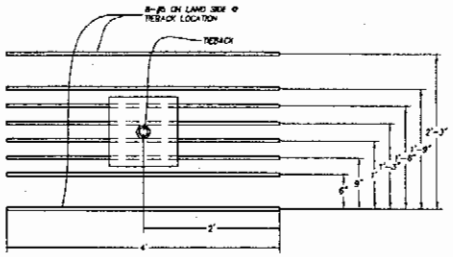


DETAIL D/8
SECTION OF WALL
SCALE: 1" = 1'-0"

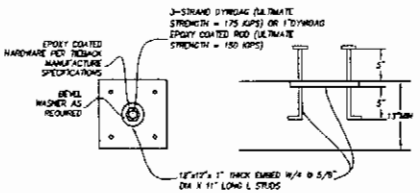
KEY DETAIL
SCALE: 1" = 1'-0"



DETAIL A/8
SECTION OF WALL
SCALE: 2" = 1'-0"



ELEVATION C/8
IN WAY OF ANCHOR
SCALE: 1" = 1'-0"



DETAIL B/8
TIEBACK PLATE
SCALE: 2" = 1'-0"

PLANS PREPARED BY
CHARLES J. RANDLE
234 WEST JUNIPER STREET, SUITE 101
SAN DIEGO, CA 92101
(619) 248-7497

1/13/2010

"AS BUILT"

RCE 22098 EXP. 9-30-10 DATE

REVIEWED BY:

INSPECTOR DATE

SHEET 6 | CITY OF CARLSBAD ENGINEERING DEPARTMENT | SHEETS 6

GRADING PLANS FOR:

GOETZ SEAWALL

RETAINING WALL DETAILS

APPROVED: GLEN K VAN PESKI

SENIOR CIVIL ENGINEER RCE 41204 EXPIRES 3/31/11 DATE

DWN BY: CHKD BY: RVWD BY:

PROJECT NO. CDP 09-13/SUP09-05

DRAWING NO. 463-2A

DATE	INITIAL	REVISION DESCRIPTION	DATE	INITIAL	DATE	INITIAL

ENGINEER OF WORK | OTHER APPROVAL | CITY APPROVAL

CALIFORNIA COASTAL COMMISSION
SAN DIEGO AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4402
(619) 767-2370

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT

Please Review Attached Appeal Information Sheet Prior To Completing This Form.

SECTION I. Appellant(s)

Name: Esther Sanchez
Mailing Address: City of Oceanside
300 N. Coast Hwy
Oceanside, Ca 92054

Phone Number: (760) 435-0971

SECTION II. Decision Being Appealed

1. Name of local/port government: City of Carlsbad
2. Brief description of development being appealed: Follow-up Coastal Development Permit for the construction of a seawall to prevent further bluff failure onto private beach used by the public.
3. Development's location (street address, assessor's parcel no., cross street, etc:) 5323/5327 Carlsbad Blvd., Calrsbad, San Diego County
4. Description of decision being appealed:
   a. Approval; no special conditions: ☐ b. Approval with special conditions: ☒
   c. Denial: ☐

   Note: For jurisdictions with a total LCP, denial decisions by a local government cannot be appealed unless the development is a major energy or public works project. Denial decisions by port governments are not appealable.

TO BE COMPLETED BY COMMISSION:

APPEAL NO: A-6-CII-10-043

DATE FILED: June 15, 2010

DISTRICT: San Diego

5. Decision being appealed was made by (check one):

   a. ☒ Planning Director/Zoning Administrator

   c. ☐ Planning Commission

   b. ☒ City Council/Board of Supervisors

   d. ☐ Other

Date of local government's decision: May 25, 2010

Local government's file number (if any): CDP 9-13

SECTION III. Identification of Other Interested Persons

Give the names and addresses of the following parties. (Use additional paper as necessary.)

Name and mailing address of permit applicant:

Dean Goetz
5323 Calrsbad Blvd.
Carlsbad, Ca 92008

Marshall Sylver
5327 Carlsbad Blvd.
Calrsbad, Ca 92008

Names and mailing addresses as available of those who testified (either verbally or in writing) at the city/county/port hearing(s). Include other parties which you know to be interested and should receive notice of this appeal.

Todd Cardiff Esq. Surfrider Foundation - San Diego Chapter
1901 First Ave. Ste. 219
San Diego, Ca 92101

Marco Gonzalez Esq. Coastal Environmental Resources Foundation
C/O Coast Law Group
1140 South Coast Highway
Encinitas, Ca 92024

Jim Jaffee, Cal Beach Advocates
738 Seabright Lane
Solana Beach, Ca 92075

SECTION IV. Reasons Supporting This Appeal

State briefly your reasons for this appeal. Include a summary description of Local Coastal Program, Land Use Plan, or Port Master Plan policies and requirements in which you believe the project is inconsistent and the reasons the decision warrants a new hearing. (Use additional paper as necessary.)

See Attachment "A" dated June 15, 2010

Note: The above description need not be a complete or exhaustive statement of your reasons of appeal; however, there must be sufficient discussion for staff to determine that the appeal is allowed by law. The appellant, subsequent to filing the appeal, may submit additional information to the staff and/or Commission to support the appeal request.

SECTION V. Certification

The information and facts stated above are correct to the best of my/our knowledge.

Signed: Signature on file
Appellant or Agent

Date: 6/15/10

Agent Authorization: I designate the above identified person(s) to act as my agent in all matters pertaining to this appeal.

Signed: _____

Date: _____

(Document2)

STATE OF CALIFORNIA -- THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

CALIFORNIA COASTAL COMMISSION
SAN DIEGO AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4421
(619) 767-2370

Attachment A
Goetz Seawall – 5323-5327 Carlsbad Blvd.
June 15, 2010

In June of 2009, the City issued an emergency permit for the construction of a seawall located at 5323-5327 Carlsbad Blvd. On April 27, 2010, the City of Carlsbad approved Coastal Development Permit No. 9-13 as a follow-up to the emergency permit facilitating the construction of a 97' long and 17-24' high, colored and textured seawall. The project site includes two single family blufftop lots, developed with a single family home on each. The site is surrounded by single family homes to the north, Carlsbad Boulevard to the east, undeveloped State Lands property to the south, and coastal bluff and beaches to the west. The southern of the two lots also includes a 10-foot vertical access easement including an improved stairway providing public access to the beach. The two homes are located east of what can be considered a pocket beach, and provides a dry sandy area to the public, this in combination with the improved public stairway makes the location a highly desirable public beach.

The existing two single family homes were previously approved by the City of Carlsbad and constructed in 2002-2003. The construction of the homes was appealable to the Coastal Commission; however, no appeals were filed. The homes are setback 45' from the bluff edge, and this setback was found to adequately protect the homes (without construction of a shoreline protective device) for their estimated design life. The homes are not presently considered threatened. The seawall was proposed and subsequently constructed in response to two bluff failures that occurred in December of 2008. As described by the City, the seawall was constructed to provide protection from "potential significant bluff failures depositing earthen material onto the beach (and thereby helping to maintain the shoreline as a unique recreational and scenic resource), promoting public safety, and avoiding negative geologic and economic effects of significant bluff failures." The primary concerns regarding consistency with the certified LCP and the public access policies of the Coastal Act for approval of the seawall include:

1. The project was considered necessary to protect a public beach from bluff failure, not to protect an existing structure.

2. The City conditioned the approval using an inappropriate sand calculation for a total mitigation amount of $2,469.00.

3. No analysis or mitigation for impacts to loss of public recreation opportunities were identified.

4. Inconsistency with the City's certified LCP policy requiring a 25' lateral beach access dedication associated with the construction of any seawall or shoreline protective device. No such access was required through the City's approval.

One of the primary concerns regarding the approved coastal development permit is the type of protection the seawall is providing. As previously stated, the homes on the subject lots were built in 2002 and 2003. At the time of their approval, the applicants provided geotechnical reports stating that the homes were adequately setback to protect the homes for their estimated life expectancy (75 years) without the construction of shoreline protective devices, and, neither the City nor the applicant is suggesting that the seawall is necessary to protect the existing structures. Rather, as approved by the City, the seawall is proposed to provide protection to the bluff itself, the beach in front of the bluff, and members of the public utilizing the beach in front of the bluff. The City's LCP policy for shoreline protective devices is similar to the language contained in Section 30235 of the Coastal Act and states:

> 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.

The Coastal Commission has typically interpreted this policy to mean that seawalls may be permitted in three types of scenarios: to protect coastal dependent uses, existing structures, or public beaches in danger of erosion. The proposed project is not to protect a coastal dependent use which is a use which requires a site on or adjacent to the sea to be able to function (such as jetties to provide adequate protection to a harbor). The proposed project is also not to provide protection for existing structures, such as a single-family residence on the blufftop. As noted by the City, the existing residential structures which are located approximately 45 ft. from the bluff edge are not currently threatened. Instead, the project has been proposed to protect the public from eroding portions of the bluff falling onto a public beach. The intent of Section 30235 is not to keep bluffs from eroding and collapsing on the beach, but instead has historically been interpreted by the Commission to apply to structures such as groins or other types of sand retention structures that will trap sand and keep the public beaches from eroding. The approval of a seawall to protect the beach from an eroding bluff, and public safety, as is the case for this project, does not fall into any of the three identified scenarios where a shoreline protective device would be permitted under the City's LCP.

The second concern relating to the City's approval of the seawall is that the approval required the applicants to pay only $2,469.00 in mitigation fees for impacts to shoreline sand supply. While it is unclear at this time how that mitigation fee was actually calculated, the fee amount is not comparable to what the Commission typically requires for mitigation for impacts on shoreline sand supply associated with a seawall of this size. The approved seawall is 97' long; and for comparison; in 2008, the Commission approved a revetment on de novo review in the City of Carlsbad, that required a mitigation fee of $29,027.63 for a 63-foot long revetment (ref. CDP A-6-CII-08-028).

An additional concern associated with the City's approval of the seawall is that no mitigation for impacts of the seawall on public recreation was identified or required. The

City's approval concluded that because the seawall would be located essentially parallel and at the toe of the existing bluff, it would not result in any impacts to public recreation opportunities. This determination is flawed in two ways. First, designing the seawall to be parallel and as close as possible to the existing bluff toe is required by the City, and would be required for any seawall project, and thus can't be interpreted as a "design feature." If the City consistently implemented this interpretation, there would never be impacts to public recreation associated with any proposal for the construction of a seawall. Second, the construction of a seawall serves to permanently "fix" the landward extent of a beach. The natural shoreline processes referenced in the Coastal Act, Section 30235, such as the formation and retention of sandy beaches, can be significantly altered by construction of a seawall, since bluff retreat is one of several ways that beach area and beach quality sand is added to the shoreline. When a seawall/revetment is constructed on the beach at the toe of the bluff, it directly impedes this natural process. If natural processes were allowed to continue, the bluff would continue to naturally erode. The erosion of bluffs not only provides sand to the beaches, but also as the bluff retreats, it creates additional space in front of the bluff, thus opportunities for the beach area in front of the bluff are maintained. If a seawall is constructed and the back of the beach is "fixed", it effectively eliminates the beach over time. This process will be further exacerbated with sea level rise. The City failed to identify any of these factors when considering the impacts to public recreation on an existing and highly used public beach.

The final concern associated with the City's CDP approval is the lack of a lateral public access dedication. Section 21.204.060 (Coastal Shoreline Development Overlay Zone) of City's certified implementation plan requires that all developments provide the public with the right of access to a minimum of twenty-five feet or dry sandy beach at all times of the year. This section further states that *additional* lateral public access shall be required for the development of seawalls. However, the City failed to require any lateral access. The City's staff report makes the following conclusion:

> The existing beach area is and has been subject to tidal action and does not provide twenty-five feet of dry sandy beach at all times of the year. The project is not able to increase the extent of the beach to provide a permanent twenty-five feet of dry sandy beach as area does not exist within the cove for the creation of such a beach that would not be susceptible to wash and erosion from wave action.

Thus, the City has concluded that because there was no beach area available, no mitigation, in the form of an irrevocable offer to dedicate, should be provided. However, the City's LCP states that if no beach exists, the project shall be conditioned to provide the public with a right of access of at least twenty-five feet along the current *bluff edge.* As stated above, the bluff top has previously been developed with two single family homes. The homes are however, set back 45' from the bluff edge, so providing access along the bluff top could be feasible. Further, if the case is that the combination of lack of beach and previous development has rendered it unfeasible to provide the 25' of lateral access, the required mitigation should not be eliminated; instead, opportunities for offsite mitigation, such as improved view points, stairways, etc. should be identified and required. It is important to note that the project site currently has an improved vertical

accessway at the southern end of the site as required associated with the previous development of the homes. That being said, additional mitigation associated with the construction of the seawall should not be surrendered. The City not only failed to require the standard 25' lateral access associated with all new developments, it also failed to provide the *additional* lateral access mitigation required associated with seawalls and specifically, and, lastly, they also failed to require any kind of replacement mitigation.

In conclusion, the City's approval of the seawall failed to identify how the construction of a seawall, involving the elimination of natural bluff sand contributions onto a public beach, is a scenario where the construction of a seawall would be permitted. Further, the City failed to properly identify and mitigate for the impacts the seawall would have on public access, public recreation, and shoreline sand supply, inconsistent with the City's certified LCP and the applicable public access policies of the Coastal Act.

CALIFORNIA COASTAL COMMISSION
SAN DIEGO AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4402
(619) 767-2370

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT

Please Review Attached Appeal Information Sheet Prior To Completing This Form.

SECTION I. Appellant(s)

Name: Sara Wan
Mailing Address: 45 Freemont St. Suite 2000
San Francisco, CA 94105.

Phone Number: (415) 904-5200

SECTION II. Decision Being Appealed

1. Name of local/port government: City of Carlsbad
2. Brief description of development being appealed: Follow-up Coastal Development Permit for the construction of a seawall to prevent further bluff failure onto private beach used by the public.
3. Development's location (street address, assessor's parcel no., cross street, etc:) 5323/5327 Carlsbad Blvd., Calrsbad, San Diego County
4. Description of decision being appealed:
   a. Approval; no special conditions: ☐ b. Approval with special conditions: ☒
   c. Denial: ☐

   Note: For jurisdictions with a total LCP, denial decisions by a local government cannot be appealed unless the development is a major energy or public works project. Denial decisions by port governments are not appealable.

TO BE COMPLETED BY COMMISSION:

APPEAL NO: A-6-CII-10-043

DATE FILED: June 15, 2010

DISTRICT: San Diego

RECEIVED
JUN 15 2010
CALIFORNIA
COASTAL COMMISSION
SAN DIEGO COAST DISTRICT

5. Decision being appealed was made by (check one):

   a. ☒ Planning Director/Zoning Administrator

   c. ☐ Planning Commission

   b. ☒ City Council/Board of Supervisors

   d. ☐ Other

Date of local government's decision: May 25, 2010

Local government's file number (if any): CDP 9-13

SECTION III. Identification of Other Interested Persons

Give the names and addresses of the following parties. (Use additional paper as necessary.)

Name and mailing address of permit applicant:

Dean Goetz
5323 Calrsbad Blvd.
Carlsbad, Ca 92008

Marshall Sylver
5327 Carlsbad Blvd.
Calrsbad, Ca 92008

Names and mailing addresses as available of those who testified (either verbally or in writing) at the city/county/port hearing(s). Include other parties which you know to be interested and should receive notice of this appeal.

Todd Cardiff Esq. Surfrider Foundation - San Diego Chapter
1901 First Ave. Ste. 219
San Diego, Ca 92101

Marco Gonzalez Esq. Coastal Environmental Resources Foundation
C/O Coast Law Group
1140 South Coast Highway
Encinitas, Ca 92024

Jim Jaffee, Cal Beach Advocates
738 Seabright Lane
Solana Beach, Ca 92075

SECTION IV. Reasons Supporting This Appeal

State briefly your reasons for this appeal. Include a summary description of Local Coastal Program, Land Use Plan, or Port Master Plan policies and requirements in which you believe the project is inconsistent and the reasons the decision warrants a new hearing. (Use additional paper as necessary.)

See Attachment "A" dated Jun 15, 2010

Note: The above description need not be a complete or exhaustive statement of your reasons of appeal; however, there must be sufficient discussion for staff to determine that the appeal is allowed by law. The appellant, subsequent to filing the appeal, may submit additional information to the staff and/or Commission to support the appeal request.

SECTION V. Certification

The information and facts stated above are correct to the best of my/our knowledge.

Signed: *Signature on file*
Appellant or Agent

Date: 6/15/10

Agent Authorization: I designate the above identified person(s) to act as my agent in all matters pertaining to this appeal.

Signed: _____

Date: _____

(Document2)

STATE OF CALIFORNIA -- THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

CALIFORNIA COASTAL COMMISSION
SAN DIEGO AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4421
(619) 767-2370

Attachment A
Goetz Seawall – 5323-5327 Carlsbad Blvd.
June 15, 2010

In June of 2009, the City issued an emergency permit for the construction of a seawall located at 5323-5327 Carlsbad Blvd. On April 27, 2010, the City of Carlsbad approved Coastal Development Permit No. 9-13 as a follow-up to the emergency permit facilitating the construction of a 97' long and 17-24' high, colored and textured seawall. The project site includes two single family blufftop lots, developed with a single family home on each. The site is surrounded by single family homes to the north, Carlsbad Boulevard to the east, undeveloped State Lands property to the south, and coastal bluff and beaches to the west. The southern of the two lots also includes a 10-foot vertical access easement including an improved stairway providing public access to the beach. The two homes are located east of what can be considered a pocket beach, and provides a dry sandy area to the public, this in combination with the improved public stairway makes the location a highly desirable public beach.

The existing two single family homes were previously approved by the City of Carlsbad and constructed in 2002-2003. The construction of the homes was appealable to the Coastal Commission; however, no appeals were filed. The homes are setback 45' from the bluff edge, and this setback was found to adequately protect the homes (without construction of a shoreline protective device) for their estimated design life. The homes are not presently considered threatened. The seawall was proposed and subsequently constructed in response to two bluff failures that occurred in December of 2008. As described by the City, the seawall was constructed to provide protection from "potential significant bluff failures depositing earthen material onto the beach (and thereby helping to maintain the shoreline as a unique recreational and scenic resource), promoting public safety, and avoiding negative geologic and economic effects of significant bluff failures." The primary concerns regarding consistency with the certified LCP and the public access policies of the Coastal Act for approval of the seawall include:

1. The project was considered necessary to protect a public beach from bluff failure, not to protect an existing structure.

2. The City conditioned the approval using an inappropriate sand calculation for a total mitigation amount of $2,469.00.

3. No analysis or mitigation for impacts to loss of public recreation opportunities were identified.

4. Inconsistency with the City's certified LCP policy requiring a 25' lateral beach access dedication associated with the construction of any seawall or shoreline protective device. No such access was required through the City's approval.

One of the primary concerns regarding the approved coastal development permit is the type of protection the seawall is providing. As previously stated, the homes on the subject lots were built in 2002 and 2003. At the time of their approval, the applicants provided geotechnical reports stating that the homes were adequately setback to protect the homes for their estimated life expectancy (75 years) without the construction of shoreline protective devices, and, neither the City nor the applicant is suggesting that the seawall is necessary to protect the existing structures. Rather, as approved by the City, the seawall is proposed to provide protection to the bluff itself, the beach in front of the bluff, and members of the public utilizing the beach in front of the bluff. The City's LCP policy for shoreline protective devices is similar to the language contained in Section 30235 of the Coastal Act and states:

> 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.

The Coastal Commission has typically interpreted this policy to mean that seawalls may be permitted in three types of scenarios: to protect coastal dependent uses, existing structures, or public beaches in danger of erosion. The proposed project is not to protect a coastal dependent use which is a use which requires a site on or adjacent to the sea to be able to function (such as jetties to provide adequate protection to a harbor). The proposed project is also not to provide protection for existing structures, such as a single-family residence on the blufftop. As noted by the City, the existing residential structures which are located approximately 45 ft. from the bluff edge are not currently threatened. Instead, the project has been proposed to protect the public from eroding portions of the bluff falling onto a public beach. The intent of Section 30235 is not to keep bluffs from eroding and collapsing on the beach, but instead has historically been interpreted by the Commission to apply to structures such as groins or other types of sand retention structures that will trap sand and keep the public beaches from eroding. The approval of a seawall to protect the beach from an eroding bluff, and public safety, as is the case for this project, does not fall into any of the three identified scenarios where a shoreline protective device would be permitted under the City's LCP.

The second concern relating to the City's approval of the seawall is that the approval required the applicants to pay only $2,469.00 in mitigation fees for impacts to shoreline sand supply. While it is unclear at this time how that mitigation fee was actually calculated, the fee amount is not comparable to what the Commission typically requires for mitigation for impacts on shoreline sand supply associated with a seawall of this size. The approved seawall is 97' long; and for comparison; in 2008, the Commission approved a revetment on de novo review in the City of Carlsbad, that required a mitigation fee of $29,027.63 for a 63-foot long revetment (ref. CDP A-6-CII-08-028).

An additional concern associated with the City's approval of the seawall is that no mitigation for impacts of the seawall on public recreation was identified or required. The

City's approval concluded that because the seawall would be located essentially parallel and at the toe of the existing bluff, it would not result in any impacts to public recreation opportunities. This determination is flawed in two ways. First, designing the seawall to be parallel and as close as possible to the existing bluff toe is required by the City, and would be required for any seawall project, and thus can't be interpreted as a "design feature." If the City consistently implemented this interpretation, there would never be impacts to public recreation associated with any proposal for the construction of a seawall. Second, the construction of a seawall serves to permanently "fix" the landward extent of a beach. The natural shoreline processes referenced in the Coastal Act, Section 30235, such as the formation and retention of sandy beaches, can be significantly altered by construction of a seawall, since bluff retreat is one of several ways that beach area and beach quality sand is added to the shoreline. When a seawall/revetment is constructed on the beach at the toe of the bluff, it directly impedes this natural process. If natural processes were allowed to continue, the bluff would continue to naturally erode. The erosion of bluffs not only provides sand to the beaches, but also as the bluff retreats, it creates additional space in front of the bluff, thus opportunities for the beach area in front of the bluff are maintained. If a seawall is constructed and the back of the beach is "fixed", it effectively eliminates the beach over time. This process will be further exacerbated with sea level rise. The City failed to identify any of these factors when considering the impacts to public recreation on an existing and highly used public beach.

The final concern associated with the City's CDP approval is the lack of a lateral public access dedication. Section 21.204.060 (Coastal Shoreline Development Overlay Zone) of City's certified implementation plan requires that all developments provide the public with the right of access to a minimum of twenty-five feet or dry sandy beach at all times of the year. This section further states that *additional* lateral public access shall be required for the development of seawalls. However, the City failed to require any lateral access. The City's staff report makes the following conclusion:

> The existing beach area is and has been subject to tidal action and does not provide twenty-five feet of dry sandy beach at all times of the year. The project is not able to increase the extent of the beach to provide a permanent twenty-five feet of dry sandy beach as area does not exist within the cove for the creation of such a beach that would not be susceptible to wash and erosion from wave action.

Thus, the City has concluded that because there was no beach area available, no mitigation, in the form of an irrevocable offer to dedicate, should be provided. However, the City's LCP states that if no beach exists, the project shall be conditioned to provide the public with a right of access of at least twenty-five feet along the current *bluff edge.* As stated above, the bluff top has previously been developed with two single family homes. The homes are however, set back 45' from the bluff edge, so providing access along the bluff top could be feasible. Further, if the case is that the combination of lack of beach and previous development has rendered it unfeasible to provide the 25' of lateral access, the required mitigation should not be eliminated; instead, opportunities for offsite mitigation, such as improved view points, stairways, etc. should be identified and required. It is important to note that the project site currently has an improved vertical

accessway at the southern end of the site as required associated with the previous development of the homes. That being said, additional mitigation associated with the construction of the seawall should not be surrendered. The City not only failed to require the standard 25' lateral access associated with all new developments, it also failed to provide the *additional* lateral access mitigation required associated with seawalls and specifically, and, lastly, they also failed to require any kind of replacement mitigation.

In conclusion, the City's approval of the seawall failed to identify how the construction of a seawall, involving the elimination of natural bluff sand contributions onto a public beach, is a scenario where the construction of a seawall would be permitted. Further, the City failed to properly identify and mitigate for the impacts the seawall would have on public access, public recreation, and shoreline sand supply, inconsistent with the City's certified LCP and the applicable public access policies of the Coastal Act.

CALIFORNIA COASTAL COMMISSION
SAN DIEGO AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4421
(619) 767-2370

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT

Please Review Attached Appeal Information Sheet Prior To Completing This Form.

SECTION I. Appellant

Name, mailing address and telephone number of appellant:

Todd T. Cardiff, Esq., Surfrider Foundation - San Diego Chapter
1901 First Avenue, Ste. 219, San Diego, CA
92101 (619) 546-5123
Zip Area Code Phone No.

SECTION II. Decision Being Appealed

1. Name of local/port government: Carlsbad

2. Brief description of development being appealed: Goetz Seawall, CDP 09-13/SUP 09-05

3. Development's location (street address, assessor's parcel no., cross street, etc.): Bluff below 5323 and 5327 Carlsbad Blvd., Carlsbad, CA 920008

4. Description of decision being appealed:

a. Approval; no special conditions: _____

b. Approval with special conditions: approval of seawall

c. Denial: _____

Note: For jurisdictions with a total LCP, denial decisions by a local government cannot be appealed unless the development is a major energy or public works project. Denial decisions by port governments are not appealable.

TO BE COMPLETED BY COMMISSION:

APPEAL NO: A-6-CII-10-043

DATE FILED: _____

DISTRICT: San Diego Coast

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COASTAL COMMISSION
SAN DIEGO COAST DISTRICT

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (Page 2)

5. Decision being appealed was made by (check one):

a. __Planning Director/Zoning Administrator

c. __Planning Commission

b. X City Council/Board of Supervisors

d. __Other_____

6. Date of local government's decision: May 25, 2010

7. Local government's file number (if any): _____

SECTION III. Identification of Other Interested Persons

Give the names and addresses of the following parties. (Use additional paper as necessary.)

a. Name and mailing address of permit applicant:
Dean Goetz, 5323 Carlsbad Blvd., Carlsbad, CA 92008
Marshall Sylver, 5327 Carlsbad Blvd., Carlsbad, CA 92008

b. Names and mailing addresses as available of those who testified (either verbally or in writing) at the city/county/port hearing(s). Include other parties which you know to be interested and should receive notice of this appeal.

(1) Marco Gonzalez, Esq., Coastal Environmental Resources Foundation, C/O Coast Law Group
1140 South Coast Highway 101, Encinitas, CA 92024

(2) Jim Jaffee, Vice President, Cal Beach Advocates
738 Seabright Lane
Solana Beach, CA 92075

(3) _____

(4) _____

SECTION IV. Reasons Supporting This Appeal

Note: Appeals of local government coastal permit decisions are limited by a variety of factors and requirements of the Coastal Act. Please review the appeal information sheet for assistance in completing this section, which continues on the next page.

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT (Page 3)

State briefly your reasons for this appeal. Include a summary description of Local Coastal Program, Land Use Plan, or Port Master Plan policies and requirements in which you believe the project is inconsistent and the reasons the decision warrants a new hearing. (Use additional paper as necessary.)

Project violates Local Coastal Plan and Public Access requirements of the Coastal Act. The houses being protected are 45 ft. away from bluff edge and not in danger from erosion. Project was justified on the basis of public safety six months after the bluff collapsed. The bluff allegedly had not collapsed in the previous 115 years. The project approval violates Carlsbad Municipal Code (CMC) sect. 21.204.040.) Numerous other environmentally superior ~~alternatives could be used to protect people from the alleged risk. The applicant and City failed to calculate~~ the risk to the public. The project will destroy the beach through passive erosion blocking access to the North. The project cannot comply ~~with the LCP which requires the project to maintain 25 ft. of beach width~~ in front of the seawall. (CMC sect. 21.204.060(a)(1).). The project will obstruct access in violation of the CMC sect. 21.204.040. The project fails to mitigate adverse impacts to shoreline sand supplies. The City solely required $2,469, which is calculated based on a questionable calculation of the erosion rate and an estimate of sand replenishment costs of $3 per cubic yards of sand. The project violates Coastal Act section 30210, 30211, 30213, 30214, 30220, 30221, 30235 (to the extent it applies). ~~The project will also have an adverse cumulative impact on shorebirds and coastal organisms due to loss of~~ habitat. The project should have been denied based on the impacts to the beach and the lack of necessity.

Note: The above description need not be a complete or exhaustive statement of your reasons of appeal; however, there must be sufficient discussion for staff to determine that the appeal is allowed by law. The appellant, subsequent to filing the appeal, may submit additional information to the staff and/or Commission to support the appeal request.

SECTION V. Certification

The information and facts stated above are correct to the best of my knowledge.

Signed /Signature on file
Appellant or Agent

Date 6/4/2010

Agent Authorization: I designate the above identified person(s) to act as my agent in all matters pertaining to this appeal.

Signed_____
Appellant

Date_____

0016F

EXHIBIT NO. 4
APPLICATION NO.
A-6-CII-10-043
Aerial Photos

California Coastal Commission


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Ecological Responses to Coastal Armoring on Exposed Sandy Beaches

By

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ABSTRACT

We develop a conceptual model for assessing potential ecological responses to coastal armoring that incorporates the presence, extent and functioning of multiple intertidal zones, as well as changes in beach width in general. We propose that ecological responses to the narrowing of beaches associated with coastal armoring are related to changes in the widths and the dynamics of the different intertidal zones of the beach and that, as habitat narrows in response to armoring, intertidal zones are lost disproportionately from the upper beach. The reduction and loss of intertidal zones, along with expected changes in the deposition and retention of macrophyte wrack, are predicted to depress the diversity and abundance of macroinvertebrates on armored beaches. The combination of reductions in 1) habitat, 2) accessibility at high tides, and 3) macroinvertebrate prey availability is predicted to reduce biocomplexity and affect the use of armored beaches by shorebirds. We investigated several predictions of our model using comparisons of armored and unarmored segments of narrow bluff-backed sandy beaches in southern California. Our results supported those predictions and revealed some unexpected responses to armoring. Intertidal zones were fewer and narrower where armoring was present compared to adjacent unarmored segments. This was evident in the absence of the upper intertidal zones on armored segments of coastline and narrower mid-intertidal zones on armored segments. The standing crop of macrophyte wrack was significantly greater (one to nearly three orders of magnitude) on unarmored segments than on armored segments. Shorebirds responded to coastal armoring as predicted by our model with significantly lower species richness (2.3 times) and abundance (>3 times) on armored segments of beach. All 13 species of shorebirds observed were more abundant on unarmored segments than on armored segments. Although not predicted by our model, the three species of gulls observed also responded to coastal armoring with significantly lower abundance (4.7 times) on armored segments. We predict that the amount of interaction between a coastal armoring structure and the coastal processes of waves and tides will affect the ecological responses to the structure. Our model provides a framework that could be used in investigating ecological responses to coastal armoring of other types and tidal heights and in other coastal regions. The accelerated loss of beaches associated with rising sea levels and the implications of our results indicate further investigation of ecological responses to coastal armoring is needed.

ADDITIONAL KEYWORDS: biodiversity, California, intertidal zones, seawall, shorebirds, macrophyte wrack

INTRODUCTION

Coastal armoring, involving the placement of hard structures and walls constructed of a variety of materials, has been applied to reduce threats to coastal structures for centuries (Charlier et al 2005). The extent of coastal armoring varies regionally, with higher prevalence generally found on populous developed coastlines (Nordstrom 2004). California, where approximately 10 percent of the coastline has been armored with rock, concrete, and wood during the past century (Griggs 1998), illustrates this trend. The application of coastal armoring has not declined over time, as exemplified by California where the extent of coastal armoring increased by over 400 percent in the 21 years between 1971 and 1992 (Griggs 1998).

Coastal armoring, including seawalls and rock revetments, has been shown to reduce intertidal beach widths through the processes of placement loss, passive erosion, and increased erosion directly seaward of structures (Griggs 1998, 2005, Hall and Pilkey 1991, Tait and Griggs 1990). These effects on the intertidal beach appear to be related to the hardened faces of armoring structures, which act to reflect rather than dissipate wave energy as well as the initial placement loss and the constraints imposed on natural migration of the shoreline by the structures.

Despite the use of armoring on coastlines for centuries and numerous studies of the physical effects of this form of shore protection, the ecological responses of beach communities to armoring are poorly documented and understood. As a consequence of this lack of information, ecological effects are often not considered in decision-making or coastal policy.

Intertidal zonation on exposed sandy beaches is extremely dynamic due to the highly mobile nature of the sandy substrate, the intertidal animals and the resources on which these animals depend (McLachlan and Jaramillo 1995, Brown and McLachlan 1990). In general, two to three different intertidal zones inhabited

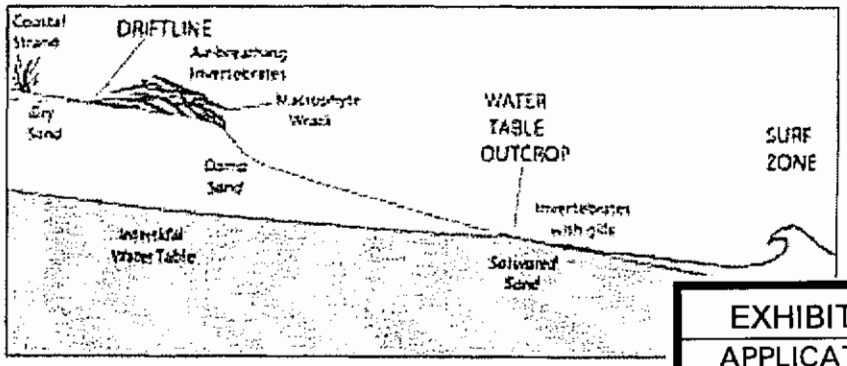

Figure 1. Profile of an exposed sandy beach showing the intertidal zones investigated in this study. The relative locations of major ir accumulations of macrophyte wrack and ephemeral coastal strar indicated. Air-breathing invertebrates can include talitrid amphip isopods, insects, and arachnids. Invertebrates with gills can incl isopods, amphipods, bivalves, gastropods, and polychaetes.

by distinct groups of mobile animals are present on most exposed sandy beaches (McLachlan and Jaramillo 1995). These zones generally correspond to the relatively dry sand/substrate of the upper intertidal zone at and above the drift line, the damp sand of the middle intertidal zone and the wet or saturated sand of the lower intertidal zone (Figure 1). In addition, a supralittoral or coastal strand zone exists at the extreme high water level on many beaches (Figure 1). Unlike rocky shores, the location of these zones and of the diversity of organisms that inhabit them changes with the tides, wave conditions, and the seasons.

We propose that ecological responses to the narrowing of beaches associated with coastal armoring can be estimated from the widths and dynamics of the different intertidal zones of the beach. Loss of habitat area alone can have clear ecological consequences in many coastal ecosystems (e.g., wetlands, riparian corridors and reefs). For beaches, we hypothesize that as habitat narrows in response to armoring, intertidal zones are lost disproportionately, resulting in a sequence of ecological impacts. We predict that the loss of intertidal beach habitat caused by coastal armoring proceeds from the upper beach to the lower beach.

The supralittoral zone and sand-stabilizing coastal strand vegetation may be strongly and immediately affected by the placement loss, accelerated erosion and the narrowing of the beach associated with armoring, processes that can result in the rapid elimination of this zone. Below this, the rich zone of drying and damp sand around the drift-line inhabited by air-breathing crustaceans and insects could also be greatly reduced or eliminated. The retention of wrack and other drift material would likely decline as this zone narrows, and depositional dynamics shift, reducing the primary food source for wrack consumers and the wrack-based beach food web. The narrowing and loss of the mid-intertidal zone and associated animals such as isopods, amphipods, and polychaetes is also predicted to occur on armored beaches. The saturated sand of the low intertidal zone would be expected to persist the longest; but impacts on the intertidal species of this zone, such as sand crabs and clams, could also occur. The survival of these mobile animals is likely to be negatively affected by restrictions on their upward migration with tides and wave events (Jaramillo et al 2000) imposed by the narrowing beach in front of the armoring structure.

macroinvertebrates (Dugan et al. 2003) than ungroomed beaches.

The rich invertebrate communities of southern California beaches are important as prey for a remarkably diverse and abundant shorebird assemblage, particularly during spring and fall migrations and over the winter months with over 26 different species observed in numbers that can exceed 1000 individuals km^{-1}(McCrary and Pierson 2000, Hubbard and Dugan 2003, Dugan et al. 2003). The diversity and abundance of shorebirds on southern California beaches has been positively correlated with the diversity and abundance of macroinvertebrate prey and with macrophyte wrack in this region (Dugan 1999, Dugan et al. 2003) and others (Tarr and Tarr 1987).

Using existing information on ecological communities of exposed sandy beaches, we hypothesized that changes in the width and extent of intertidal zones could affect the diversity, abundance, and structure of the intertidal community with most distinct effects on the upper zones of the beach. These effects could in turn reduce the prey resources available to shorebirds and their use of beach habitats. Based on this conceptual model, we investigated several ecological responses predicted from the loss of intertidal and supralittoral beach habitat associated with coastal armoring, including the reduction or loss of intertidal zones and associated organisms, reduced accumulation of macrophyte wrack and reduced shorebird use. We tested these predictions using paired observations of intertidal zones, wrack and shorebird use of armored and unarmored coastal segments of beaches in southern California.

METHODS

Study area

This study was conducted on wave-exposed intertidal beaches at four sites located between Gaviota and Goleta in southern Santa Barbara County, California. The coastline of this region consists primarily of narrow, bluff-backed beaches perched on wave-cut platforms that are interspersed with stream mouths, rocky points and a variety of coastal armoring structures (e.g., Habel and Armstrong 1978). The study region experiences a mixed semi-diurnal microtidal regime. Seasonal and episodic variation in wave climate and strong longshore transport drive changes in sand levels altering mixtures of sand, cobbles, boulders, and rocky substrates in the intertidal zone (e.g., Hubbard and Dugan 2003). These beaches are in the Santa Barbara Littoral Cell where estimated average net longshore transport rates of sand range from 400 to 900 $yards^3$ per day from west to east for this portion of this cell (Bascom 1980). Many beaches on this coast experience large inputs and high standing crops of macrophyte wrack from nearshore kelp forests reefs, and surfgrass beds (Dugan et al. 2003).

All of the study sites were narrow, bluff-backed open coast beaches as described above and would be considered intermediate in morphodynamic state (e.g., Short 1996) with seasonally variable wave heights (significant breaker heights = 0.3 to 2.5 m) and moderately fine sand (mean grain sizes = 0.216 to 0.256 mm)(Dugan and Hubbard 2004). None of the study sites are subject to beach grooming.

Each of the four study sites consisted of two segments: 1) a segment of shoreline immediately seaward of an intertidal concrete seawall (hereafter the armored segment) and 2) an unarmored bluff-backed segment of shoreline adjacent to the armored segment of the same length and with similar orientation (the unarmored segment). The unarmored segments were either upcoast or downcoast of the armored segments, depending on coastal orientation and presence of other structures. During the study period, the four seawalls chosen for study interacted with the majority of high tides but were out of range of the wave wash on most low tides. The lengths and mean heights of the four seawalls used in the study are given in Table 1. The concrete seawalls chosen for study were all massive, nearly vertical structures, with some gentle landward slope near the bases, that have been in place for at least 60 years. The study sites were surveyed and all data collected during August and September 2005, a time of year when sand levels are generally at their annual maxima in this region and shorebird visitation is high (Hubbard and Dugan 2003).

We collected data on three ecological aspects on each armored and unarmored segment of beach: 1) width and extent of intertidal zones, 2) standing crop (wet biomass) of accumulated macrophyte wrack, and 3) diversity and abundance of shorebirds, gulls and other birds. To avoid possible end effects associated with armoring structures, we only measured habitat zones and wrack in the middle 50 percent of each segment.

For each segment, we measured the distance (to the nearest 0.1 m) from the landward limit of intertidal habitat (seawall or bluff) to the high tide strand or

Beach	Segment	Length (m)	Mean height (m)
El Capitan	Seawall	370	2.0±0.6
	Adjacent	370	-
Refugio	Seawall	170	3.2±0.5
	Adjacent	170	-
Arroyo Quemado	Seawall	760	2.8±0.5
	Adjacent	760	-
Arroyo Hondo	Seawall	1050	2.7±0.4
	Adjacent	1050	-

Table 1. Lengths and mean heights (± standard deviation) of seawalls and adjacent unarmored shoreline segments used in the study (mean heights are based on measurements from five to seven locations in the middles 50 percent of each armored segment in September 2005). Seawalls are listed from east to west as in the figures. Beach names indicate locations of nearby landmarks, not the names of seawalls or their owners.

driftline and to the water table outcrop on five to seven transects during low tide in September 2005 (Figure 1). The hypothesis that intertidal zone widths differed between armored and unarmored segments was examined with two-way analysis of variance (ANOVA).

To estimate the standing crop of wrack, we measured the mass of macroalgae and seagrass deposited on three randomly located shore-normal transects located within the central 50 percent of each segment on a single sampling date in September 2005. We collected all exposed and buried wrack in a 1-m wide strip across the intertidal zone and sorted it by type including: fresh and dried *Macrocystis pyrifera, Egregia menziesii, Phyllospadix* spp., *Zostera* spp., red algae, green algae and other brown algae. All wrack was weighed in the field with a spring scale. The hypothesis that the standing crop of wrack differed between armored and unarmored segments was examined with two-way ANOVA. We also noted the presence or absence of driftwood on each segment.

We counted and identified all birds present, including shorebirds, gulls, and other birds, on intertidal sand or rocks, or on seawalls on the armored and unarmored segments at each site during low tides on eight dates between Aug. 19 and Sept. 30, 2005. Counts of paired segments of coast were always made on the same tide and date. Data were summarized as abundance and species richness for all birds observed. Means and standard errors of species richness and abundance of shorebirds, gulls and other birds were calculated for each segment and shoreline type. Raw abundance data were adjusted to densities per km of shoreline for comparisons. The hypothesis that the species richness and abundance of shorebirds and gulls varied with armoring was tested with repeated measures ANOVA. The distribution of shorebird species relative to coastal armoring was examined with the Sign test (Zar 1984).

RESULTS

Intertidal Zonation

The intertidal zones of all beach segments we measured were relatively narrow with overall widths from the upper beach limit to the water table outcrop ranging from 4.1 m to 15.4 m on armored segments and 6.5 m to 28.7 m on unarmored segments of beach. No coastal strand zone was present on the study beaches in 2005. We also observed fewer intertidal boulders (large naturally occurring rocks of greater than 256 mm diameter) seaward of the armored segments compared to unarmored bluff-backed segments.

Intertidal zones were fewer and narrower where armoring was present compared to adjacent unarmored segments (Figure 2). This was manifested in the absence of the upper intertidal zones on armored segments of coastline (Figure 2, 3a). In every comparison, the driftline occurred at the base of or on the seawall itself on armored segments, indicating the elimination of the upper and supralittoral intertidal zones on armored segments (Figure 2, 3a). On unarmored sections, at least a narrow upper intertidal zone was present at every site (Figure 3a).

The distance from the upper beach limit to the water table outcrop was narrower (47 percent to 60 percent)for armored compared to adjacent unarmored segments (Figure 2, 3b). This distance differed significantly among armored and unarmored segments and among the four sites (two-way ANOVA, n = 40: Type: $F = 98.41$, $p < 0.001$, Site: $F = 14.51$, $p < 0.001$, Type x Site: $F = 1.19$, $p = 0.330$).

Wrack

The distribution of drift material, wrack, and driftwood, present during our surveys varied between armored and unarmored segments. The macrophyte wrack in our surveys consisted primarily of brown macroalgae and surfgrass and amounts varied considerably among the four sites and among transects. Driftwood deposits were present on the four unarmored segments studied, but no driftwood was observed along any of the armored segments during the study period.

The standing crops of macrophyte wrack (wet biomass per meter of shoreline) were very low on all the armored segments during the study period. The standing crop of wrack was one to nearly three orders of magnitude greater on unarmored segments (881 g m^{-1} to 9351 g m^{-1}) than on armored segments (6 g m^{-1} to 37 g m^{-1}) (Figure 4). The standing crop of wrack was significantly greater on unarmored bluff-backed segments than on armored segments but did not differ significantly among the four beach sites (2 way ANOVA, n = 24, Type: $F = 5.60$, $p = 0.031$, Site: $F = 0.88$, $n = 24$, $p = .474$, Type x Site: $F = 0.88$, $p = 0.47$).

Birds

Overall, we observed a total of 3,961 birds of 27 species, including shorebirds, gulls and other birds, in eight counts at each of four sites (4.7 km of shoreline total per count) (Table 2). Birds were more abundant and more diverse on unarmored segments than on armored segments with seawalls. Mean abundance was 4.3 times higher on the unarmored segments (164 ± 234 individuals km^{-1}) than on the armored segments (38 ± 83 individuals km^{-1}). The mean species richness of birds (per count) was 2.1 times higher for unarmored segments than for armored segments.

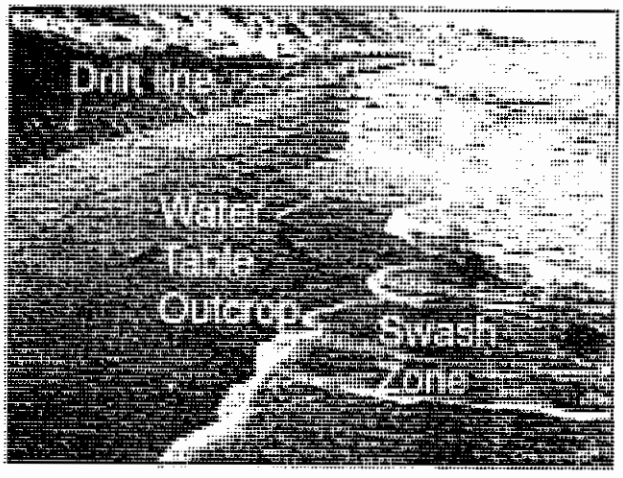

Figure 2. This view looking east along an old concrete seawall on the Gaviota coast at low tide illustrates the attenuation of intertidal zones on a beach seaward of coastal armoring.

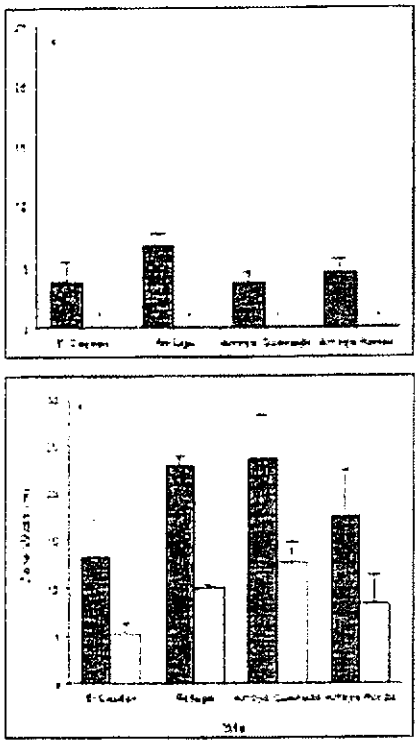

Figure 3. Mean widths (+ one standard error, n = 5) of intertidal zones in meters at low tide for unarmored (grey bars) and armored (white bars) segments of coastline at four beaches: (a) mean widths of the zone between the driftline and the upper beach limit,(* indicates the absence of this zone) (b) mean widths of the beach between the upper beach limit and the water table outcrop (wat/dry line). The names of the beaches given on the x axis indicate nearby landmarks.

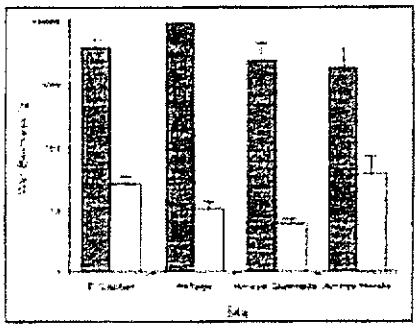

Figure 4. Mean wet biomass of macrophyte wrack (+ one standard error, n =3) in grams at low tide for unarmored (grey bars) and armored (white bars) segments of coastline at 4 beaches.

Shorebirds

Shorebirds responded to coastal armoring as predicted by our model. We observed a total of 514 shorebirds of 13 species in the 8 surveys (Table 2). Most of the shorebirds observed were foraging actively. A total of 13 species of shorebirds were recorded on unarmored segments, while only eight species were seen on armored segments (Table 2). The mean species richness (per count) of shorebirds was 2.3 times higher for unarmored segments than for segments with seawalls (Figure 5). Overall, the abundance of shorebirds was more than three times greater on unarmored segments (24.3 ± 12.6 individuals km^{-1}) than on armored segments (7.5 ± 7.5 individuals km^{-1}) (Figure 6). The species richness and abundance of shorebirds was significantly greater on unarmored segments than on armored segments of beach (Repeated Measures ANOVA, n = 8, Richness: F = 15.971, p = 0.007; Abundance: F = 13.194, p = 0.011).

All 13 species of shorebirds observed were more abundant on unarmored segments than on armored segments (Sign Test, p < 0.001) (Table 2). The four most abundant species of shorebirds accounted for 90 percent of the total shorebird abundance: Spotted Sandpiper, *Actitis macularia*, 51 percent; Willet, *Catatrophorus inornatus*, 15 percent; Wandering Tattler, 13 percent; and Killdeer, *Charadrius vociferus* 11 percent. Of these species, large proportions of all individuals observed were found on unarmored segments (70 percent, 91 percent, 85 percent, and 95 percent respectively).

Gulls

Although not predicted by our model, gulls also responded to coastal armoring. We observed a total of 3,378 gulls of three species in the eight surveys (Table 2). All three species of gulls were recorded on armored and unarmored segments of beach (Table 2); most of them were loafing. Mean

Table 2. Abundance (as counts) and occurrence (number of times present) of shorebirds, gulls, and other birds in paired surveys of armored and unarmored segments of beach between Aug. 19 and Sept. 30, 2005. (Not adjusted to per km densities.)

COMMON NAME	SPECIES	ABUNDANCE			OCCURRENCE		
		Unarmored	Armored	Total	Unarmored	Armored	Total
SHOREBIRDS							
Spotted Sandpiper	*Actitis macularia*	185	38	223	11	2	13
Willet	*Catoptrophorus semipalmatus*	68	7	75	10	4	14
Wandering Tattler	*Heteroscelus incanus*	62	10	72	13	1	14
Killdeer	*Charadrius vociferus*	45	3	48	10	1	11
Sanderling	*Calidris alba*	13	10	23	2	1	3
Whimbrel	*Numenius phaeopus*	9	4	13	5	2	7
Long-billed Curlew	*Numenius americanus*	5	1	6	3	1	4
Black-bellied Plover	*Pluvialis squatarola*	2	1	3	1	1	2
Western Sandpiper	*Calidris mauri*	2	0	2	1	0	1
Semipalmated Plover	*Charadrius semipalmatus*	1	0	1	1	0	1
Black Turnstone	*Arenaria melanocephala*	1	0	1	1	0	1
Long-billed Dowitcher	*Limnodromus scolopaceus*	1	0	1	1	0	1
Sanderling	*Calidris alba*	1	0	1	1	0	1
ALL SHOREBIRDS		401	113	514			
GULLS							
Herring's Gull	*Larus heermanni*	1516	472	2188	16	8	24
Western Gull	*Larus occidentalis*	1190	104	1294	21	13	34
Ring-billed Gull	*Larus delawarensis*	16	1	17	4	2	6
ALL GULLS		2722	579	3378			
OTHER BIRDS							
Black Phoebe	*Sayornis nigricans*	22	11	33	9	11	20
Song Sparrow	*Melospiza melodia*	5	1	6	5	1	6
Great-blue Heron	*Ardea herodias*	3	0	3	3	1	4
American Crow	*Corvus brachyrhynchos*	3	3	6	3	3	6
Great Egret	*Ardea alba*	3	0	3	2	0	2
Pelagic Cormorant	*Phalacrocorax pelagicus*	2	4	6	2	1	3
Rock Dove	*Columba livia*	2	0	2	1	0	1
Brown Pelican	*Pelecanus occidentalis*	1	0	1	1	0	1
Double-crested Cormorant	*Phalacrocorax auritus*	1	0	1	1	0	1
California Towhee	*Pipilo crissalis*	1	0	1	1	0	1
House Finch	*Carpodacus mexicanus*	0	1	1	0	1	1
ALL OTHER BIRDS		45	24	69			
TOTAL BIRDS		3044	1017	3961			

Table 2. Abundance (as counts) and occurrence (number of times present) of shorebirds, gulls, and other birds in paired surveys of armored and unarmored segments of beach between Aug, 19 and Sept, 2005. (Not adjusted to per km densities.)

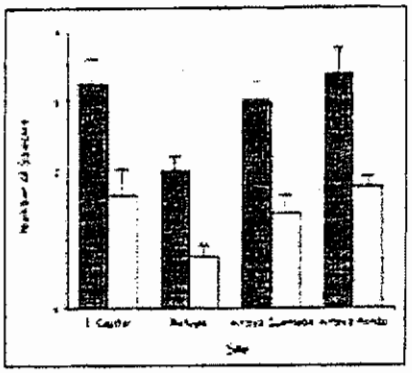

Figure 5. Mean species richness of shorebirds (+ one standard error, n = 8) during fall migration for unarmored (grey bars) and armored (white bars) segments of coastline at four beaches.

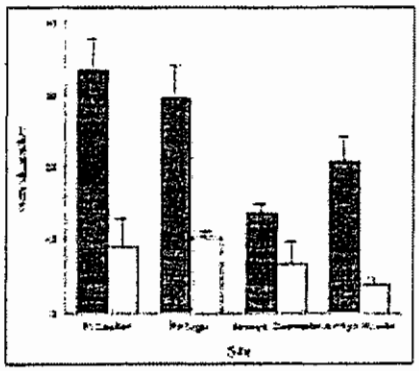

Figure 6. Mean abundance of shorebirds (+ one standard error, n = 8) during fall migration for unarmored (grey bars) and armored (white bars) segments of coastline at four beaches.

species richness did not vary significantly between armored and unarmored segments. Overall, the mean abundance of gulls was 4.7 times higher for unarmored segments (136.7 ± 234.8 individuals km^{-1}) than for armored segments (29.3 ± 83.8 individuals km^{-1}) (Table 2). The species richness of gulls did not vary significantly with coastal armoring (Repeated measures ANOVA, n = 8, F = 2.7, p = 0.151). The abundance of gulls was significantly greater on unarmored segments than on armored segments of beach (Repeated Measures ANOVA, n = 8, F = 18.880, p = 0.005).

Other birds

A response to armoring was also apparent for a variety of other species of birds observed including seabirds (cormorants, California Brown Pelican), herons (Great Blue Heron, Great Egret, Green Heron) and terrestrial birds (e.g., Black Phoebe, Song Sparrow, American Crow, Rock Dove). Low numbers of other bird species were observed with a total of 69 individuals of 11 species recorded in our surveys (Table 2). Overall, twice as many species of other birds were observed on unarmored segments (10 species) as on armored segments (five species) of beach (Table 2) however, this difference was not statistically significant (Repeated measures ANOVA, n = 8, F = 4.531, p = 0.077). The abundance of other bird species was generally quite low, but varied with coastal armoring. The overall mean abundance of other birds was 2.3 times higher on unarmored segments (3.2 ± 3.0 individuals km^{-1}) than on armored segments (1.4 ± 2.0 individuals km^{-1}) but did not differ significantly with armoring (Repeated measures ANOVA, n = 8, F = 3.465, p = 0.112).

DISCUSSION

Narrowing of beaches in front of coastal armoring was evident in both the upper and the middle intertidal zones of the beach. Upper intertidal zones appeared to be most affected by armoring with the zone of the beach located above the driftline eliminated from the armored segments of beach, even in late summer. The effects on intertidal zones would be expected to be stronger during the winter and spring months when intertidal sand levels decline (e.g., Hubbard and Dugan 2003). A well-designed BACI (Before After Control Impact – e.g., Schroeter et al. 1993) study of the short-term responses (20 months) to a newly constructed seawall did not find a significant effect of the seawall on the distance between the driftline and the low tide level of the beach (Jaramillo et al. 2002). This contrasting result for effects on the intertidal zone may be due in part to the young age of the seawall studied by Jaramillo et al. (2002) compared to the old structures studied here. Importantly, their study did not compare the zone widths above the driftline where the most extreme differences were observed in our study.

The coastal strand zone and associated vegetation did not exist on most of the narrow beaches we studied and was never observed on the armored segments. The effects of coastal erosion and sea level rise on this restricted zone (e.g., Feagin et al. 2005) combined with armoring impacts bode poorly for the survival of the coastal strand zone on coastlines that are both retreating and developed.

The lack of intertidal boulders seaward of the armored segments compared to unarmored bluff-backed segments suggests a reduced supply and/or higher longshore transport of boulders occurs in front of seawalls. This result could be examined in more detail and has important implications for both coastal sediment supply (e.g., Runyan and Griggs 2003) and the biocomplexity of the intertidal zone.

Our results support the prediction that upper intertidal beach zones are lost and mid-intertidal zone are reduced in front of coastal armoring structures. The upper intertidal zone, specifically the driftline, shifts from the beach to the armoring structure with clear consequences for the ecology of the beach, including reduced biodiversity, abundance and prey for shorebirds. Rich, three-dimensional infaunal beds of the driftline are eliminated and are replaced by the steep two-dimensional habitat of the seawall, which may support a low diversity of some rocky shore species (e.g., Chapman 2003, Chapman and Bulleri 2003) but has little or no resource value for shorebirds. The damp sand zone of the beach was also significantly narrower on armored segments of coast compared with adjacent unarmored segments. This result implies reduced habitat for invertebrates and more restricted foraging areas for shorebirds on armored coastlines.

In addition to macroinvertebrates, the high intertidal zone around the driftline is nesting habitat for several species of fish; including the California grunion (*Leuresthes tenuis*) on open coastlines and Surf Smelt (*Hypomesus pretiosus*) and Pacific Sand Lance (*Ammodytes hexapterus*) on protected shores, who lay their eggs in this zone during peak spring high tides to incubate in the sand through the neap tides. Negative effects of armoring on embryo survival have been reported for the surf smelt in Puget Sound (Rice 2003) and might be expected for California grunion. The reduction or loss of this high intertidal zone associated with coastal armoring reported here has clear consequences for reproduction of beach-dependent fish species. The importance of Pacific sand lance and surf smelt as forage fish for salmon and seabirds have stimulated efforts to identify and protect spawning beaches from coastal armoring and other human impacts in the Puget Sound area (Reeves et al. 2003).

Wrack is a key resource for beach invertebrates (Brown and McLachlan 1990). Availability of macrophyte wrack can affect diversity and abundance of intertidal animals including shorebirds (Dugan et al 2003). An average of 37 percent (range = 14 percent to 55 percent) of the invertebrate species on beaches of the study region were wrack-associated forms and overall species richness of the community was positively correlated with the standing crop of wrack (Dugan et al. 2003). We predict that the loss of this habitat zone observed on armored segments in this study has likely resulted in a significant reduc-

tion of intertidal diversity and an alteration of community structure and function. The abundance of talitrid amphipods was positively associated with wrack cover (Dugan et al. 2003) and this important crustacean can reach densities exceeding 90,000 individuals m^{-1} on unarmored bluff-backed beaches (Dugan et al. unpublished).

The significant reduction in the standing crop of this key resource found on armored beaches is expected to have strong negative effects on biodiversity and abundance of wrack-associated invertebrates, including talitrid amphipods, isopods, and beetles, as well as the entire intertidal community and food web of the beach. Our results also suggest that the accumulation of wrack may be affected by coastal armoring on other shore types including boulder, cobble, rock shelf, and estuarine shorelines thus affecting a variety of intertidal food webs.

Our results fit our prediction that the distribution of shorebirds on beaches during fall migration responds negatively to the presence of coastal armoring. The significant responses of species richness and abundance of shorebirds to armoring was evident even during low tide surveys when the greatest amount of habitat was available. We expect the differences in shorebird distributions would be greater during high tides and when sand levels are reduced during winter and spring. The response of shorebirds to coastal armoring exceeded that predicted by the loss of habitat area alone, suggesting that other factors -- including prey abundance and diversity, availability of high tide refuges, and other landscape factors -- also contribute to the observed response. Loss of habitat for migration staging, foraging, and wintering has been implicated in the declines of populations of many species of shorebirds in North America and is a major concern for shorebird conservation planning (Brown et al. 2001).

Our results were also consistent with the prediction that visually searching shorebirds, such as plovers (e.g., killdeer and black-bellied plovers), were strongly affected by beach changes associated with armoring. This may be related to the disproportionate reduction of the zones above and around the driftline where the prey for these species concentrate in stranded wrack.

Although not predicted by our conceptual model, gulls, seabirds, waders, and other birds also responded negatively to coastal armoring in this study. Factors associated with armoring that may be affecting this wider variety of birds require further investigation.

The seawalls observed in this study were old, primarily vertical structures that interacted with tides and waves daily, even in the late summer when sand levels are expected to be greatest on this coastline (e.g., Hubbard and Dugan 2003). These walls were associated with significant depression in several ecological elements of the beach community. Ecological responses to other forms of coastal armoring may differ. Seawalls or other coastal armoring structures that experience more or less interaction with waves and tides could produce different results. We predict that the ecological effects of any armoring structure will increase with the amount of interaction between the structure and the intertidal processes of waves and tides, whether this is due to initial placement or subsequent erosion of the beach.

CONCLUSIONS

Our study results suggest that the alteration of sandy beaches by coastal armoring causes significant ecological responses of intertidal beach communities including overall loss of habitat, the loss and reduction of intertidal zones, altered wrack deposition and retention, and reduced diversity and abundance of macroinvertebrates, shorebirds, gulls, and other birds. The combination of rising sea levels predicted by climate change models (e.g., Kendall et al 2004) and the increasing extent of coastal armoring (already >10 percent of the coast in California (Griggs 1998) will accelerate beach loss and increase ecological consequences for sandy beach communities and shorebirds in many regions. The ecological responses to coastal armoring we found indicate that further and more detailed research is needed on this question. We predict that the amount of interaction between a coastal armoring structure and the coastal processes of waves and tides will affect the ecological responses to the structure. Our conceptual model provides a framework that could be used in investigating ecological responses to coastal armoring of other types and tidal heights and in other coastal regions.

ACKNOWLEDGMENTS

We gratefully acknowledge S. Bull, M. James, G. Osherenko, and D. Revell for their encouragement and valuable discussions about this study. The deliberations of the Goleta Beach Working Group organized by Santa Barbara County provided the inspiration for this study. We also thank L. Ewing and four anonymous reviewers whose suggestions improved our manuscript. This research was supported by a grant from the A.S. Students Shoreline Preservation Fund of the University of California at Santa Barbara and by the Santa Barbara Coastal Long Term Ecological Research project (NSF Cooperative Agreement #OCE-9982105).

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RE: **Surfrider's Comments on Goetz/Sylver Seawall**
Appeal No. A-6-CII-10-043

Dear Ms. Ross,

Hope all is well with you. Do you have an anticipated date for the Coastal Commission hearing on the Goetz Seawall Permit Appeal? Have you received a response to your request for information from Goetz/Sylver?
I would like to set up a time to meet with you regarding Surfrider's concerns with the seawall and our concerns regarding the justification for the seawall. Below I have outlined some of our concerns and objections to the permit.

In this case, the seawall was approved not to protect any existing structure, but allegedly to protect the public from an imminent threat of bluff collapse. Note that this seawall was originally approved through an emergency permit process unreviewable by the Coastal Commission. In addition, through a dubious interpretation of the California Environmental Quality Act, the City and applicant have chosen to avoid preparing an EIR or negative declaration to adequately consider the impacts [or necessity of the seawall.] Thus, it is up to the Coastal Commission to evaluate the alternatives to a seawall, whether a seawall is the least environmentally damaging preferred alternative for accomplishing the stated goals of the project and whether the project complies with both the LCP and the public access requirements of the Coastal Act. [Pub. Res. Code §§ 21080.5[d][2][A], 30603[b][1]; CEQA Guidelines § 15252; 14 Cal. Code Regs. 13057.]

Carlsbad Municipal Code section 21.204.040 states:

> 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
> condition of approval, permitted shoreline structure
> required to replenish the beach with imported sand.

> Provisions for the maintenance of any permitted seawalls shall be included as a condition of project approval. As a further condition of approval, permitted shoreline structures shall be required to provide public access. Projects which create dredge spoils shall be required to deposit such spoils on the beaches if the material is suitable for sand replenishment. Seawalls shall be constructed essentially parallel to the base of the bluff and shall not obstruct or interfere with the passage of people along the beach at any time.

The first part of Section 21.204.040 corresponds closely with Public Resources code section 30235. Thus, the Coastal Commission's prior interpretation of section 30235 should be controlling.

In this case, the applicant argued a seawall was "required" to protect the public beach in danger from erosion. Breakwaters and groins have been constructed to protect public beaches, but to our knowledge, there has never been a seawall approved by the Coastal Commission based on "protecting" the public beach. Seawalls have only been approved to protect existing structures in danger from erosion. Unfortunately, seawalls destroy the public beach through passive erosion.

Even assuming for argument sake that a seawall could be built to protect the people on the beach from the potential of a bluff collapse, what would be the criteria for approving such seawall? Has the Coastal Commission developed such criteria? Surely, there would need to be some kind of threshold risk analysis to objectively determine whether a bluff poses an imminent threat to the public. To our knowledge, there has been no attempt to quantify the risk to the public in this case. These are questions that are critical to evaluating the permit.

In my review of the public records, it appears that there have been five deaths from bluff collapses in the last 15 years or so in San Diego County. Three deaths have occurred at Torrey Pines State Beach, which has very high, unconsolidated bluffs, and one death occurred from a man sleeping in an upper-bluff sand cave at Carlsbad State Beach approximately 9 years ago. One death occurred in Encinitas in January 2000.

According to the Department of Boating Water Ways, 8 million people visit North County Beaches every year. Thus, just by raw numbers, it would seem that the chance of death or injury from a collapsing bluff would be 1 in 24,000,000 beach visits along the entire 60 miles of San Diego's coastline. But, even 1 in 24 million likely overestimates the chances of death or injury

from bluff collapses, because the vast majority of bluff collapses occur during or directly after heavy rains.[1] This means that bluffs are more likely to collapse in the winter when beach attendance is low. In addition, a certain number of bluff collapses occur at night when beach attendance is also low. Thus, from a statistical point of view, is the public in substantial danger from a bluff collapse?

Furthermore, in all prior cases, the applicant must demonstrate that the seawall is "required". The Coastal Commission has previously held that if other alternatives are available, including moving the threatened structure, a seawall should not be approved. Thus, if there are other alternatives that significantly reduce the risks from a bluff collapse, a seawall cannot be granted under Section 30235 (or the LCP). In this case, it would appear that the risk of any further collapse could be mitigated by grading the bluff to an appropriate angle of repose. The existing structures are currently located 45 feet from the bluff edge. Considering the geology, grading the bluff back to an appropriate angle and using water-wise plants could significantly reduce the chances of a significant bluff collapse. In addition, signs reminding beach-goers of the danger of bluff collapses also reduces any risk of injury. Have these options been evaluated by anyone other than the applicants' geologist?

The Coastal Act anticipates that bluffs will be able to erode naturally. Thus, Coastal Act section 30253 requires that "new development shall [not]...in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs." (Pub. Res. Code § 30253.) This has been interpreted as requiring new development to have a sufficient bluff setback to not require a seawall for the life of the home. In other words, it is anticipated that a bluff will be able to episodically erode for 75 to 100 years without building a seawall. Obviously, this fundamental precept is lost if someone can justify a seawall based on the fact that people use the beach below their bluff-top home.

Approving a seawall in this case would set precedent that would undo the Coastal Act. Already, we have seen a tremendous abuse of the setback policies by using "purchased" (i.e.. scientifically dubious) geology reports to underestimate bluff erosion for new development, and then, later, after a bluff collapse occurs, using other "purchased" geology reports to overestimate the rate of erosion to justify the approval of a seawall.[2] The practice was so

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[1] This is consistent with the original bluff collapse in this case, which occurred on December 19, 2008 after three days of heavy rains (See Carlsbad Staff Rep. April 7, 2010 at p. 1).

[2] This abuse was described by Coastal Commission Staff, Charles Lester, in "An Overview of California's Coastal Hazard Policy", in Griggs, Patsch, & Savoy, LIVING WITH THE CHANGING CALIFORNIA COAST (2005) pp. 143-147.

rampant, that the Coastal Commission began requiring all new bluff-top development to accept a "no future seawall" deed restriction. Permitting a seawall based on this new justification will encourage a new round of scientifically questionable geology reports claiming that all developed coastal bluffs are public safety hazards. The Coastal Commission must be careful not to set such precedent.

Permitting a seawall to protect the people on the beach also does not comply with the public access requirements of the Coastal Act because seawalls eventually destroy the beach through passive erosion. (See Coastal Act §§ 30210, 30211, 30212.) Seawalls fix in place the back end of the beach, not permitting it to naturally migrate landward. Eventually, the dry-sand area of the beach is lost because the high-tide line intersects with the seawall....which brings us to our final point.

The permit does not comply with Carlsbad Municipal Code section 21.204.060, which is designed to guarantee lateral access along the beach. Carlsbad Municipal Code section 21.204.060 states:

> Developments shall be conditioned to provide the public with the right of access to a minimum of twenty-five feet of dry sandy beach at all times of the year. The minimum requirement applies to all new developments proposed along the shoreline requiring any type of local permit including a building permit, minor land division or any other type of discretionary or nondiscretionary action.

Carlsbad's LCP creates a mandatory condition for all shoreline development to maintain lateral beach access.[3] I do not see any condition in the permit to provide 25 feet of dry sandy beach at all times of the year. The permit clearly does not comply with the LCP or the public access policies of the Coastal Act. The permit must be denied.

Sincerely,

Signature on file

Todd T. Cardiff
Attorney for the Surfrider Foundation
San Diego Chapter

[3] Carlsbad's LCP also states, "Seawalls...shall not obstruct or interfere with the passage of people along the beach at any time." (Carlsbad Municipal Code § 21.204.040.)

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October 11, 2011

Toni Ross
Coastal Program Analyst
California Coastal Commission
7575 Metropolitan Drive, Suite 103
San Diego, CA 92108

Re: Goetz Seawall, 5323-5327 Carlsbad Boulevard
Appeal No. A-6-CII-10-043

Dear Ms. Ross:

This firm represents Dean Goetz and Marshall Sylver with respect to the project known as the Goetz seawall. You asked me to explain why this beach area could only be made safe by a seawall and why signage was not a viable option for protection of the public visiting the cove beach below Goetz seawall.[1] For the reasons further detailed below, signage would be inadequate to protect the public at this popular urban beach cove. With free parking, vertical access, and good surf, there are many people wanting to use a small cove area. At medium and high tides, these beachgoers are literally forced into the bluff collapse danger zone and there is no place to safely recreate. The only option for beachgoers is to leave the beach. Signage will not deter people from recreating in the danger zone for the reasons set forth below.

Since the 1997-1998 El Nino phenomenon, there have been hundreds of upper and lower bluff collapses in San Diego County, all sudden in nature and some causing death to beachgoers. Bluff collapse danger is greatly exacerbated due to the public's lack of understanding of their fragility, coupled with the fact that most bluff collapses occur on sunny "beach" days when the beach is most crowded. Unfortunately, bluff collapse risk does not share the same level of familiarity with beachgoers as do large waves, rip currents, skin cancer, and shark attacks, and the vast majority of the beach-going public has little understanding that coastal bluffs may collapse at any moment.

[1] You also asked for information as to why and how the Goetz seawall serves coastal-depe this beach. That response will come under separate cover.

To this point, five people have died in North San Diego County bluff collapse events in the last 15 years. Most notably, in January 2000, a young woman was killed in Encinitas while sitting on the beach about 30 to 40 feet seaward from the toe of the bluff while watching her husband surf.[2] Several months earlier, in October 1999, a surfer got out of the water just south of Fletcher Cove in Solana Beach, took off his wetsuit and set it down on the beach about 40 feet from the bluff. Moments later, several hundred cubic yards of this bluff collapsed burying his wetsuit. In 1995, a bluff collapse south of Del Mar killed two people and injured a third. In 2002, a man was killed in a seacave at Carlsbad State Beach very close to the Goetz seawall. Most recently, in 2008, a Nevada man was killed by falling rocks in front of his family while he played Frisbee at Torrey Pines State Beach.[3]

It is well known that beachgoers not only ignore bluff failure warning signs, but also do not fully understand the danger at hand. In many jurisdictions, lifeguards routinely shoo people away from dangerous bluffs despite numerous warning signs. The problem is all the worse because many beachgoers are unaware that the bluff collapse danger zone extends at least 25 feet or more from the toe of the bluff, and thus recreate in the danger zone without knowing it. At some beaches, like the Goetz beach cove, beachgoers are frequently "forced" further into danger zone during medium and high tides as adjacent beaches become completely inaccessible.

The beach below the Goetz seawall is an area where this phenomenon occurs with regularity. It includes warning signs, yet even prior to the installation of the seawall, beachgoers routinely used the beach all the way up to the toe of the bluff to recreate, rest their surfboards, and even for weddings. When the bluff collapsed, approximately 243 tons of material fell onto the beach in the same area where people usually recreate. As personally witnessed by Carlsbad City Councilman Keith Blackburn, even after the collapse, people were climbing on the bluff material that had just fallen onto the beach. See the Blackburn letter, attached here.

The danger at the location of the Goetz wall is particularly pronounced given its proximity to free parking, a vertical access stairway, a popular surf break, and a small cove beach area that remains dry when other nearby beach locations are inundated. Each of these factors contributes to the high popularity and extensive use of this beach by the public. With so many people crowded into a relatively small area, it is especially critical to protect the public from the danger posed by the fragile bluff. The fact that Goetz cove is the last area that gets inundated during medium and high tides on either side of the public-access

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[2] For more information on this incident can be accessed on the Internet at http://www.beaconsbeach.com/rebecca_kowalczyk.htm.

[3] More information on this incident can be found on the Internet at http://www.10news.com/news/17246108/detail.html.

staircase, essentially forces people to congregate in the bluff collapse danger zone. This danger zone is continually occupied by people of all ages, including children. Very often, it is even used for wedding ceremonies and receptions.

As documented in the application made to the City (previously provided to the Commission by Mr. Goetz or the City), there is simply no alternative to a seawall to protect public safety. At one point, it was suggested by Coastal staff that it may have been possible to extensively grade the bluff to a safer angle of repose. We do not believe this would have been a viable solution and based on our last telephone conversation, it appears that Coastal staff no longer views this concept as a viable. Please let me know right away if my understanding is incorrect.

Sincerely,

Signature on file

Jon Corn