GRAY DAVIS, Governor

CALIFORNIA COASTAL COMMISSION SOUTH CENTRAL COAST AREA 89 SOUTH CALIFORNIA ST., SUITE 200 VENTURA, CA 93001 (805) 585-1800

RECORD PACKET COPY

Appeal Filed: 49th Day:

8/14/02

Staff:

waived

StaffReport:

J. Johnson 9/18/03

Hearing Date:

10/7/03

Commission Action:

STAFF REPORT: APPEAL SUBSTANTIAL ISSUE DETERMINATION

Local Government:

Ventura County

Local Decision:

PD-1948 and PD- 1949

Appeal Number:

A-4-VNT-03-083 & A-4-VNT-03-084

Applicant:

Mr. Bruce Gordon

Representatives: Trigg Schaefer;

Stephanie Dreckmann, Schmitz

and Associates

Appellant:

Barry Lane

Project Locations:

3833 and 3837 Ocean Avenue, Hollywood Beach, Ventura

County

Project Descriptions:

3833 Ocean Ave:

Construct a 3,730 sq. ft. two story single family dwelling with

attached 490 sq. ft. two car garage on 2,625 sq. ft. lot.

3837 Ocean Ave: Construct a 3,730 sq. ft. two story single family dwelling with

attached 490 sq. ft. two car garage on a 2,625 sq. ft. lot.

Substantive File Documents:

County File No. Planned Development Permits 1948 and

1949, County of Ventura Local Coastal Program

Summary of Staff Recommendation

Staff recommends that the Commission determine that no Substantial Issue exists with respect to the grounds on which the appeal has been filed. The Motion and Resolution for substantial issue is found on Page 4. The appellant contends that the County approved project is not consistent with the policies and provisions of the certified Local Coastal Program with regards to seven issues. However, the County's action to approve these projects with conditions was consistent with the County LCP. The applicant also submitted additional information concluding that no shoreline protective device is needed for these residences. This report addresses the Substantial Issue question on this appeal.

Staff Note

The applicant requested a waiver of the Commission's 49 day review time to allow additional time to prepare a coastal engineering report for Commission staff review. A Wave Runup and Hazard Study was submitted on September 5, 2003 and is considered in this report. If the Commission finds that the appeal raises substantial issue, the de novo staff report will fully analyze whether or not the proposed project is consistent with the Ventura County Local Coastal Program at a later public hearing.

A. APPEAL JURISDICTION

The project is located in southwest Ventura County on a beachfront parcel on the seaward side of Ocean Avenue, in the community of Hollywood Beach. Hollywood Beach is a residential community inland of Hollywood County Beach and just north of the entrance to Channel Islands Harbor. After certification of a Local Coastal Program (LCP), Section 30603 of the Coastal Act provides for appeals to the Coastal Commission of local government's actions. Developments approved by cities or counties may be appealed if they are located within the appealable areas, such as those located between the sea and the first public road paralleling the sea, within 300 feet of the inland extent of any beach or of the mean high-tide line of the sea where there is no beach, whichever is greater, on state tidelands, or along or within 100 feet of natural watercourses. (Coastal Act Section 30603[a]) Any development approved by a County that is not designated as a principal permitted use within a zoning district may also be appealed to the Commission irrespective of its geographic location within the Coastal Zone. (Coastal Act Section 30603[a][4]) Finally, developments which constitute major public works or major energy facilities may be appealed to the Commission (Coastal Act Section 30603[a][5]).

The subject project site is located within the appeal jurisdiction of the Commission as identified on the Post LCP Certification Permit and Appeal Jurisdiction map certified for the County of Ventura and adopted by the Commission on November 17, 1983, and is located between the sea and the first public road paralleling the sea.

B. APPEAL PROCEDURES

The Coastal Act provides that after certification of Local Coastal Programs (LCPs), a local government's actions on Coastal Development Permits in certain areas and for certain types of development may be appealed to the Coastal Commission. Local governments must provide notice to the Commission of its coastal permit actions. During a period of ten working days following Commission receipt of a notice of local permit action for an appealable development, an appeal of the action may be filed with the Commission.

1. Grounds for Appeal.

The grounds for appeal for development approved by the local government and subject to appeal to the Commission shall be limited to an allegation that the development does not conform to the standards set forth in the certified Local Coastal Program or the public access

policies set forth in Division 20 of the Public Resources Code. (Coastal Act Section 30603[a][4])

2. Substantial Issue Determination

Section 30625(b) of the Coastal Act requires the Commission to hear an appeal unless the Commission determines that no substantial issue exists with respect to the grounds on which the appeal was filed. When Commission staff recommends that a substantial issue exists with respect to the grounds of the appeal, substantial issue is deemed to exist unless three or more Commissioners wish to hear arguments and vote on substantial issue. If the Commission decides to hear arguments and vote on the substantial issue question, proponents and opponents will have three (3) minutes per side to address whether the appeal raises a substantial issue. The only parties qualified to testify before the Commission at the substantial issue stage of the appeal process is the applicant, persons or their representatives who opposed the application before the local government (or their representatives), and the local government. Testimony from other persons must be submitted in writing. Further, it takes a majority of Commissioners present to find that substantial issue is raised by the appeal.

3. De Novo Permit Hearing

If a substantial issue is found to exist, the Commission will consider the application de novo. The de novo permit may be considered by the Commission at the same time as the substantial issue hearing or may be considered at a later date. The applicable standard of review for the Commission to apply in a de novo review of the project is whether the proposed development is in conformity with the certified Local Coastal Program and the public access policies of the Coastal Act. If a de novo hearing is held, testimony may be taken from all interested persons.

C. Local Government Action and Filing of Appeal.

On July 22, 2002, the Ventura County Board of Supervisors denied Appeal No. 482 and upholding the Planning Commission's decision to approve Coastal Planned Development Permit Nos. PD-1948 and 1949. The County approved project consists of the construction of two adjacent 3,730 square foot single family dwellings with attached 490 square foot two car garages on adjoining 2,625 square foot lots located at 3833 and 3837 Ocean Avenue, Hollywood Beach, Ventura County.

The County's appeal period ran with an appeal filed by Barry Lane on August 14, 2003. Commission staff received the appealable Notice of Final Action for the project on July 31, 2003. A ten working day appeal period was set and notice provided beginning August 1, 2003 extending to August 14, 2003. Commission staff notified the County and the applicant of the appeal and requested that the County provide its administrative record for the permit on August 14, 2003. Administrative records were received from the County on August 22, 2003.

I. STAFF RECOMMENDATION ON SUBSTANTIAL ISSUE

MOTION: I move th

I move that the Commission determine that Appeal Nos. A-4-VNT-03-083 and 084 raises NO substantial issue with respect to the grounds on which the appeals have been filed under § 30603 of the

Coastal Act.

STAFF RECOMMENDATION:

Staff recommends a **YES** vote. Failure of this motion will result in a de novo hearing on the proposed development and adoption of the following resolution and findings. Passage of this motion will result in a finding of No Substantial Issue and the local government actions 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 Nos. A-4-VNT-03-083 and 084 presents **no 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.

II. FINDINGS AND DECLARATIONS FOR SUBSTANTIAL ISSUE.

The Commission hereby finds and declares:

A. Project Description

The County's coastal development permit approved the applicants' proposal to construct two adjacent 3,730 square foot single family dwellings with attached 490 square foot two car garages on adjoining 2,625 square foot lots located at 3833 and 3837 Ocean Avenue, Hollywood Beach, Ventura County (Exhibits 1-4). The project site is located on the west portion of Ventura County in Hollywood Beach area.

B. Appellant's Contentions

The appeals filed with the Commission by Barry Lane for the project at 3833 Ocean Avenue is attached as Exhibit 5. The reasons for the second appeal for 3837 Ocean Avenue are the same. The appeal contends that the County's approval of Planned Development Permits 1948 and 1949 do not conform to policies and standards set forth in the Ventura County's certified Local Coastal Program with respect to seven issues addressing three story development, setbacks, eaves, property line protection, driveway drainage, beach side wall, and new windows privacy invasion.

C. Analysis of Substantial Issue

Pursuant to Sections 30603 and 30625 of the Coastal Act, the appropriate standard of review for the subject appeal is whether a substantial issue exists with respect to the grounds raised by the appellants relative to the project's conformity to the policies contained in the certified LCP and or the public access and recreation policies of the Coastal Act.

The County approved the applicant's proposal to construct two adjacent 3,730 square foot single family dwellings with attached 490 square foot two car garages on adjoining 2,625 square foot lots located at 3833 and 3837 Ocean Avenue, Hollywood Beach, Ventura County (Exhibits 1-4).

The proposed development of two separate single family residences is located on two separate beach front lots in the Hollywood Beach area of Ventura County. The Ventura County Local Coastal Plan, the Coastal Area Plan, includes policies and the Coastal Zoning Ordinance (CZO) includes ordinances that address residential development in the Residential Beach Harbor (RBH) zone.

A substantial issue does not exist with respect to whether the approved project is inconsistent with the policies of the County of Ventura Local Coastal Program raised in the appeal for the specific reasons discussed below. The seven issues raised by the appellant do not raise any inconsistencies with the certified Ventura Local Coastal Program.

The first issue raised by the appellant addresses the safety requirements for three story verses two story residences. The Coastal Zoning Ordinance (CZO) does not address number of stories in the Residential Beach Harbor zone (RBH). The CZO does establish maximum height of such structures as the highest point of a pitched or hip roof shall not exceed 28 feet in height. The proposed projects comply with this height requirement. The second issue raised by the appellant is that the project violates side yard setbacks with illegal build up. The project's three-foot wide setbacks are consistent with the CZO. The proposed raised side yard is not prohibited in the CZO. The third issue raised is that the eaves are too close to the property line. The County approved the projects with condition number 12a requiring that the plans be modified to meet the CZO side yard eave requirements of no closer that two feet from any side yard property line. The applicant has revised the submitted plans accordingly (Exhibits 2 and 4). The fourth issue raised is that there is no protection of the property line as a prior survey indicated a three-inch space between my self (sic) wall and applicants property line. This issue is a dispute between property owners regarding the location of an existing wall and the property boundary. According to the County's report, the County Building and Safety Department will require the owner to hire a surveyor to mark the location of property line. The fifth issue raised is that the project includes a defective driveway buildup which will improperly divert rain and water on to my property. The project is designed to drain to the Ocean Drive on the landward side of the structure and meets the applicable Ventura County Codes according to the County. The sixth issue raised is that the proposed six foot high wall is too high where it extends beyond the edge of the house on the beach side to the beach. The CZO allows fences and walls up to six feet in height; the proposed wall and fence meets this restriction. The seventh issue raised is that windows on the north side of the house look directly into the appellant's bathroom and living room. The CZO does not regulate the location

and number of windows proposed in a residence. Therefore, issues one through seven do not raise a substantial issue relative to the project's conformity to the policies contained in the certified LCP and or the public access and recreation policies of the Coastal Act.

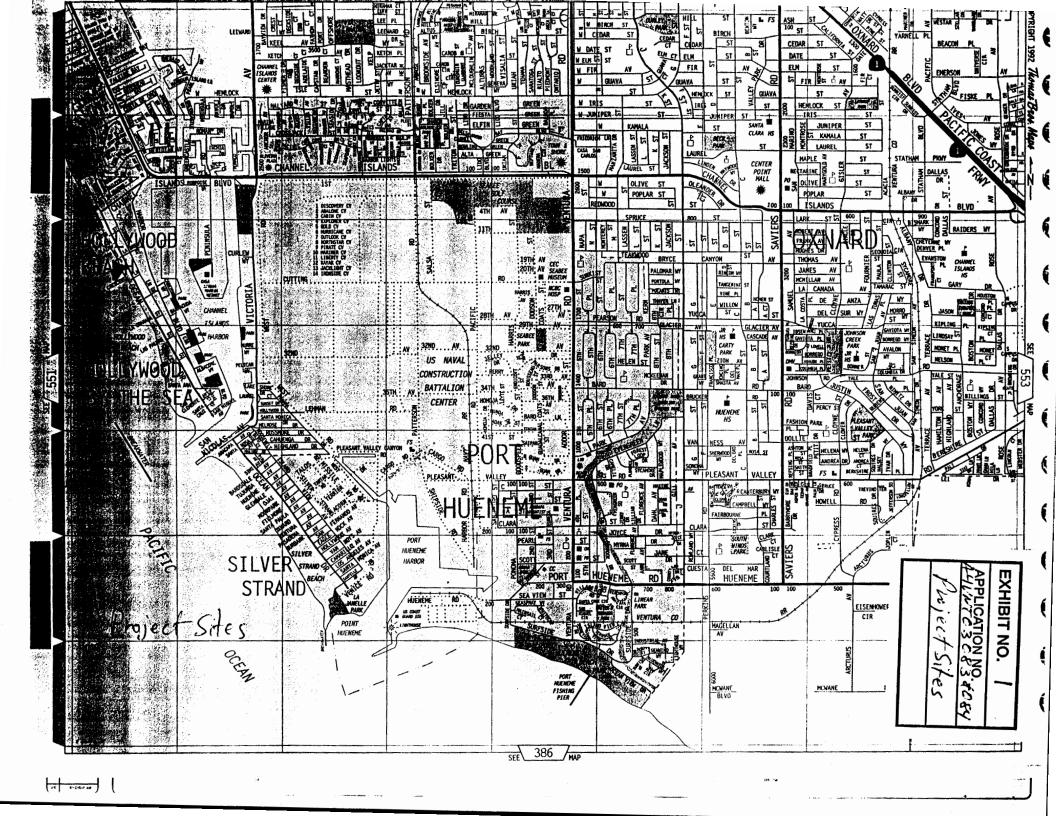
The proposed development of two separate single family residences is located on two separate beach front lots in the Hollywood Beach area of Ventura County, an area that may be subject to natural hazards such as from storm waves, erosion, flooding. The Ventura County Local Coastal Plan, the Coastal Area Plan, includes the policies that address flood and erosion hazards on beachfront lots. Although the appellant did not raise any coastal flood or erosion hazard issues relative to the Ventura Local Coastal Plan, the proposed project on a beachfront lot includes a raised concrete patio and supported by a concrete block retaining wall that is located six feet seaward of the residence on the sandy beach.

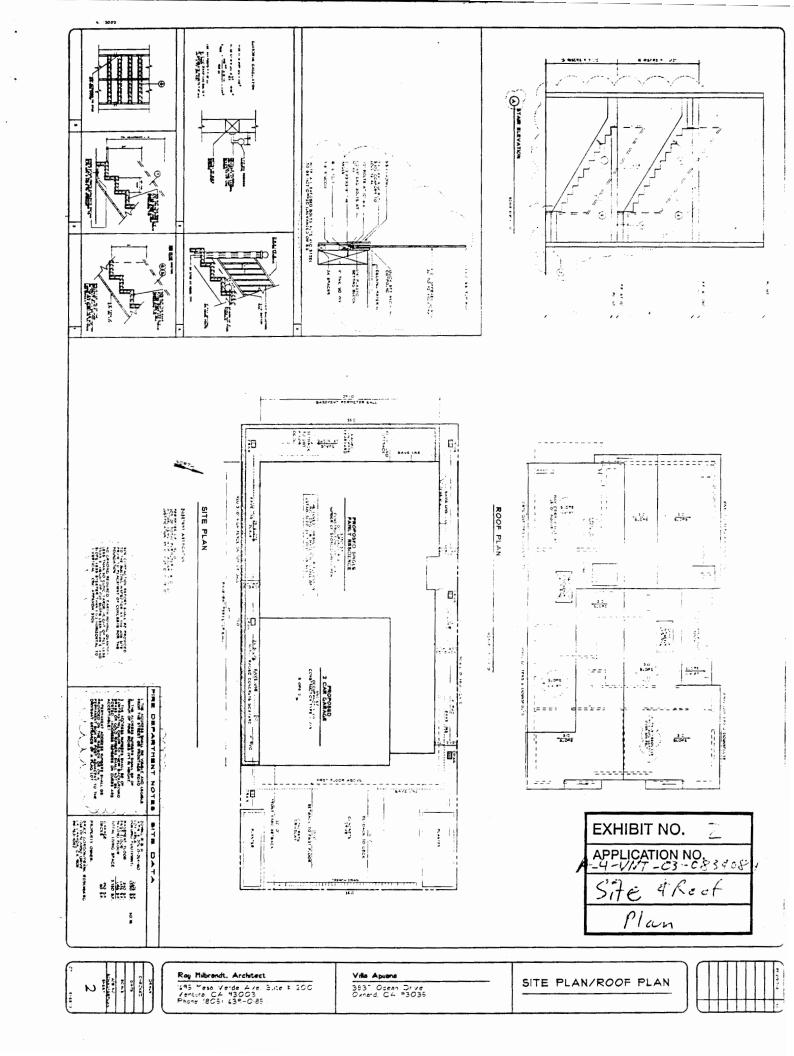
The applicant does not propose any shoreline protective devices or seawall to protect the proposed residences on the seaward side. The issue of whether or not the construction of these residences and garages with its ability to withstand potential wave uprush and its resulting flooding of the site is predicated upon the proposed concrete retaining wall and two side yard walls (also known as 'end walls'). To address the issue of whether or not the residences require now or in the future a shoreline protective device, Staff requested the applicant provide a coastal engineering report and site topographic survey to address the potential wave hazard and flooding of these sites. The applicant submitted a "Wave Runup & Hazard Study" dated September 4, 2003, prepared by Skelly Engineering addressing if the proposed development will be subject to wave runup or wave attack over the typical 75 year life of the development (Exhibit 6). This report concludes that wave runup and overtopping should not adversely impact the property over the life of the structure for numerous reasons including that there is a wide (>400 feet) sandy beach in front of the properties 99.99% of the time and that the mean high tide is over 300 feet from the sites and it is unlikely that over the life of the structures that the mean high tide line will reach the property.

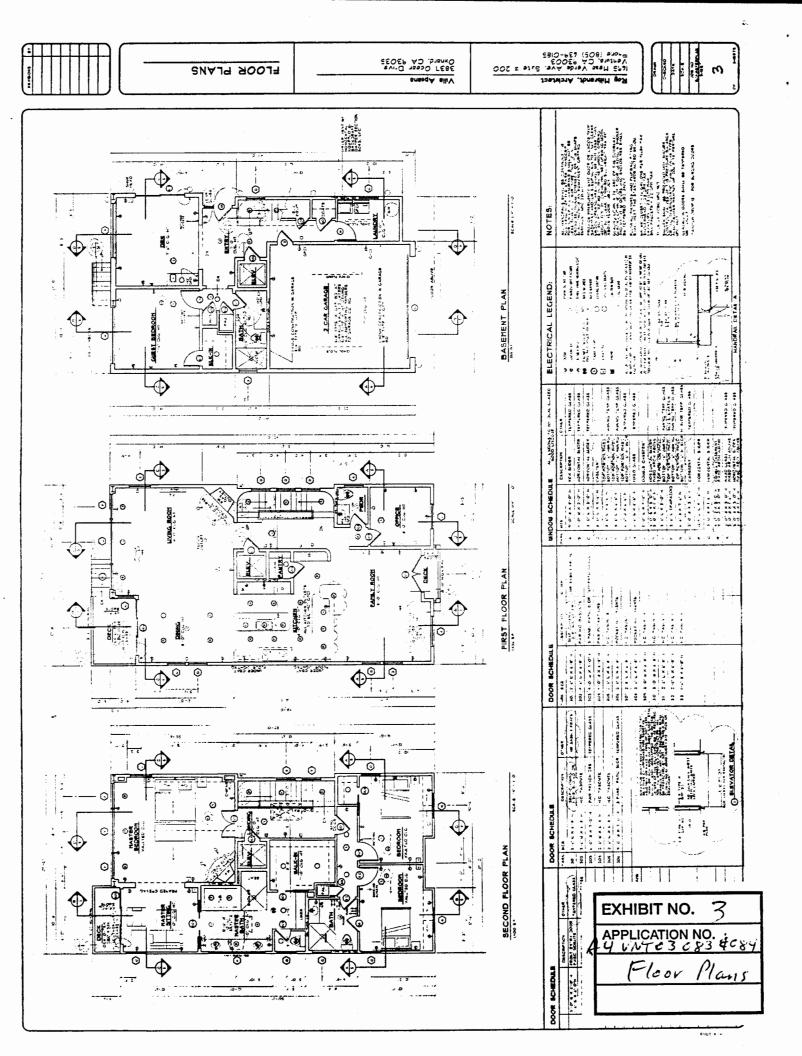
The applicant also submitted a topographic survey (Exhibit 7) of the sites and a Federal Emergency Management Agency Map effective October 31, 1985 for the sites. topographic survey notes that the two lots are located at the 11 and 12-foot elevation above sea level (Nation Geodetic Datum 1929 NGVD). It is important to note that the above Wave Runup and Hazard Study indicates that the mean high water line is located at 1.79 feet above this Nation Geodetic Datum 1929 (NGVD) and that mean sea level is 0.04 feet lower in elevation. The FEMA map indicates that the subject sites are in the "B" zone which is located between the limits of the 100 year and 500 year flood area. Therefore, based on the above Study and a review of the submitted map and site survey, the Commission finds that the proposed concrete retaining wall and side yard retaining walls are not intended to be a shoreline protective device as wave runup to the subject sites is not expected during the life of these structures. According to the applicant's agent, the purpose of the retaining walls and concrete patio is to locate the finished floor elevation of these structures well above the 100 year flood plain. The proposed design and location of these structures will not require a shoreline protective devices in the future to avoid wave uprush and flooding. As a result, the proposed development will minimize risks to life and property on the subject site and adjoining properties consistent with the County LCP.

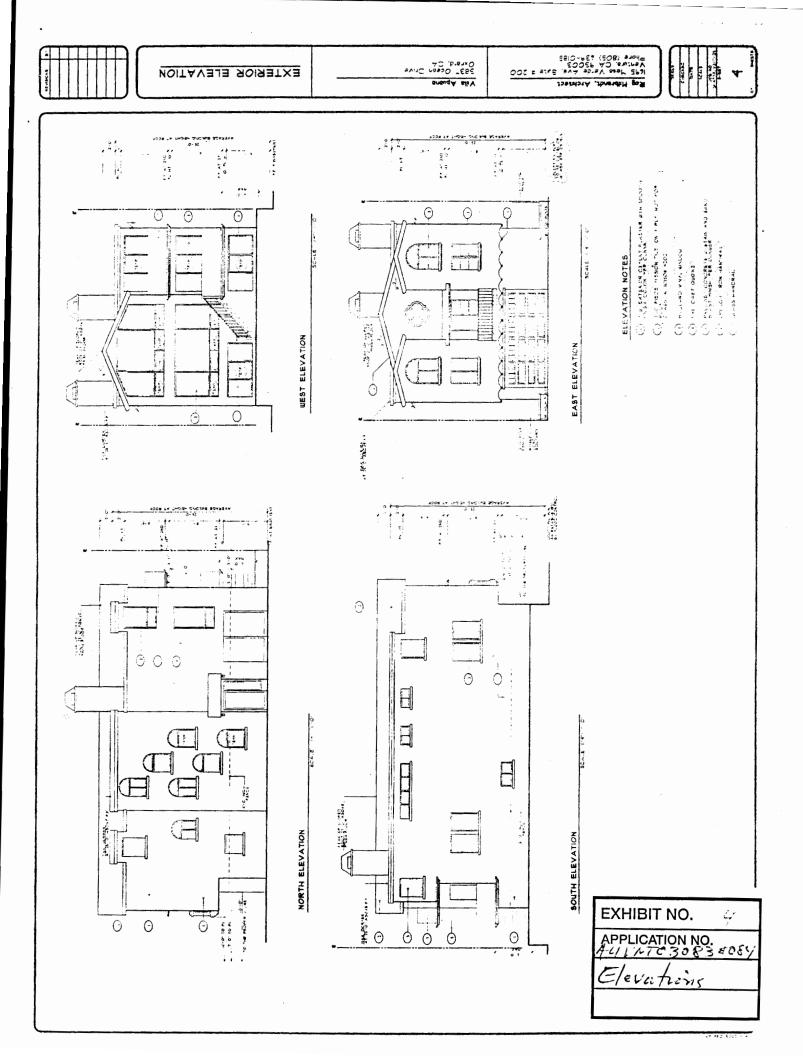
Therefore, the County's action to approve these coastal development permits is consistent with County Local Coastal Program regarding number of stories, maximum height, side yard setbacks, eaves, property lines, drainage, wall and fence height, and location and number of windows. Thus, the Commission finds that the appellants' contentions do not raise a substantial issue with regard to consistency of the approved project with the policies of the certified Local Coastal Program.

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OF CALIFORNIA—THE RESOURCES AGENCY

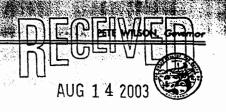
DISTRICT:

H5: 4/88

ALIFORNIA COASTAL COMMISSION OUTH CENTRAL COAST AREA

VENTURA, CA 93001 (805) 641-0142

APPEAL FROM COASTAL PERMIT 89 SOUTH CALIFORNIA ST., 2ND FLOOR DECISION OF LOCAL GOVERNMENT



CALIFORNIA. COASTAL COMMISSION Please Review Attached Appeal Information Sheet Prior To Completing ITH CENTRAL COAST DISTRICT This Form. SECTION I. Appellant(s) Name, mailing address and telephone number of appellant(s): Area Code SECTION II. Decision Being Appealed 1. Name of local/port of CTY BOARD 012 SORWISORS.

2. Brief description of development being appealed: Constitue to a OF SINDLE TANJUY 3. Development's location (street address, assessor's parcel no., cross street, etc.):_ ろんろろ Description of decision being appealed: Approval: no special conditions: Approval with special conditions:_____ Denial:____ С. 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: DATE FILED:

EXHIBIT NO.

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

5. Decision being appealed was made by (check one):
aPlanning Director/Zoning cPlanning Commission Administrator
b. City Council/Board of dOther Supervisors
6. Date of local government's decision: 6/21/63
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: Source Gordon's
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)
(2)
(3)

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.

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

State briefly <u>your reasons for this appeal</u> . 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.)
SER ATTAUTED.
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. <u>Certification</u>
The information and facts stated above are correct to the best of my/our knowledge.
Signature of Appellant(s) or Authorized Agent
Date 8/12/03
NOTE: If signed by agent, appellant(s) must also sign below.
Section VI. Agent Authorization
I/We hereby authorize to act as my/our representative and to bind me/us in all matters concerning this appeal.
Signature of Appellant(s)

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ATTACHMENT TO THE GROUNDS OF APPEAL

- 1. This project is a 3 story home which has been arbitrarily designated a 2 story home with an above ground basement in order to evade safety laws required for 3 story homes. To would, a second staircase.
 - 2. Violation of side set backs with an illegal build up.
 - 3. Eaves too close to property line.
- 4. No protection of property line. Prior survey indicated 3 inch space between my self wall and applicants property line.
- 5. Defective driveway buildup which will improperly divert rain and water on to my property.
- 6. Six foot wall to high where it extends beyond the edge of the house on the beach side to the beach.
- 7. Windows are north side of house, look directly into our bathroom and livingroom.

WAVE RUNUP & HAZARD STUDY 3833 & 3837 OCEAN DRIVE, OXNARD

September 4, 2003

Mr. Bruce Gordon C/O Trigg Schaefer 2200 Roosevelt Blvd. Oxnard, CA 93035

SUBJECT: Wave Hazard and Runup Study, 3833 & 3837 Ocean Drive, Oxnard

Dear Mr. Gordon:

The following letter report is in response to your request for a wave hazard and runup study the properties located at 3833 & 3837 Ocean Drive, Oxnard, CA. The analysis is based upon a site elevations, existing published reports concerning the local coastal processes, and our site inspection and knowledge of local coastal conditions. This report constitutes an investigation of the wave and water level conditions expected at the site in consequence of extreme storm and wave action in the next 75 years. It also provides conclusions and recommendations regarding the susceptibility of the properties and proposed development to wave attack.

INTRODUCTION

The purpose of this wave hazard and runup study is to determine if the proposed development will be subject to wave runup or wave attack over the typical life (75 years) of the development. If the property will be subject to wave runup, the analysis will discuss how frequently it will occur, what the predicted water volume and water height will be on the property, and how, if necessary, to manage the overtopping waters. The analysis will also determine if the property will be subject to direct wave attack over the project life. If the property is subject to wave attack then the analysis will include design parameters for wave forces. The analysis uses design storm conditions typical of the January 18-19, 1988 and winter of 1982-83 type storm waves and beach conditions.

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APPLICATION NO.
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Wave Runup

Study

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WAVE RUNUP & HAZARD STUDY 3833 & 3837 OCEAN DRIVE, OXNARD

The subject sites, 3833 & 3837 Ocean Drive, Oxnard, are adjacent rectangular parcels approximately 35' X 75', see Figure 1. Figure 1 is an aerial photograph down Coastal Records Project web California loaded from the http://www.californiacoastline.org/). The proposed development includes the construction of two new residences. The adjacent lots are fronted by a wide sandy beach (approximately 450 feet wide) and the Pacific Ocean. The subject lots and adjacent shoreline are located within the Santa Barbara Littoral Cell. A littoral cell is a coastal compartment that contains a complete cycle of littoral sedimentation including sources, transport pathways and sediment sinks. The Santa Barbara Littoral Cell extends from Point Conception to Point Mugu, a distance of 96 miles. It is one of the longest littoral cells in Southern California and contains a variety of coastal types and shoreline orientations. An extensive shoreline management study was conducted for the section of the littoral cell from Goleta to Point Mugu by Noble Consultants (BEACON 1989). The coastal processes sections of that report remain valid and have been used as a basis for this analysis.



Figure 1. Subject sites and adjacent shoreline, Fall 2002. Note very wide sand beach.

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The BEACON study divided the Santa Barbara Littoral Cell into sub cells based upon shoreline characteristics and the location of sediment sources and sinks. This section of the Oxnard coast lies within the sub cell from Ventura River to Mugu Lagoon. This area is also referred to by BEACON as Hollywood Beach. This area has historically had wide sand beaches primarily as a result of flood flows from the Santa Clara River. The movement of sand along this section of shoreline is generally from the west to the east. The construction of Channel Islands Harbor in the early 1960s provided abundant sediment for the beaches and the harbor jetties have essentially stabilize the beach. Some of the historical data reviewed in the BEACON study implies that there was a net seaward movement of the mean High Tide Line along this section of coastline.

DATUM & DATA

The datum used in this report is Mean Sea Level (MSL), which is +0.14 feet National Geodetic Vertical Datum (NGVD). The units of measurement in this report are feet (ft), pounds force (lbs), and second (sec). A NOAA Nautical Chart was used to determine offshore slopes. Aerial photographs, taken annually from 1982 thru 2000, were reviewed for shoreline changes. A topographic elevations of the site were provided by Anacapa Surveyors and architectural sections of the proposed development prepared by Roy Milbrandt Architect were provided.

SITE BEACH EROSION & WAVE ATTACK

In order to determine the potential for wave runup to reach the site historical aerial photographs over the last four decades were reviewed at the Landiscor Aerial Fotobank in San Diego, California. None of the photographs examined showed that wave runup reached the site over the four-decade time frame. A review of the aerial photographs shows a very wide beach even though the photos were taken in the winter and spring, when the beach is seasonally the narrowest. In addition to aerial photographs, a long term (30 years) resident who lives in the 3500 block of Ocean Drive stated that the water has never reached the homes over the 30 years he has lived there. The narrowest beach he can recall was in the early 80's (likely the 1982-83 El Nino winter) when the beach was still over 200 feet wide. Based upon review of the historical information and the fact that the beach is stabilized by Channel Islands Harbor inlet jetties, it is highly unlikely that the shoreline will erode back to the site allowing direct wave attack on the proposed residences. However, under severely eroded beach conditions and extreme storms wave runup may, though unlikely, reach the site in the next 75 years. In order to determine the impact of runup reaching the site a runup and overtopping analysis will be performed.

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WAVES AND TIDES

Waves of all periods approach the Hollywood Beach shoreline, however, almost all of the energy is contained in the medium and long period waves (approximately 5 to 20 seconds). These waves approach the Southern California Bight and encounter the offshore islands. The offshore islands such as Santa Cruz, Santa Rosa, Santa Catalina and San Miguel partially shelter this section of coast from ocean swells. Between these islands are the windows that waves can pass through and approach the Hollywood Beach shoreline. Waves can approach the study area through wave windows from the west and north and from a small window to the south. The BEACON study contains a summary of historical storms as far back as 1905. These storms have resulted in significant damage to existing structures such as homes and roadways.

As waves travel into shallower and shallower water the wave crest is bent and becomes nearly parallel to shore, and the wave heights are modified depending on whether waves are being focused or de-focused at a particular location along the shoreline. This process is called refraction and it is dependent upon the bathymetry, and the wave height, period, and direction. Extreme wave conditions in shallow water have been calculated using historical wave data. The California Department of Boating and Waterways in partnership with the US Army Corps of Engineers maintain wave recording buoys throughout Southern California. The record of historical waves for this region, both from direct observation or recording and from hindcast analysis, is very extensive. Waves as high as 20 feet were recorded on January 17, 1998 and 14 to 16 foot high waves with period in excess of 20 seconds were recorded during the 1982-83 El Niño.

The National Oceanographic and Atmospheric National Ocean Survey tidal data station closest to Hollywood Beach is located at Santa Barbara. The tidal datum elevations are as follows:

Highest Water December 30, 1978	4.55 feet
Mean Higher High Water	2.60 feet
Mean High Water	1.83 feet
Nation Geodetic Datum 1929 (NGVD)	0.04 feet
Mean Sea Level (MSL)	0.00 feet
Mean Low Water	-1.32 feet
Mean Lower Low Water	-2.81 feet
Lowest Water December 17, 1933	-5.65 feet

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WAVE RUNUP AND OVERTOPPING

As waves encounter the beach at the subject sites water can rush up, and sometimes over, the beach berm. In addition, beaches can become narrower due to a long term erosion trend. Often, wave runup and overtopping, strongly influence the design and the cost of coastal projects. Wave runup is defined as the vertical height above the still water level to which a wave will rise on a structure (beach slope) of infinite height. Overtopping is the flow rate of water over the top of a finite height structure (the steep beach berm) as a result of wave runup.

Wave runup and overtopping is calculated using the US Army Corps of Engineers Automated Coastal Engineering System, ACES. ACES is an interactive computer based design and analysis system in the field of coastal engineering. The methods to calculate runup and overtopping implemented within this ACES application are discussed in greater detail in Chapter 7 of the Shore Protection Manual (1984). The overtopping estimates calculated herein are corrected for the effect of onshore winds. Figure 2 is a diagram showing the analysis terms.

The empirical expression for the monochromatic-wave overtopping rate is:

$$Q = C_w \sqrt{gQ_0^* H_0^3} \left(\frac{R + F}{R - F} \right)^{\frac{-0.1085}{8}}$$

where

Q = overtopping rate/unit length of structure

C_w = wind correction factor

g = gravitational acceleration

 Q_0^*, α = empirical coefficients (see SPM Figure* = 7-27)

H_o = unrefracted deepwater wave height

R = runup

 $F = h_s - d_s = freeboard$

h_s = height of structure

d_s = water depth at structure

The correction for offshore winds is:

$$C_w = 1 + W_1 \left(\frac{F}{R} + 0.1\right) \sin\theta$$

where

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$$W_f = \frac{U^2}{1800}$$

U = onshore wind speed (mph)

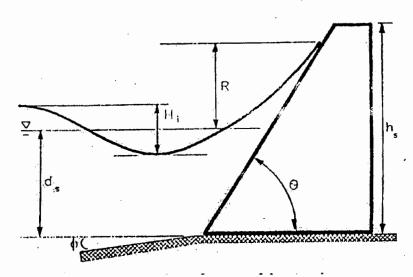


Figure 2. Wave runup terms from ACES manual.

The wave, wind, and water level data used as input to the ACES runup and overtopping application was taken from the historical data reported in BEACON & USACOE (1986), and updated as necessary. The shorelines throughout southern California and fronting this property have experienced many extreme storms over the years. These events have impacted coastal property and beaches depending upon the severity of the storm, the direction of wave approach and the local shoreline orientation. experienced extreme storm wave runup due to focusing of the waves by the canyon. The ACES analysis was performed on an extreme wave condition when the beach is in a severely eroded condition. However, it is important to point out that the subject sites are located behind a very wide stable beach. The El Niño waves during the 1982-83 winter eroded beaches throughout Southern California. But the subject property and adjacent properties were not subject to wave runup attack during that winter. The wave and water level conditions on January 18-19, 1988 have been described by Dr. Richard Seymour of the Scripps Institution of Oceanography as a "400 year recurrence" event. The property still was not subject to wave overtopping attack during this event. The wave runup conditions considered for the analysis use the maximum unbroken wave at the shoreline when the shoreline is in an eroded condition.

The onshore wind speed was chosen to be 40 knots. During storm conditions the

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sea surface rises along the shoreline (super-elevation) and allows waves to break closer to the shoreline and runup on the beach. In addition, a conservative analysis would use a 12 inch rise in sea level over the next 75 years. Super-elevation of the sea surface can be accounted for by: wave set-up (1 to 2.5 feet), wind set-up and inverse barometer (0.5 to 1.5 feet), wave group effects (1 to 2.0 feet) and El Niño & sea rise effects (1.0 to 1.5 Maximum high tide is about +4.5' MSL. These conditions rarely occur simultaneously. The extreme water elevation used in this analysis is +6.0' MSL (100 year recurrence water level). This elevation accounts for at least and 8 inch rise in sea level over the next 75 years. Titus and Narayanan, 1995. The wave that has the greatest runup is the wave that has not yet broken when it reaches the toe of the beach. It is not the largest wave to come into the area. The larger waves break offshore of the beach and lose most of their energy before reaching the shoreline. If the total water depth is 7.0 feet, based upon a maximum scour depth at the toe of the beach slope of -1.0' MSL and a water elevation of +6.0' MSL, then the design wave height will be about 6 feet. The average height of the beach above the berm is about +11.5' MSL. The slope of the beach is about 1/10 (V to H) and the near-shore slope was chosen to be 1/60. Table I is the ACES output for these design conditions.

TABLE I

AUTOMATED COASTAL ENGINEERING SYSTEM ... Version 1.02 9/4/2003 11:47 Project: WAVE HAZARD ANALYSIS 833 & 3837 OCEAN DRIVE OXNARD

WAVE RUNUP AND	OVERTOPPI	ING ON IMPE	RMEABLE STRUCTURES	
Item		Unit	Value	
Wave Height at Toe	Hi:	£t	6.000	Smooth Slope
Wave Period	$\mathtt{T}:$	sec	20.000	Runup and
COTAN of Nearshore Slope			60.000	Overtopping
Water Depth at Toe	ds:	ft	7.000	
COTAN of Structure Slope			10.000	
Structure Height Above To	e hs:	ft	12.500	
Deepwater Wave Height	но:	ft	3.231	
	(ds/H0):		2.167	
	0/gT^2):		0.251E-03	
Wave Runup	R:	ft	11.107	
Onshore Wind Velocity	U :	ft/sec	67.512	
Overtopping Coefficient	Alpha:		0.700E-01	
Overtopping Coefficient	Qstar0:		0.700E-01	
Overtopping Rate	Q:	ft^3/s-ft	1.732	

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WAVE RUNUP & HAZARD STUDY 3833 & 3837 OCEAN DRIVE, OXNARD

The calculated overtopping rate for the eroded beach conditions a relatively small 1.7 ft³/s-ft. The overtopping waters most likely will not reach the seaward side of subject sites even under the extreme design conditions over the next 75 years. The water depth of this amount of overtopping is less than a few inches. If wave runup reaches the site, which is very unlikely, the water depth and velocity are not sufficient to flood the site. In addition, the site drainage is sufficient to convey wave runup waters back to Ocean Blvd. The road behind the site is at about +11.0' MSL with sufficient fall away from the site in either direction to convey ocean runup waters. Finally, the finished first floor elevation of the proposed improvement is about 12.5 'MSL. This is above any potential wave induced flooding water depth.

CONCLUSIONS AND RECOMMENDATIONS

Prediction of runup and overtopping on a beach during extreme storm events is a very complex problem. The flow rate presented here represent what is defined as flow which is sustained by continuous volume flow, even though it will actually occur with the cycle of the waves. Therefore this analysis can be considered conservative and over estimates the actual wave runup and overtopping. The calculations made herein use industry standard methods, yet they are based on several simplifying assumptions (see Chapter 7 of SPM). There are several facts that indicate that wave runup and overtopping should not adversely impact the property over the life of the structure.

- There is a wide (> 400 feet) sandy beach in front of the properties 99.99% of the time.
- A review of aerial photographs over the last two decades shows no overall shoreline retreat in general and a wide sand beach in front of the properties even at times when the beach is seasonally at its narrowest.
- The properties have not been subject to any wave runup and overtopping attack in the past.
- The presence of the Channel Islands Harbor jetties provides significant structural stability to the beach at the subject sites.
- The Santa Clara River provides the sand to this beach and it is very unlikely that the sediment load from this river will be altered by man in the next 75 years.
- The mean high tide line is over 300 feet from the sites and it is unlikely that over the life of the structures that the mean high tide line will reach the property.

In conclusion, wave runup and overtopping will not significantly impact these

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properties over the life of the proposed improvements. The proposed development will neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or adjacent area. There are no recommendations necessary for wave runup protection or shore protection over the life of the proposed development. The proposed project minimizes risks from flooding.

LIMITATIONS

Coastal engineering is characterized by uncertainty. Professional judgements presented herein are based partly on our evaluation of the technical information gathered, partly on our understanding of the proposed construction, and partly on our general experience. Our engineering work and judgements have been prepared in accordance with current accepted standards of engineering practice; we do not guarantee the performance of the project in any respect. This warranty is in lieu of all other warranties expressed or implied.

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Respectfully Submitted,

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