

FINAL

ENVIRONMENTAL IMPACT REPORT

**ABALONE COVE LANDSLIDE
STABILIZATION PROJECT**

County of Los Angeles
Department of Public Works

prepared by



envirosphere company

A Division of EBASCO SERVICES INCORPORATED

3000 West MacArthur Boulevard
Santa Ana, California 92704

August 1989

FINAL ENVIRONMENTAL IMPACT REPORT

FOR

ABALONE COVE LANDSLIDE STABILIZATION PROJECT

Prepared for:

Lead Agency: County of Los Angeles
Department of Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331
(818) 458-4315
Contact: Clarice Nash

In Cooperation with the City of Rancho Palos Verdes
(213) 541-6500
Contact: Jon Taylor

Prepared by:

Envirosphere Company
3000 W. MacArthur Boulevard
Santa Ana, California 92704
(714) 662-4047
Contact: Hal Schneider

August 1989

SCH #88092820

This document combined with the Draft EIR for the Abalone Cove Landslide Stabilization Project (dated February 1989) constitutes the Final EIR.

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1.0 SUMMARY

1.0 SUMMARY

Project Location

The project area is located in the central portion of the Palos Verdes Peninsula, in the City of Rancho Palos Verdes, Los Angeles County, California.

The project area includes the Abalone Cove Landslide Abatement District (County Improvement No. 2651-M) and is generally bounded by Altamira Canyon on the east and Sea Cove Drive extended north to Crest Road on the west. The northern boundary roughly follows the ridge line below Crest Road and the southern boundary is Abalone Cove Beach.

Environmental Setting

The project area consists of a low-density single-family residential community, open space areas and the coastal zone associated with Abalone Cove Beach. The area is rich in marine and biological resources, and provides scenic views and vistas of the Peninsula and the ocean.

The existence of the active landslide in the project area and vicinity has altered the landscape dramatically, creating fissures, scarps and other landform alterations. The unstable land has restricted improvements to public facilities, and has created unsafe conditions for area residents and the general public.

Project Objectives

The proposed project includes methods to control the water level in the slide and to control movement at the toe of the slide in order to stabilize the ground in the Abalone Cove area.

Stabilization of the Abalone Cove landslide will halt damage to homes and property, improve public safety, and promote the implementation of the land use arrangements in the City's General Plan and Redevelopment Plan.

Project Description

Water Control Methods

In order to lower the water table and control water entering the slide, five water control methods are proposed:

- o Maintain existing dewatering system, including wells, pumps, and power supply.
- o Expand existing dewatering system with additional wells, monitoring wells, and slope indicators.
- o Construct domestic sewers to connect to County Sanitation Districts' System.
- o Install individual lot storm drainage systems, including roof drains, downspouts, and lot drains.
- o Improve Altamira Canyon storm drainage between Crest Road and the coast by filling and sealing depressions and fissures, and directing street runoff.

Stability Berm

In addition to controlling water levels on the slide, a stability berm is proposed, only if necessary, to prevent future movement of the toe of the slide. Excavated earth from higher parts of the active slide area will be used as fill for the construction of the toe berm at the beach area.

Alternatives

The following alternatives are considered.

- o No Project Alternative - This alternative will result in continued safety hazards, damage to homes and property, and obstacles to implementing the City's General Plan and Redevelopment Plan.
- o Alternatives to the Toe Berm - A shear key/buttress at the bluff area is identified as a possible alternate to the toe berm. This alternative would consist of more extensive earthwork than the toe berm, with possible risk of back cut failure causing destabilization of the slide mass. Other alternatives considered include pinning the slide and stabilizing the slide by chemical treatment.
- o Alternative Toe Berm Configurations - Conceptual alternative configurations of the berm are presented which could offer secondary recreational benefits after further study.

Summary

Before a project of this type can be initiated, the California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) be prepared and circulated as an informational document to inform agency decision-making bodies of the significant environmental effects of a project, provide public agencies and the general public with an opportunity to furnish input on environmental issues, identify possible means to minimize the significant effects and present reasonable alternatives to the project. In conformance with CEQA, this final EIR has been prepared to review and assess the impacts associated with the Abalone Cove Landslide Stabilization Project.

On October 3, 1988, a Notice of Preparation (NOP) and an Initial Study (IS) were circulated to interested public and governmental agencies indicating that the County of Los Angeles Department of Public Works, as Lead Agency, in cooperation with the City of Rancho Palos Verdes, would prepare an

EIR for the Abalone Cove Landslide Stabilization Project. A Draft EIR was prepared and was circulated to interested public and governmental agencies for review and comment during the period February 15, 1989 to March 31, 1989. During the review period, a public hearing was held on March 22, 1989 at the Ladera Linda School in Rancho Palos Verdes. Comments received from both agencies and interested public appear in Section 3.0 of this final EIR and responses to those comments are presented in Section 4.0.

The following table presents a tabular summary of the significant environmental impacts and applicable mitigation measures relevant to this project.

TABLE 1.0-1

SUMMARY OF SIGNIFICANT PROJECT IMPACTS AND MITIGATION

Environmental Factor	Description of Impact	Proposed Mitigation	Impact Still Significant
<p>Geology/Hydrology (Section 3.1)</p>	<p><u>Adverse:</u></p> <ul style="list-style-type: none"> o Increased erosion potential during storm drain construction. o Adjustment/Settlement impacts to sewer system. <p><u>Beneficial:</u></p> <ul style="list-style-type: none"> o Reduced infiltration from domestic sewers and storm run-off. 	<ul style="list-style-type: none"> o Grading and erosion control plan. o Sewer design in consideration of adjustment/settlement of mass. 	<p>No No</p>
<p>o Toe Berm</p>	<p><u>Adverse:</u></p> <ul style="list-style-type: none"> o Landform alteration. o Potential groundwater buildup behind berm. <p><u>Beneficial:</u></p> <ul style="list-style-type: none"> o Improved landslide stability. 	<ul style="list-style-type: none"> o Design grading to resemble natural landforms o Subdrainage control system behind berm. 	<p>No No</p>
<p>Terrestrial Biology/ Vegetation (Section 3.2)</p>	<p><u>Adverse:</u></p> <ul style="list-style-type: none"> o Short-term loss of less than 1 acre and long-term permanent loss of 3.8 acres of coastal sage scrub from storm drain channel. 	<ul style="list-style-type: none"> o Installation of pipe covered with soils and revegetated. 	<p>No</p>
<p>o Toe Berm</p>	<p><u>Adverse:</u></p> <ul style="list-style-type: none"> o Long-term permanent loss of 23.5 acres of coastal sage scrub in graded area. 	<ul style="list-style-type: none"> o On-site: convert all or part of bluff area to natural preserve. o Off-site purchase or easement of lands in project area vicinity; coordinate with City of RPV for set-asides. 	<p>No</p>
<p>Terrestrial Biology/ Wildlife</p>	<p><u>Adverse:</u></p> <ul style="list-style-type: none"> o Short-term impacts to resident and transient species in storm drainage channel area. Long-term permanent loss of habitat and nesting sites in Altamira Canyon. 	<ul style="list-style-type: none"> o Reduce level of impact through vegetation plan with native habitat vegetation. 	<p>No</p>

TABLE 1.0-1
SUMMARY OF SIGNIFICANT PROJECT IMPACTS AND MITIGATION
(Continued)

Environmental Factor	Description of Impact	Proposed Mitigation	Impact Still Significant
Terrestrial Biology/ Wildlife (Continued)			
o Toe Berm	<u>Adverse:</u> o Long-term permanent loss of 19.4 acres of coastal sage scrub habitat of black-tailed gnatcatcher.	o On-site designation of natural preserve, revegetated with coastal sage scrub and native grasses; establish colonies of habitat for Palos Verdes Blue Butterfly. o Off-site: Acquire land suitable for habitat for black-tailed gnatcatcher.	No
Marine Biology (Section 3.3)			
o Water Control	<u>Adverse:</u> o Potential for increased surface water run-off to ocean from storm drainage channel.	o Adherence to RMQCB discharge requirements.	No
o Toe Berm	<u>Adverse:</u> o Destruction of habitats and nonmotile organisms. <u>Beneficial:</u> o Enhancement of species diversity and productivity associated with stable berm structure.	o Design berm to increase habitat value; substrate design and terraced intertidal surfaces with pools; addition of peripheral rock substrate offshore from berm. Coordinate design, mitigation and monitoring with Department of Fish and Game.	No
Cultural Resources/ Archaeology (Section 3.5)			
o Water Control	<u>Adverse:</u> o Subsurface modifications for de-watering wells, sewers and storm drainage facilities may disturb cultural resources.	o Survey and evaluate area north of PVDS for cultural resources prior to storm drain construction.	No
o Toe Berm	<u>Adverse:</u> o Excavation and dumping of fill for berm construction may impact cultural resources in bluff and beach areas. o Creation of park facilities in berm area may subject sites to direct and indirect impacts. o New access roads to park and beach facilities may disturb resources.	o Borrow areas to be surveyed prior to collection. o Conduct surface boundary delineation bluff area, including mapping distributions and densities. o Utilize existing roads or construct new roads to avoid known or sensitive sites.	No No No

TABLE 1.0-1

SUMMARY OF SIGNIFICANT PROJECT IMPACTS AND MITIGATION
(Continued)

Environmental Factor	Description of Impact	Proposed Mitigation	Impact Still Significant
<u>Paleontology</u>			
o Water Control	<p><u>Adverse:</u></p> <ul style="list-style-type: none"> o Expansion of de-watering system, installation of sewers and storm drainage systems may disturb or permanently bury potentially fossiliferous rocks. o Rock may be exposed and subjected to unauthorized collection, creating subsequent loss of specimens and data. 	<ul style="list-style-type: none"> o Monitoring/data recovery program prior to and during construction and ground-disturbing activities. 	No
o Toe Berm	<p><u>Adverse:</u></p> <ul style="list-style-type: none"> o Disturbance and permanent loss of paleontological resources as a result of excavation and dumping of fill. 	<ul style="list-style-type: none"> o Collect samples for processing; limit duration of construction activities. o A paleontologic monitor to be present during ground-disturbing activities. 	No
<u>Recreation/Public Safety</u> (Section 3.9)			
o Water Control	o None	o None	-
o Toe Berm	<p><u>Adverse:</u></p> <ul style="list-style-type: none"> o Short-term impacts to access and recreation opportunities from grading, excavation, and construction of toe berm in bluff and beach area. <p><u>Beneficial:</u></p> <ul style="list-style-type: none"> o Additional recreation facilities provided and at bluff and beach areas. Improved access to beach facilities. Improved public safety in Abalone Cove Beach area. 	<ul style="list-style-type: none"> o Provide safe, temporary access facilities to beach area during construction. 	No
<u>Aesthetics</u>			
o Water Control	o None	o None	-
o Toe Berm	<p><u>Adverse:</u></p> <ul style="list-style-type: none"> o Grading south of PVDS will alter vistas from beach, offshore positions and PVDS. 	<ul style="list-style-type: none"> o Area above and behind berm should be revegetated with native plants. Landscape berm area with native and ornamental vegetation. 	Yes

2.0 CHANGES TO THE DRAFT EIR

2.0 CHANGES TO THE DRAFT EIR

The following revisions apply to the Draft Environmental Impact Report for the Abalone Cove Landslide Stabilization Project (State Clearinghouse No. SCH 88092820). The Draft EIR was circulated for public review from February 15, 1989 through March 31, 1989.

<u>DEIR</u> <u>Page No.</u>	<u>Para.</u>	<u>Line</u>	<u>Revision</u>
1-2	3	-	Add the following to the paragraph discussing the stability berm: The proposed project is within the Department Fish and Game's Abalone Cove Ecological Reserve. If the toe berm alternative is determined to be required, the Department's review and approval of design plans, implementation and mitigation opportunities is essential and approval is required from the Fish and Game Commission.
2-3	-	Map	Change "Redevelopment Area Boundary" to "Project Area Boundary".
2-7	3	-	Add the following to the comment section for California Department of Fish and Game: The proposed project is within the Department's Abalone Cove Ecological Reserve. If the toe berm alternative is determined to be required, the Department's review and approval of design plans, implementation and mitigation opportunities is essential and approval is required from the Fish and Game Commission.
3-55	2	3	Change "City of Rancho Palos Verdes" to "Rancho Palos Verdes Redevelopment Agency".

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Revise the first paragraph of Section 3.11.1 "Sanitary Sewage" to read as follows:

Sewage collection in the project area is provided by the Los Angeles County Sanitation District No. 5 and South Bay Sanitation District. The system is a dual, parallel, pressure main system. Each pressure main is 14" diameter steel pipe with special couplings to enable the pipe to move as the ground shifts. Each pressure main pipe is capable of providing the needed sewerage capacity in the event that slide movement causes damage to the other. They are located above the ground along the oceanside of Palos Verdes Drive South (PVDS), except for road or driveway crossings where they are buried within corrugated metal culverts. Access to these pressure mains is necessary from PVDS for maintenance purposes.

Sewage enters the system through the Abalone Cove Pumping Plant, which is located west of the project area, along the northside of PVDS. Only one private sewer connection exists in the project area. That connection is a pumped discharge from the Wayfarers Chapel. It is connected to each pressure main near the western edge of the landslide boundary. Proposed sewer connections will have to be made to both pressure mains. Connections will have to be pumped, or designed to provide sufficient protection against backflow from the pressure mains.

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Change the first sentence Sanitary Sewage under Section 3.11.2 to read as follows:

DEIR
Page No.

Para.

Line

Revision

The proposed stabilization methods include connecting existing septic systems to the Sanitation District pressure mains.

3.0 COMMENT LETTERS

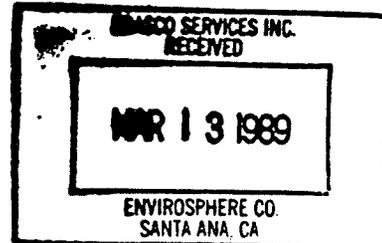


DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS

March 7, 1989

REPLY TO
ATTENTION OF

Office of the Chief
Regulatory Branch



Department of Public Works
County of Los Angeles
c/o Envirosphere Company
Attention: Mr. H.S. Schneider
3000 West MacArthur Boulevard
Santa Ana, California 92704
Gentlemen:

Thank you for your letter of February 17, 1989 informing us that you plan to construct a toe berm to ameliorate the landslide potential in the Abolone Cove Beach area on the Palos Verdes peninsula. This activity will require a U.S. Army Corps of Engineers permit. A Corps of Engineers permit is required for:

a. Work or structures in or affecting the "navigable waters of the United States", including adjacent wetlands; construction of a pier, wharf, bulkhead or jetty, dredging, dredge disposal, filling and excavation are examples of work or structures affecting navigable waters;

b. The discharge of dredged or fill material into the "waters of the United States", including adjacent wetlands; placing bank protection, temporary or permanent stock-piling of excavated material, grading roads, any grading (including vegetative clearing operations) involving filling low areas or leveling the land, and construction of weirs, diversions, approach fills or other structures involving the placement of fill material are examples of activities involving the discharge of dredged or fill material.

c. The transportation of dredged or fill material for the purpose of dumping it into ocean waters;

d. Any combination of the above.

Enclosed you will find a permit application form and a pamphlet that describes our regulatory program. If you have any questions regarding this matter, please contact Liz Varnhagen, Regulatory Branch, at (213) 894-5606 before 3:00 p.m. Refer to this letter in your reply.

Sincerely,

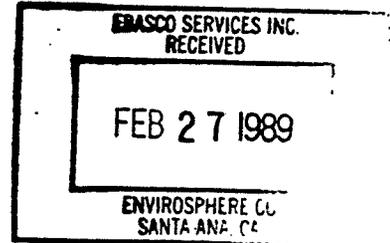
David J. Castanon
Chief, North Coast Section

Enclosure

Southern California Edison Company

P O. BOX 2944
505 MAPLE AVENUE
TORRANCE, CALIFORNIA 90509

January 23, 1989



Envirosphere Co.
3000 West MacArthur Boulevard
Santa Ana, CA 92704

Attn: H. S. Schneider

SUBJECT: Abalone Cove Landslide Stabilization Project
Environmental Impact Report

Gentlemen:

This is to advise that the subject property is located within the service territory of the Southern California Edison Company and that the electric loads of the project are within parameters of projected load growth which Edison is planning to meet in this area.

Unless the demand for electrical generating capacity exceeds our estimates, and provided that there are no unexpected outages to major sources of electrical supply, we expect to meet our electrical requirements for the next several years.

EDISON HAS DEVELOPED SEVERAL PROGRAMS WHICH MAY PROVE EXTREMELY HELPFUL TO CUSTOMERS IN INCREASING THE EFFICIENCY OF THEIR OPERATIONS AND HOLDING DOWN ENERGY COSTS. INCLUDED AMONG THESE ARE A NEW CONSTRUCTION PROGRAM AND OFF-PEAK COOLING. FOR MORE INFORMATION, CALL THE LOCAL ENERGY SERVICES DEPARTMENT AT (213) 491-2255.

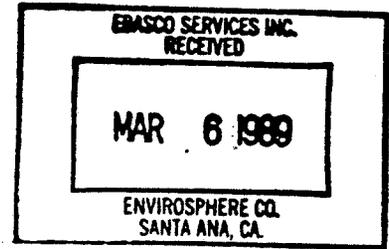
Sincerely,

PAUL HEXT
Customer Service Planner
(213) 618-3731

PH:ls

February 28, 1989

H. S. Schneider
Envirosphere Company
3000 W Mac Arthur Blvd.
Santa Ana, CA 92704



Re: Draft EIR for Abalone Cove Landslide Stabilization

Dear Mr. Schneider,

Thank you for sending us the draft EIR for review. We have reviewed Appendix G, Archaeological Report, and find it thorough and satisfactory. We concur with the recommendations made therein.

3-1

Sincerely,

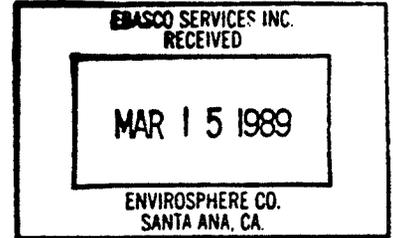
Bruce Love
Director

SOUTHERN CALIFORNIA  gas COMPANY

100 EAST NUTWOOD STREET • INGLEWOOD, CALIFORNIA

MAILING ADDRESS: BOX 6100, INGLEWOOD, CALIFORNIA 90312

March 13, 1989



Mr. H.S. Schneider
Envirosphere Company
3000 West MacArthur Blvd.
Santa Ana, CA 92704

Reference: Abalone Cove Project

The proposed Land Slide Stabilization Project and the Environmental Impact Report have been reviewed. We have no comments regarding the project, however, Southern California Gas maintains above ground distribution facilities within the project area.

If facilities need relocation for construction activity, please notify me within 90 days prior to start of such activity.

4-1

Sincerely,

Gary J. Edsall
Technical Supervisor
Southcoastal Division

(213) 330-2104

GE/vg

cc: J.M. Rivera
J.M. Sharp

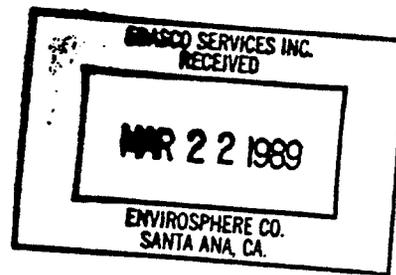
NATIVE AMERICAN HERITAGE COMMISSION

915 Capitol Mall, Room 288
Sacramento, California 95814

(916) 322-7791

February 27, 1989

Ms. Terri A. McBath
Department of Public Works
County of Los Angeles
900 South Fremont Street
Alhambra, California 91803-1331



re: SCH #88092820-ABALONE COVE LANDSLIDE STABILIZATION PROJECT

Dear Ms. McBath:

A record search of the sacred lands file at this office failed to indicate the presence of special Native American cultural resources in the immediate project area. The sacred lands file is comprised of culturally sensitive information which has been supplied to the Native American Heritage Commission by individuals, Indian tribal groups or organizations, traditionalists and elders. The file is separate and apart from other collections, repositories and listings of cultural resource site information. The absence of cultural resource information in the sacred lands file does not indicate the absence of cultural resources in any given area.

In reviewing the Draft document, APPENDIX G, CULTURAL RESOURCES REPORT, must, by its absence, contain information pertaining to known and recorded archaeological sites on, or near the proposed stabilization project. A known and recorded site does not present the major problem in situations such as this. A known site can be avoided, mitigation measures can be developed to lessen any impact to most sites. The concern of the Native American Heritage Commission is in those places where the pre-historic sites underlie areas which have been previously developed and thought to be free of cultural resources.

The likelihood of discovering previously undetected cultural resources is a possibility which should be addressed in any environmental document from that region. I do not know if this was addressed in APPENDIX G, CULTURAL RESOURCES REPORT?

The California Environmental Quality Act, Appendix K, deals with the discovery of archaeological sites and the procedures to follow. It also con-

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32 3/14/89

tains the instructions to follow when human remains are found during any phase of development.

The Native American Heritage Commission has prepared a pamphlet for use by lead agencies, planners, developers and property owners. It provides an easy-to-read breakdown of the California Codes pertaining to Native American human remains and their disposition. I have included a copy of this brochure for your use.

If you have any questions or if you need additional information, please contact this office.

Sincerely,



William Anthony Johnson
Staff Analyst.

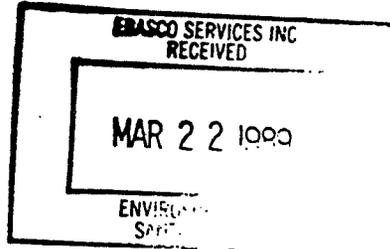
Enclosure |

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
LOS ANGELES REGION

07 SOUTH BROADWAY, SUITE 4027
LOS ANGELES, CALIFORNIA 90012-4596
(213) 620-4460



810.25.1



File : 700.368

March 14, 1989

Terri A. McBath
Civil Engineer II
County of Los Angeles
Department of Public Works
900 South Freemont Avenue
Alhambra, CA 91803-1331

DRAFT EIR FOR ABALONE COVE LANDSLIDE STABILIZATION PROJECT, SCH# 88092820: CITY OF RANCHO PALOS VERDES

We have reviewed the subject document regarding the proposed project, and have the following comments:

Based on the information provided, we recommend the following:

- We have no further comments at this time.
- The proposed project should address the attached comments.
- Negative Declaration. See attached comments.
- Mitigated Negative Declaration. See attached comments.
- EIR. See attached information on scope and content.

} 6-1

Thank you for this opportunity to review your document. If you have any questions, please contact Arthur Heath at (213) 620-3394.

ANNE SAFFELL
Environmental Specialist IV

cc: Mr. Garrett Ashley, State Clearinghouse

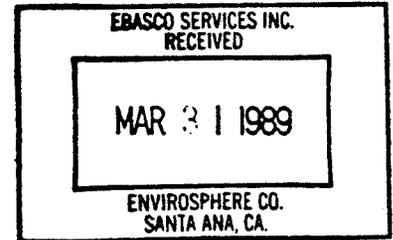
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COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063
(213) 267-2481



P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN
March 22, 1989

Mr. H. S. Schneider
Envirosphere Company
3000 West MacArthur Boulevard
Santa Ana, CA 92704

Dear Mr. Schneider:

SUBJECT: ENVIRONMENTAL IMPACT REPORT - ABALONE COVE
LANDSLIDE STABILIZATION PROJECT

The subject property which is located in the Abalone Cove area appears to have no additional impact on this Department. Therefore, at this time we have no further comments.

7-1

Very truly yours,

P. MICHAEL FREEMAN

BY
JOSEPH FERRARA
HEAD DEPUTY FORESTER
FORESTRY DIVISION

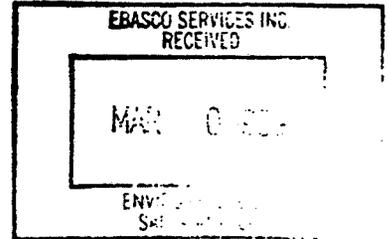
JF:lc

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

- | | | | | | | |
|--------------|-----------|----------------------|-----------|----------------------|-----------------------|------------------|
| AGOURA HILLS | BRADBURY | GLENDORA | LAKEWOOD | NORWALK | ROLLING HILLS ESTATES | TEMPLE CITY |
| ARTESIA | CARSON | HAWAIIAN GARDENS | LA MIRADA | PALMDALE | ROSEMEAD | WALNUT |
| ZUSA | CERRITOS | HIDDEN HILLS | LANCASTER | PALOS VERDES ESTATES | SAN DIMAS | WEST HOLLYWOOD |
| BALDWIN PARK | CLAREMONT | HUNTINGTON PARK | LA PUENTE | PARAMOUNT | SANTA CLARITA | WESTLAKE VILLAGE |
| BELL | COMMERCE | INDUSTRY | LAWDALE | PICO RIVERA | SIGNAL HILL | WHITTIER |
| BELLFLOWER | CUDAHY | IRWINDALE | LOMITA | RANCHO PALOS VERDES | SOUTH EL MONTE | |
| BELL GARDENS | DUARTE | LA CANADA FLINTRIDGE | MAYWOOD | ROLLING HILLS | SOUTH GATE | |

Bill Griffin
5 Ginger Root Lane
Rancho Palos Verdes, CA 90274

March 27, 1989



Mr. H. Schneider
Envirosphere Company
3000 West MacArthur Blvd.
Santa Ana, CA 92704

Re DEIR for proposed Abalone Cove Landslide Stabilization
Project

Dear Mr. Schneider:

The DEIR appears adequate except for restoring the natural appearance of the land consistent with construction work and within reasonable costs.

Engineers think in terms of earthwork, concrete and steel all placed in proper order. Straight lines, smooth curves, dressed slopes, straightened out meandering water courses, level surfaces, plantings on a grid, all with the final job site looking manicured, and this is not what the property owners want.

We desire a minimum of upset during construction and for the constructed work to be as unobtrusive as possible.

Request the DEIR be amended to address the following routine construction items with a natural appearance clause.

1. Chain link fences (not construction fences) shall be green vinyl coated.
2. All cut and fill earthwork shall be shaped consistent with the work requirements to appear as natural ground surfaces. The toe berm can be constructed to appear hummocky and undulating. This can mostly be accomplished by removing any contract requirement for final shaping and grading.
3. Channel improvements in Altamira Canyon shall follow the present meandering course in 20 to 50 foot increments. Steel drain pipe shall be earth covered or painted/coated with a neutral color.
4. Gabions, wire/fabric and rock walls shall be considered for slope protection where required in lieu of concrete or gunite.
5. Seawall protection shall be geomembrane/geofabric and rock.

All of the above subject to reasonable cost analysis. Additional items to be added by engineers familiar with the specific work.

W R Griffin
William R. Griffin P.E.
(213) 377-5434



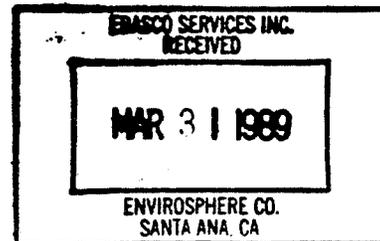
COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-4998
Mailing Address: P. O. Box 4998, Whittier, CA 90607-4998
Telephone: (213) 699-7411, (213) 685-5217

CHARLES W. CARRY
Chief Engineer and General Manager

March 28, 1989

File No: 5-00.04-00



Mr. H. S. Schneider
EnviroSphere Company
3000 West MacArthur Blvd.
Santa Ana, CA 92704

Dear Mr. Schneider:

Abalone Cove Landslide Stabilization Project

The Districts have reviewed the Draft EIR for the subject project and offer the following comments:

- 1) The Districts' sewer facility in the project area is called the Joint Outfall "J", Unit 1F. This facility consists of double barrel force mains. For historical differentiation of the two mains, portions of them are referred to as the Abalone Cove Force Main No. 1, Abalone Cove Force Main No. 2, Palos Verdes Slide Area Force Main No. 1 or Palos Verdes Slide Area Force Main No. 2.
- 2) Although the local collector lines may utilize a gravity flow system, the Districts facility is a dual, parallel, pressure system.
- 3) The Districts suggest the following revisions for the first paragraph of Section 3.11.1 "Sanitary Sewerage":

Sewage collection in the project area is provided by the Los Angeles County Sanitation District No. 5 and South Bay Sanitation District. The system is a dual, parallel, pressure main system. Each pressure main is 14" diameter steel pipe with special couplings to enable the pipe to move as the ground shifts. Each pressure main pipe is capable of providing the needed sewerage capacity in the event that slide movement causes damage to the other. They are located above the ground along the oceanside of Palos Verdes Drive South (PVDS), except for road or driveway crossings where they are buried within corrugated metal culverts. Access to these pressure mains is necessary from PVDS for maintenance purposes.

Sewage enters the system through the Abalone Cove Pumping Plant, which is located west of the project area, along the northside of PVDS. Only one private sewer connection exists in the project area. That connection is a pumped discharge from the Wayfarers Chapel. It is connected to each pressure main near the western edge of the landslide boundary. Proposed sewer connections will have to be made to both pressure mains. Connections will have to be pumped, or designed to provide sufficient protection against backflow from the pressure mains.

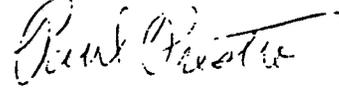
- 4) The first sentence of Section 3.11.2 should read "The proposed stabilization methods include connecting existing septic systems to the Sanitation District pressure mains."

- 5) All sewer plans for the subject project area must be submitted for the Districts' review and approval.
 - 6) The Districts will only accept sewage from the project area and not any drainage or sump waters.
- If you have any further questions, please contact the undersigned at (213) 699-7411, extension 2703.

] 9-2
] 9-3

Very truly yours,

Charles W. Carry



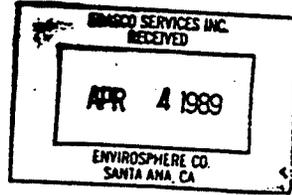
Paul A. Prestia
Project Engineer
Financial Planning &
Property Management Section

PAP:jm

cc: Dean Fuller
John Redner

March 30, 1989

Mr. Hal Schneider
Envirosphere
300 W. MacArthur Blvd.
Santa Ana, CA 92704



Re: Draft Environmental Impact Report for the
Abalone Cove Landslide.

Dear Sir,

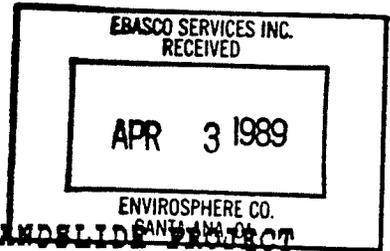
The brief reference to influences that would be exerted on the slide area by development in areas immediately outside its perimeter should be expanded to emphasis, specifically, the effect the increased up-slope and side ground and run-off water would have. If the land stabilizes to 1.5⁰ the City of Rancho Palos Verdes could decide to strike or lift the existing moratorium and consequently leave the land outside the project area open to development. A more detailed reference would act as a "water dog" giving us a broader basis for concern about the EIR's necessity for this development.

In defense of the draft EIR, I believe it addresses the effect of work/construction on marine life, animals/birds and plants adequately. Most of this area was farmed, large parts of it (have been burned) more than once. The kelp had been decimated by sea urchins and replanted twenty-five years ago. It has regrown! We will too!

Ursiel Scott Titzler
3 Ginger Root Lane
Rancho Palos Verdes, CA 90274
(213) 377-2854

10-1

10-2



QUESTIONS AND COMMENTS: DRAFT EIR ABALONE COVE LANDSLIDE PROJECT
PAGE 1 OF 3

Several references were made that Altamira Canyon would be lined. However, Dr. Blosson explained that a drain pipe could be placed in the canyon and then covered over with dirt so the area could be used. This is in direct violation of the city's General Plan. If the canyons are to be piped and covered with dirt, the EIR must evaluate the further devastation to the environment and the loss of habitat for the wildlife. The canyons must be preserved as much as possible. Any pipes should be placed below the current streambed so the dirt cover doesn't fill the canyons.

11-1

The EIR states that there are no known earthquake faults in the area. Within the last few months, newly discovered faults have been mapped. Why aren't these faults discussed and evaluated.

11-2

1.0 Project Area: Bounded by Altamira Canyon on the east-- Is this the main canyon or one of its branches? Is Kelvin Canyon, a branch of Altamira, in the project area? No adequate map is available which shows that canyons to be paved or piped. The EIR should be clear on what "branches" of Altamira Canyon will be affected.

11-3

Where are the new dewatering wells going to be installed? Please discuss the impact to the immediate area were the installations will be made. Will the wells be capable of depleting the Kelvin Canyon Spring? If so, what is the impact and mitigation?

11-4

Pg 1-2 What are secondary recreational benefits?

11-5

Table 1.01 Water Control: Doesn't mention loss of year round water supply from Kelvin Canyon Spring.

11-6

2.2 Project Objectives: States that Abalone Cove Landslide was reactivated recently. When did this happen as Dr. Ehlig stated over two years ago that the slide was stopped. What is the urgency when we survived heavy, record breaking rain before the formation of ACLAD?

11-7

2.2 Discusses improvement in the safety factor. What factor is the 80 acre unstable slide area at now? What factor is it expected to be at after each stage of the improvements? What factor is the upper section, above Narcissa where the land formation doesn't tilt toward the ocean, at now? What factor is it expected to be at after each stage of the improvements?

11-8

Site Map 2.2 Why aren't the affected canyons, including the branches, shown?

11-9

The black tailed gnatcatcher, along with many other species, frequent the Kelvin Canyon spring which runs year round and has

11-10

PAGE 2 OF 3 QUESTIONS - DRAFT EIR ABALONE COVE LANDSLIDE PROJECT

provided at least 1000 feet of watering opportunity for thousands of animals and birds. Why wasn't the impact of paving branches of Altamira Canyon evaluated? Why were the fox, quinea hen and others left off of the Animal Species list?

3.2-1 Plant Communities: Why weren't all canyons which feed into Altamira Canyon evaluated when the EIR states that the branches will be lined?

Pg 3-22 Vegetation: assumes that gunnite or construction of concrete in canyons. Dr. Blosson commented that the canyons may be piped and covered over with dirt so the area could be used. This would impact animal life much more than what the EIR covers if all canyons were lost. The covering over the pipe must be limited to preserve the canyons.

Why doesn't 3.2.2 discuss the total amount of coastal sage scrub that will be lost in all of the branches of Altamira Canyon?

3.5 Cultural Resources: Archaeology/Paleontology There are prehistoric sites along Kelvin Canyon spring. Indian villages were set up along the canyon as the spring offered the only fresh water supply in the area.

The City of Rancho Palos Verdes Redevelopment Agency's EIR stated that plus or minus 500 new homes would be built on the stable area within the ancient Abalone Cove Landslide. What impact will this have?

3.6.1 The roads in the project area have not been regraded in years. PVDS in the project area has not been regraded in years.

Regrading of existing roads and construction of curbs should also allow for adequate horse trails along side of the roads. The easements are currently there now. However, the trails will be lost when the curbs are put in.

When dewatering wells are placed up higher in the project, the water is expected to be usable. Some provision should be made to use this water and not dump it into the ocean.

3.8.2.2 General Plan: The filling of canyons violates the General Plan. The proposed devastation at the beach violates the General Plan. The General Plan provides for the protection of our natural resources.

3.9.1 The beach is not owned by the city. It is owned by the RDA.

Much of the water runoff and infiltration into the slide area comes from the developments above the ancient slide off of Crest and Crenshaw. If all of this runoff was not allowed to enter PG

11-11

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11-21

3 OF 3 QUESTIONS DRAFT EIR ABALONE COVE LANDSLIDE PROJECT

Altamira Canyon and it's branches, what additional work would be necessary? Would all these projects be necessary? How much water is entering the canyons and ground from the above development? Why not stop the water from even entering the canyons so the natural beauty and wildlife could be saved?

Why can't the major piping run alongside of the canyons in order to protect the wildlife habitate?

Why haven't the bird flyovers been listed. The project area provides a stopping place for food, water and rest for many migratory birds.

Canyons are to be straightened out in places. Please discuss the law of water velocity. The natural curves slow the water down. Won't it be distructive to straighten the canyons out?

If there is an earthquake fault under the proposed berm and an earthquake hits, wouldn't the damage be far more devastating with all of the fill there?

Please explain by calculations why the rain gutters are necessary.

I have also submitted questions over the telephone which I would like to have addressed.

Sincerely,

Kathy Snell

Kathy Snell
#8 Vanderlip Driveway
Rancho Palos Verdes, Ca. 90274
(213) 541-1266

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11-26

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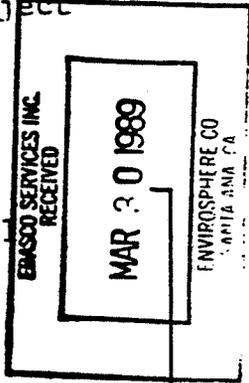
To: Hal Schneider

Envirosphere 3000W McArthur Blvd. Santa Ana Ca. 92704

Subject: Draft EIR on "Abalone Cove Landslide Stabilization Project"

The following comments are submitted on material contained in the subject EIR:

The EIR should address a cost-benefit assessment of the several elements of physical remedies planned for inclusion:



1. The effects of installing roof drains on structures in the district in light of the fact that the area of roof to be drained and channeled is estimated to be less than 7 acres out of the several hundred acres in the watershed, hence 2 or less percent of the total.
2. The effects of installing sewers for the existing residential structures without having presented scientific evidence of the fraction of total water use in the area (a number that could be obtained from the water co.) which is likely to reach the underlying water table via septic systems as opposed to the percent used for landscape watering which is believed would not penetrate more than a few feet into the soil and virtually zero that would likely reach the water table.
3. An assessment of the amount of water channeled down Altamira Canyon from the developments off Crest Rd. and Crenshaw Blvd. and hence the apportionment of costs to the District versus costs directly assessed to the appropriate city and/or county agencies responsible for approving these developments which are the contributors. Those developments are believed to have been approved subsequent to the discovery of recent slide activity below with full knowledge of the effect water can have.

12-1

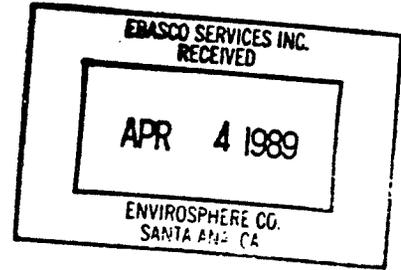
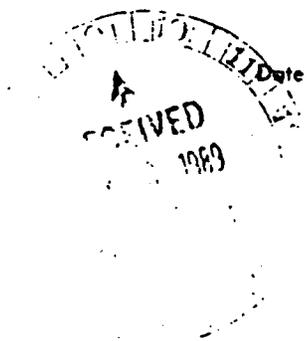
*by John Taylor
D.M. R.P.V.*

*John Taylor
20 Vandenberg R.P.V.*

Memorandum

1. Projects Coordinator
Resources Agency
2. County of Los Angeles
Department of Public Works
900 S. Fremont Avenue
Alhambra, CA 91803-1331

Date : March 27, 1989



From : Department of Fish and Game

Subject : Draft Environmental Impact Report (DEIR): Abalone Cove Landslide Stabilization Project, Los Angeles County - SCH 88092820

We have reviewed the DEIR for the Abalone Cove Landslide Stabilization Project that is located on the Palos Verdes Peninsula in the City of Rancho Palos Verdes. The objective of the project is to stabilize an 80-acre landslide using six methods involving construction of a 50-foot berm (toe berm) along the beach, improvement of storm drainage in Altamira Canyon, improvement of individual lot storm drainage, construction of sewer lines to connect to the County Sanitation District's service main, maintenance of the existing dewatering system, and expansion of the dewatering system. Implementation of all six methods would result in elimination of approximately 20 acres of coastal sage scrub (69 percent of the coastal sage scrub on the project site), primarily as a result of construction of the toe berm. Coastal sage scrub represents an important plant community that is diminishing because of development. Coastal sage scrub provides important habitat for the black-tailed gnatcatcher, a federal Category 2 candidate species for listing as threatened or endangered, and Palos Verdes blue butterfly (PVBB), a federally-listed endangered species.

A portion of the proposed project is within the Department of Fish and Game's Abalone Cove Ecological Reserve. Activities within the reserve which will modify existing resources and habitats are subject to regulation by the California Fish and Game Commission. Because a portion of the proposed project is within the Ecological Reserve and would result in loss of marine intertidal and subtidal habitat and coastal sage scrub habitat within the Reserve boundary, the proposed project is in conflict with Reserve rules and regulations. Because of this conflict and lack of coordination with the Department, we object to certification of the proposed DEIR, and we are opposed to the implementation of the proposed project at this time.

We have the following specific comments regarding the DEIR:

The terrestrial biology section of the DEIR lacks basic information and does not specify or indicate the qualifications of

13-1

13-2

1. Projects Coordinator
2. County of Los Angeles

March 27, 1989

the person(s) conducting the field survey. It does not specify the time spent (i.e., number of days in the field) performing the survey. The DEIR affirms the potential occurrence of PVBB.

13-2

However, surveys were not conducted during the spring of the year when the PVBB would be active and most visible. Surveys for endangered species must be conducted by competent biologists and must occur during known activity periods when the species can be identified. We recommend that the project sponsor conduct spring surveys for PVBB and its host plant on the project site. Results of these surveys should be included in a Supplemental DEIR and circulated for public review prior to the initiation of any action on the subject DEIR. Dependent upon the results of these surveys, the project may have to be substantially modified to avoid impacting the PVBB, and we recommend that the project proponent consult with the U.S. Fish and Wildlife Service regarding both study design and appropriate mitigation measures.

13-3

The DEIR does not propose specific sites in which to mitigate the possible loss of coastal sage scrub habitat. We recognize that the project may not require construction of a toe berm and that the berm is proposed "only if necessary to prevent future movement of the toe of the slide" (page 1-2). However, an assessment of the adequacy of mitigation sites is dependent upon the identification of specific mitigation sites and specific mitigation measures. We recommend that the project proponent identify off-site mitigation sites and include a precise discussion of specific mitigation measures to be implemented in the previously recommended Supplemental DEIR.

13-4

The proposed toe berm would also result in a loss of about nine acres of intertidal and subtidal marine habitat and associated resources within the Ecological Reserve. The proposed mitigation measures will not, based upon our evaluation of potential habitat gains, offset the loss of nine acres of marine habitat. One project alternative to the toe berm is the construction of a shear key/buttress at the bluff area. As stated in the document, this would eliminate offshore construction and would potentially have no significant impacts to marine habitat. Adoption of this alternative could eliminate or significantly reduce marine impacts. The document does not adequately describe this alternative, nor does the document determine the feasibility of this alternative. Because this alternative appears to have potential to alleviate our concerns regarding marine resources, we recommend that this alternative be presented in detail in the recommended Supplemental DEIR.

13-5

13-6

1. Projects Coordinator
2. County of Los Angeles

-3-

March 27, 1989

Diversion, obstruction of the natural flow, or changes in the bed, channel, or bank of any river, stream, or lake will require notification to the Department as called for in the Fish and Game Code. This notification (with fee) and the subsequent agreement must be completed prior to initiating any such changes. Notification should be made after the project is approved by the lead agency.

13-6

In summary, we strongly recommend against the certification of the proposed DEIR. The County is hereby informed that portions of the proposed project are within the boundaries of the Department's Abalone Cove Ecological Reserve, and that any modifications within the Reserve are subject to the discretion of the Fish and Game Commission. Further, we recommend that the County Department of Public Works, our Department, and the U.S. Fish and Wildlife Service meet to discuss the means by which adverse impacts to the Reserve, its fish and wildlife resources, and other fish and wildlife resources within the project area may be avoided or fully compensated. Lastly, we recommend that this meeting take place prior to the initiation of any work necessary for the completion of the recommended Supplemental DEIR.

Thank you for the opportunity to review and comment on this project. If you have any questions or if you wish to schedule a meeting, please contact Fred Worthley, Regional Manager of Region 5, at 330 Golden Shore, Suite 50, Long Beach, CA 90802 or by telephone at (213) 590-5113.

A. E. Grayson
for Pete Bontadelli
Director

4.0 RESPONSES TO COMMENTS

4.0 RESPONSES TO COMMENTS

1. United States Army Corps of Engineers

Response to Comment 1-1: Comment noted. As indicated in the DEIR, a stability berm is proposed to prevent future movement of the toe of the slide, only if necessary. Should construction of the berm actually be considered, the appropriate level of permit coordination will be undertaken with the Corps during the planning stage.

2. Southern California Edison Company

Response to Comment 2-1: Comment noted.

3. Institute of Archaeology, University of California

Response to Comment 3-1: Comment noted.

4. Southern California Gas Company

Response to Comment 4-1: Comment noted.

5. Native American Heritage Commission

Response to Comment 5-1: The DEIR is acutely cognizant of the sensitivity of both recorded and unrecorded cultural resource sites in the project area and the activities involved in landslide stabilization which could damage them. In that respect, the DEIR (Section 3.5.3) recommends that detailed surveys of the entire project area be conducted prior to any ground disturbance. Since there exists the possibility of encountering buried archaeological remains during construction, the DEIR also recommends that a qualified archaeologist be contacted to make an immediate assessment and ensure that the procedures followed remain in conformance with Appendix K of CEQA, Criteria D of the National Register of Historic Places and interpretive guidelines of the California Coastal Commission.

A copy of Appendix G, Cultural Resources Report is being provided to the Native American Heritage Commission.

6. California Regional Water Quality Control Board

Response to Comment 6-1: Comment noted.

7. County of Los Angeles Fire Department

Response to Comment 7-1: Comment noted.

8. William Griffen

Response to Comment 8-1: The proposed project has not yet progressed to the final detailed design and construction stages for stabilization. Recommended detailed design considerations, such as those identified, would be evaluated by the Technical Panel to the City of Rancho Palos Verdes.

9. County Sanitation Districts of Los Angeles

Response to Comment 9-1: The suggested revisions to Sections 3.11.1 and 3.11.2 are hereby incorporated in the Final EIR and appear in Section 2.0 of this document.

Response to Comment 9-2: Comment noted.

Response to Comment 9-3: Comment noted.

10. Muriel Titzler

Response to Comment 10-1: Should the building moratorium be lifted, development in both the project area and the Redevelopment Area will still be subject to the existing zoning designations and general plan policies of the City of Rancho Palos Verdes.

Response to Comment 10-2: Comment noted.

11. Kathy Snell

Response to Comment 11-1: The short- and long-term impacts to habitats are fully addressed in Section 3.0 of the DEIR. As identified in Section 3.2.3, long-term impacts to vegetation could potentially be reduced to a level of insignificance if the drainage pipe was installed, covered with soil and revegetated with native plants.

Response to Comment 11-2: No seismogenic faults have been mapped on the site and surface rupture therefore, is not considered likely. The site would be subject to seismic shaking caused by fault movement on nearby faults in the event of an earthquake. The shaking expected is considered to be similar to that which would be experienced elsewhere in southern California under similar circumstances. A detailed seismicity investigation was beyond the scope of the DEIR. The Technical Panel would be able to evaluate seismicity considerations and effects during the design phase of the project.

Response to Comment 11-3: As shown on revised Figure 2.1-2 (see Section 2.0 of this FEIR), the eastern project area boundary limit trends along the lower reaches of Altamira Canyon from its intersection with Palos Verdes Drive South. The easterly boundary extends northeasterly and intersects the upper reaches of Portuguese Canyon, continuing near the ridge crest.

Kelvin Canyon is one of many local designations for canyons in the area. It is not a formally recognized geographic name for the canyon. Kelvin Canyon apparently refers to the east branch of Altamira Canyon.

The Technical Panel report contains a 100-scale map showing the proposed storm drain improvements. As indicated in the DEIR, the existing storm drains in Altamira Canyon would be extended northward to Crest Road. This includes both the eastern branch of Altamira Canyon and the main branch of Altamira Canyon.

Response to Comment 11-4: The dewatering system at Abalone Cove has two objectives: to intercept groundwater up-gradient from the landslide and prevent it from entering the active landslide; and to remove water already in the active landslide mass. In order to achieve this goal, the Technical Panel has recommended several additional interceptor wells located up-gradient from the landslide. These additional wells might be located near the Ginger Root-Narcissa-Cinnamon intersection, along Thyme Place, and close to Altamira Canyon on the ridge about 300 feet west of the former Warner house. Dewatering wells proposed for the landslide mass include: a well just south of Wayfarer's Chapel, close to the beach near the tennis courts, near the beach entry gate south of Palos Verdes Drive South, and approximately 100 feet east of survey monument designated as Q-3.

The expanded dewatering system is designed to lower the groundwater table. All of the proposed wells are located south of and down-gradient from the spring informally known as the Kelvin Canyon spring. The groundwater system in Kelvin Canyon spring is outside the study area and groundwater data for the area are not available. The groundwater system in the Abalone Cove area is a complex of interconnecting basins. On this basis, some minor modification in the yield of Kelvin Canyon spring may occur. Minor modification of the ground surface by grading may be expected in immediate vicinity of the new wells. The new wells are in an area which has already experienced residential construction.

Surface flow from the spring presently flows down Altamira Canyon, eventually infiltrating into the groundwater system and the active landslide mass. Surface flow should be intercepted by either the existing storm drain system in Altamira Canyon or the modified storm drain system proposed in the DEIR to prevent the surface flow from entering the groundwater system in the landslide and exacerbating the unstable condition.

Response to Comment 11-5: Secondary recreational benefits relate to the activities on the berm's adjoining shoreline sections which could be stabilized from erosion and made available in addition to the activities taking place directly on the berm.

Response to Comment 11-6: Presently, water emanating from Kelvin Canyon spring re-enters the groundwater system through percolation or infiltration through cracks and fissures or is intercepted by the existing Altamira Canyon storm drain system. Water re-entering the groundwater system eventually migrates down-gradient into the landslide mass. Water entering the storm drain system is conducted to the ocean. The proposed plan seeks to reduce water reaching the landslide mass. This would be accomplished by expanding the existing dewatering and by improving the surface drainage of the area.

Response to Comment 11-7: As described in the DEIR, the Abalone Cove area exists on material which has undergone multiple episodes of landsliding over the last 600,000 years. The recent reactivation of the Abalone Cove landslide was first noted in 1974. At the present time the landslide is not considered to be moving, although some minor internal adjustments or settlement of slide mass may still be occurring.

The landslide is presently considered to have stopped moving. It is not, however, considered to be stable. Arrest of the slide movement has been attributed to a combination of the dewatering and several years of normal or below normal rainfall. The Technical Panel believes the continued discharge of domestic sewage effluent into the slide and occasional storm water infiltration, if left uncontrolled, will continue to pose a hazard to the existing homes and improvements. Successive years of above-normal rainfall, likewise, could have destabilizing effect of the slide.

Response to Comment 11-8: The factor of safety used to describe the landslide is a ratio of the forces resisting to the forces which drive the landslide. At a factor of safety of 1.0, the forces driving sliding are exactly balanced by the forces resisting sliding. These forces include the slide plane geometry, groundwater level, and strength of soil and rock materials. Since the methodology for measuring these forces is not precise, a cushion is utilized to account for inexactitude of the calculation. A factor of 50% is normally used. As a result, the Uniform Building Code and local building codes specify a factor of safety

of 1.5 for habitable structures. The forces resisting sliding are 50% greater than the forces causing sliding. Since the landslide is not presently moving, the landslide has a factor of safety greater than 1.0. We have not found any calculations indicating the present stability of the landslide in the published literature, although the Technical Panel members may have performed some preliminary calculations. It is assumed the present factor of safety is slightly greater than 1.0.

The Technical Panel report indicates that an increase of approximately 8% may be obtained by maintaining the existing dewatering system.

The increase in safety factor resulting from the storm drain in Altamira Canyon is dependent on rainfall. Calculations by the Technical Panel suggest that each additional 1 inch of rainfall which infiltrates causes about a 2-foot rise in the groundwater table and a resulting 1% decrease in the factor of safety.

The domestic sewer system would also reduce infiltration by an estimated 30 acre-feet per year. Individual lot drainage, including the downspouts and roof drains, reduce the rainfall available for infiltration by about 12 acre-feet per year. This estimate assumes installation on approximately 90 homes.

The toe berm is estimated by the Technical Panel to increase the factor of safety by about 4% if constructed as a 300,000 cubic yard berm. If additional material is used to increase the size of the berm, the factor of safety would increase proportionately. If a 600,000 cubic yard berm were constructed, therefore, the resulting increase in the factor of safety would be 8%.

The safety factor for the area above Narcissa Drive was not calculated for this study. Review of the literature for the area indicates this region lies within the limits of ancient landsliding. Review of aerial photographs indicates this area includes the disrupted topography generally associated with landsliding. This area is not presently

sliding; it is assumed, therefore, the factor of safety is greater than 1.0. The present factor of safety for the area is unknown. The area consists of weak geologic materials which, in the subsurface, dips toward the ocean. The area is also serviced by septic tanks and leach fields which infiltrate sewage effluent into the groundwater table. The continued stability of the Narcissa Drive relies to some extent on the continued stability of seaward areas. Past geologic history suggests that over the course of geologic time, some upslope areas could be jeopardized by continued sliding of the lower, more seaward areas. Continued sliding of the lower areas could remove support for the upper areas, exposing them to the same imbalance of driving forces and resisting forces which resulted in the sliding in Abalone Cove.

Because the area above Narcissa Drive was not a part of this study, its present stability and stability following implementation of each stage of the Abalone Cove stabilization plan has not been specifically evaluated, as yet. However, the stabilization plan is anticipated to have a positive impact on the upslope areas.

Response to Comment 11-9: Both Figures 2.1-2 and 2.2 are maps showing the landslide area and the project area. Both maps utilize a topographic base which shows topographic contour lines. Canyons and other landmarks are labeled on the maps.

Response to Comment 11-10: See Response to Comment 11-3. The primary impact in Altamira Canyon will occur from construction of the trench or pipe within the main channel.

The fox and guinea hen were not intentionally left off the Animal Species list. Neither species was observed during the site visit, nor was either species mentioned in any of the previous four EIR's prepared in the vicinity of the site. Receipt of information regarding the presence of these and other animal species known by the local residents to inhabit the project area would be appreciated, particularly those species which do not occur on the current list.

Response to Comment 11-11: See Response to Comment 11-10.

Response to Comment 11-12: The DEIR assumes a "worst case" analysis in the absence of more detailed engineering data. This is the reason that the open, concrete-lined ditch was analyzed. If the canyon were piped, there would be a short-term loss of vegetation and habitat which could recover with proper mitigation efforts aimed at restoring the affected areas. The DEIR suggested that the long-term impacts of the drainage ditch could be mitigated by use of a drainage pipe, covered over with soil and revegetated.

Response to Comment 11-13: Based on the information available regarding the conceptual project, all of the habitats that would potentially be affected were included in the acreage figure, including all coastal sage scrub habitat.

Response to Comment 11-14: As indicated in the DEIR, a detailed survey of the project area north of PVDS will be conducted during preliminary design and prior to any ground disturbance. If resources are discovered, their significance will be evaluated under CEQA, Appendix K and Criterion D of the National Register of Historic Places. See Response to Comment 5-1.

Response to Comment 11-15: See Response to Comment 10-1.

Response to Comment 11-16: Comment noted.

Response to Comment 11-17: Comment noted. Final planning and design of improvements have not been prepared. Suggestions for retaining horse trails should be forwarded to the City Department of Public Works.

Response to Comment 11-18: Evaluation of water quality should be performed during the project planning stage. Suggestions for use of water obtained by the various dewatering systems, storm drain installation, and/or lot drainage should be forwarded to the Technical Panel for consideration during the design phase.

Response to Comment 11-19: In order to move toward implementation of the land-use arrangement in the General Plan, geologic conditions require slope stabilization. It is well recognized in the Plan that the primary problem is associated with landslides; also required is effective land resource management of marine assets, especially in areas of land-ocean interaction. The objectives of the proposed project are to meet, in major part, the goals of the General Plan and at the same time, employ appropriate mitigations to reduce adverse environmental impacts.

Response to Comment 11-20: See Section 2.0 of this FEIR.

Response to Comment 11-21: No quantifiable data has been presented comparing runoff from Crest Road to runoff from the remaining project area. A general review of maps indicates much more runoff should be generated within the project area than from the Crest Road developments. Portions of Crest Road developments, however, lie on the coastal side of the drainage divide. These areas would drain toward the ocean through Altamira Canyon and other canyons without regard to the presence of the existing homes. Modification to the design of the recommended drainage plan should be referred to the Technical Panel for their consideration.

Response to Comment 11-22: This design concept should be referred to the Technical Panel for their consideration. The design alternatives of an open, paved channel and enclosed pipe were discussed by the Technical Panel in their report.

Response to Comment 11-23: A total of 33 species of birds were listed in the DEIR for the Abalone Cove and Altamira Canyon areas. The commentor notes correctly that the project area provides excellent habitat for many species of birds. The DEIR noted that bird species were the most prevalent form of wildlife found in the project area due to the presence of suitable habitat and relative absences of human intrusion. The DEIR noted that seabirds regularly fly over the coastal bluff.

Response to Comment 11-24: The plan proposed by the Technical Panel offers the alternative of paving the channel bottom and sides or using a pipe. In either instance, the design of the channel should resist lateral or downward erosion.

Response to Comment 11-25: No faults have been mapped in the vicinity of the proposed berm.

Response to Comment 11-26: Calculations may be provided by the Technical Panel. In general, the purpose of the rain gutters is to conduct runoff from roofs into paved drainage facilities and prevent infiltration into the groundwater table.

Response to Comment 11-27: Telephone comments related to Kelvin Spring are addressed in Responses to Comments 11-3 and 11-4. The telephone comment related to the grading of the toe berm area is addressed in the report of the Technical Panel and Section 3.1 of the EIR.

12. Jack Downhill

Response to Comment 12-1: The development of cost-benefit assessments for projects under the California Environmental Quality Act (CEQA) is not required. Calculations of the amounts of water diverted from ground infiltration by the use of roof drains, sewers and drainage channels are contained in reports prepared by the Technical Panel.

13. California Department of Fish and Game

Response to Comment 13-1: The County and City recognize that the project is within the Department of Fish and Game's Abalone Cove Ecological Reserve and fully intend to continue coordination of project plans for development. If the toe berm alternative is determined to be required, the Department's approval of designs, mitigation opportunities and construction plans is essential.

Coordination with the Department on this proposed project has continued since the Notice of Preparation and Initial Study were submitted to the Department in September 1988 and the EIR addressed the informational requests the Department made in its November 7, 1988 response to these submittals. Subsequently, the County and City met with the Department on May 9, 1989 in response to the Department's concerns.

Response to Comment 13-2: The terrestrial biology selection of the DEIR was prepared by R. J. Little, Ph.D. Dr. Little has fifteen years of experience in teaching, research, planning, implementing, conducting terrestrial ecology studies and providing expert witness testimony on project impacts. He received his Ph.D. from Claremont Graduate School and served as President of the Orange County Chapter of the California Native Plant Society and also served on its State Board of Directors. Dr. Little also served on the Board of Directors of Southern California Botanists and he has published extensively. Dr. Little conducted his field survey in the project area for two days during October 1988.

Response to Comment 13-3: The Department has recommended that spring surveys be conducted for the Palos Verdes Blue Butterfly (PVBB) and its host plant on the project site. The surveys that were conducted in October 1988 were made as soon as possible after the project commenced, but were nevertheless conducted too late in the season to observe either the PVBB or its host plant *Astragalus trichopodus* var. *leucopsis*. Since projects sometimes commence after the optimal viewing period has passed, regulatory agencies sometimes request that additional surveys be performed during the biologically critical time of year.

Since the host plant typically blooms from February to June, a spring survey for the PVBB and its host plant was subsequently conducted on May 23, 1989 by Dr. Little. The survey consisted of walking the length of Altamira Canyon, beginning at the uppermost end of the canyon near Del Cerro Park. The canyon walls are very steep and the canyon floor is rugged. There is no defined trail for most of the length of the canyon. The canyon floor was criss-crossed several times in order to make better observations of the vegetation on the canyon walls. In some places,

visibility is obscured due to the tall, rank growth of sweet fennel (Foeniculum vulgare) within and adjacent to the stream channel. Although the potential impact zone within and adjacent to the canyon floor were carefully surveyed, no evidence was found of either the PVBB or its host plant.

Of related interest was the observation of a pair of black-tailed gnatcatchers in Altamira Canyon. At least two immature gnatcatchers were being looked after by an adult pair. Based on this observation, it is very likely that black-tailed gnatcatchers nest within Altamira Canyon.

Response to Comment 13-4: As noted in Response to Comment 13-1, the County and City will coordinate its design of the project plan for mitigation with the Department if the toe berm is determined to be required for landslide stabilization. The plan will be fully developed with specific mitigation objectives and monitoring requirements.

Response to Comment 13-5: Toe berm construction, if designed properly, in coordination and with the Department's approval, will result in a net benefit to the marine resources of Abalone Cove and would require no additional mitigation. The present intertidal is unproductive, comprised of unstable cobble and sediment resulting from slide activity and should be replaced by engineered hard substrate. Berm design, on the outer portion, could include terracing with well defined tide pools at different tidal levels, with well designed fish habitats along the subtidal slope, and strategically placed offshore reef rock anchoring kelp plants and substory algae. The design should resemble natural substrate as closely as feasible and with natural recruitment could rapidly become almost indistinguishable from natural rocky substrate. This proposed development does not differ in principle from any other artificial reef structure, except that it will be built in an ecological preserve to enhance its value. This project can be looked upon as a unique opportunity to develop fish habitat under controlled conditions--a chance to apply accumulated knowledge of habitat requirements to an engineered structure designed to maximize a resource.

Response to Comment 13-6: A shear key or buttress would consist of a plug of compacted soil near the toe of the landslide. The compacted soil plug has a higher resistance to shearing than the existing landslide plane. The plug is intended to replace a portion of weak slide material and interrupt the slide plane. The key must, therefore, be founded below the rupture surface. Construction of the keyway would require grading below the water table adjacent to the shoreline. The slide plane is presently at a depth of 34 to 84 feet below sea level. No design for a shear key has been proposed. A crude estimate based upon prior work suggests that an effective shear key could require excavation of an approximately 2200 feet long by 400 feet wide to a depth of 100 feet. This would require excavation of nearly 5 million cubic yards of material. Much of the material would consist of wet clay which would require drying or chemical treatment before being replaced as compacted fill. The excavation would extend below sea level, causing extensive construction problems. Such an excavation, near the toe of an unstable landslide mass, could cause reactivation of the existing landslide and result in a great enlargement of the existing landslide. For safety and cost considerations, this is not considered a feasible alternative.