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STAFF REPORT: MATERIAL AMENDMENT

APPLICATION NUMBER: 5-90-1041A5

APPLICANT: William Campbell

PROJECT LOCATION: 433 Paseo de la Playa, City of Torrance (Los Angeles County)

PROJECT DESCRIPTION: Request for after-the-fact approval of unpermitted development consisting of: The construction of a 13-foot high, 480 square-foot shade structure (with 8 10-inch posts and a 8 foot tall retaining wall) with thatched roof on an approximately 680 square foot concrete patio at the toe of the coastal bluff; and a 8-foot high,12-foot diameter thatched umbrella on an approximately 10-foot in diameter concrete pad at mid bluff located on a 2,744 square foot beach-fronting lot.

SUMMARY OF STAFF RECOMMENDATION:

Staff recommends that the Commission **deny** the project because, as a whole, it is inconsistent with Sections 30210, 30221, 30251, and 30253 of the Coastal Act. (**The motion is on page 2 of this report**.) With regard to public access and recreation, coastal bluffs are a source of sand supply, and there is evidence that the continued hardening of coastal bluffs reduces the amount of sand available to beaches, reducing the size of a coastal recreational resource, which is inconsistent with the public access and recreation policies of the Coastal Act. Section 30251 protects the scenic and visual qualities of coastal areas and requires the Commission to minimize the alteration of natural landforms. The proposed structures substantially alter the appearance of the natural bluff. Section 30253 (2) requires approved development to neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area. The proposed structures are located on or at a toe of a bluff that consists of unconsolidated sandy material that is subject to erosion.

Section 30253(5) protects special communities and neighborhoods, which, because of their unique characteristics, are popular visitor destination points for recreational uses. The project alters the special area of the Torrance bluff. The project site is located immediately inland of Torrance Beach, which is a public beach. The irregular backdrop of a vegetated bluff is essential to the character of this public beach that is heavily used by visitors from Redondo Beach, Torrance, and other south Los Angeles County communities

and is used – albeit more sparsely – by an even wider range of people from all over. Changing the irregular vegetated bluff to a row of structures and hardened walkways changes the quality of the area from an undeveloped, recreational open space with the backdrop of an undeveloped bluff, to a developed urban neighborhood.

While there are exceptions, the overall appearance of the bluff along Paseo de la Playa is natural and undeveloped. With the exception of two pre-coastal decks, one at each end of this row of 28 lots, all permitted houses, and roofed structures are sited at the top of the coastal bluff. The bluff is crisscrossed with a network of shared pre-coastal pioneered trails, with a few permitted paved private accessways, including one on this lot that was approved in 1996 as part of the erosion control and habitat restoration associated with 5-90-1041A2. Except for the lots described above, bluff face development either does not exist or is unpermitted development. The shade structures, including the one subject to this application, that exist on four of the 28 residential lots, are all unpermitted. The four unpermitted shade structures are located on the five northernmost lots. The Commission's Enforcement Division will evaluate further actions to address these matters.

SUBSTANTIVE FILE DOCUMENTS:

See Appendix A.

I. STAFF RECOMMENDATION:

MOTION: ***I move that the Commission approve Coastal Development Permit Amendment No. 5-90-1041A5 for the development as proposed by the applicant.***

STAFF RECOMMENDATION OF DENIAL:

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

RESOLUTION TO DENY THE PERMIT:

The Commission hereby **denies** a coastal development permit for the proposed development on the ground that the development will not conform with the policies of Chapter 3 of the Coastal Act and will prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit would not comply with the California Environmental Quality Act because there are feasible mitigation measures or alternatives that would substantially lessen the significant adverse impacts of the development on the environment.

II. Findings and Declarations:

The Commission hereby finds and declares as follows:

A. Project Description and Location

1. Project Description

The applicant requests after-the-fact approval of an existing 13-foot high 480 square foot shade structure (with 8 10-inch posts and a 8-foot tall retaining wall notched into the bluff in support of the structure) with thatched roof on an approximately 680 square foot concrete patio at the toe of the coastal bluff, and a 8-foot high, 12-foot in diameter thatched umbrella on an approximately 10 foot in diameter concrete pad at mid bluff, located on a 2,744 square foot beach-fronting lot (see Exhibit no. 3 &4).

2. Project Location

The project site is located within an existing residential area at 433 Paseo de la Playa, City of Torrance, Los Angeles County (Exhibits No. 1 & 2). The site is the fifth northernmost lot of the 28 residential lots on the bluff top between the first public road, Paseo de la Playa, and the sea (see Exhibit No. 6. The bluff in question varies in height from approximately 60 feet at the Los Angeles County Torrance Beach Park to the north of the residential lots, to 120 feet near the City boundary of Palos Verdes Estates to the south. The bluff tops of all 28 residential lots have been developed with single-family residences.

Torrance Beach, the beach seaward of the toe of the bluff, is public. Vertical public access to this beach is available to pedestrians via public parking lots and footpaths located at the Torrance Beach Park, which is approximately 200 feet to the north of the project site. There are also a vertical beach public access way and public parking in Palos Verdes Estates located approximately ¾ of a mile to the south of the project site.

B. Prior Development at Subject Site

In 1990, the Commission approved the construction of a 2-story, 7,334 square foot single-family residence on the bluff top, on a vacant lot (CDP 5-90-1041). After grading the building pad atop the bluff, pursuant to the approved permit, development stopped. Subsequently, in 1995, in response to erosion problems caused by the abandonment of the development after the building pad was constructed, unpermitted development occurred on the bluff face consisting of a drainline, minor fill and placement of sandbags for erosion control purposes. This unpermitted development on the bluff face adversely impacted the El Segundo Blue butterfly's (*Euphilotes bernardino allyni*) habitat found on the property. El Segundo blue butterfly is a Federally Listed endangered species.

As a result of Commission enforcement action, in consultation with a resource specialist and the USFWS, a restoration plan was developed and the applicant submitted an application for an amendment to the permit (CDP 5-90-1041-A2). The plan included planting of Coastal Buckwheat (*Eriogonum parvifolium*), other native vegetation to restore the butterfly habitat, and non-native plants to stabilize the bluff. The plan divided the bluff face into three areas: Zone A, B and C (see Exhibit No. 5). Zone A, located along the northern portion of the property, was required to be planted with 200 plants of Buckwheat because of the developments impact from erosion, and the minimum amount of non-native iceplant located in this area. Zone B, located at the toe of the bluff, because of its relatively undisturbed nature, but lack of native Buckwheat, was required to be planted with only native annuals and perennials consistent with the approved plant list. Zone C, located along the upper and southern portion of the site, was heavily impacted by non-native iceplant. Non-native plants were to be removed from this zone. Zone C was allowed to remain in its existing state to protect the slope from further erosion. All planting was to be consistent with the submitted Habitat Enhancement and Erosion Control Plan, prepared by Dr. Rudi Mattoni, and all native plants were to be protected through a monitoring and maintenance program as conditioned in amendment no. 2, and annual reports were to be submitted for a period of five years to ensure the success of the revegetation (the applicant has not submitted any reports regarding the landscape monitoring and maintenance).

In December 1995, a third amendment to the permit was approved (CDP 5-90-1041-A3) for the construction of a four foot high retaining wall along the perimeter of the property near the toe of the bluff, perimeter chain-link fencing along the eastern property line, and swimming pool at the top of the bluff within the approved area of the single-family residence. The amendment was found to be immaterial and would not adversely impact coastal resources or access. Furthermore, the wall was consistent with other permitted development in the surrounding area and would assist in the revegetation of the bluff.

A fourth amendment (CDP 5-90-1041-A4) was approved in April 1996 for relocation of the bluff top retaining wall and swimming pool on the bluff top.

C. Permit History for Bluff Face Development in Project Vicinity

Figure 1 and 2 on the following two pages summarize the permit history of bluff face development for the 28 residential lots located along Paseo de la Playa in Torrance.

FIGURE 1 TORRANCE BLUFFS INVENTORY OF BLUFF FACE DEVELOPMENT PERMITTED AND PRE-COASTAL DEVELOPMENT			
Pre-coastal	**Development**	**Location**	**Permit Number**
3	**Stairways/ paths**		
		413/417	NA
		601	NA
		627	NA
2	**Patios/decks**[1]		
		413/417	NA
		627	NA
0	**Shade structures**		
			NA
0	**Retaining walls**		
			NA
Approved			
3	**Stairways/ paths**		
		429	5-85-755
		433	5-90-1041A3
		515	5-90-1079
0	**Shade structures**		
3	**Retaining walls**		
		429	5-85-755
		433	5-90-1041A3
		449[2]	5-90-355

[1] Patios/decks listed above are located below concrete drainage swale marking the "historic top of bluff".
[2] Low wall constructed as part of upper bluff repair, not highly visible.

FIGURE 2 TORRANCE BLUFFS INVENTORY OF BLUFF FACE DEVELOPMENT UNPERMITTED DEVELOPMENT			
Unpermitted.			
4	**Stairways/ paths**[3]		
		425*	
		437*	
		445	
		[601[4]]	
		605	
3	**Patios/decks**		
		429	
		433	
		437	
4	**Shade structures**		
		413	
		429	
		433	
		437	

When the Commission assumed jurisdiction in 1973, there were three improved bluff face accessways on this bluff. There were two platforms perched on the bluff face -- one at each end of the row of lots. Since 1973, the Commission has approved three ramps or stairways down the bluff face to the toe of the bluff on the 28 lots along Paseo de la Playa. In one (5-85-755), the applicant asserted the need for safe access for permission to build a concrete walkway, a wall at the toe of the bluff and a patio above the beach; in the second (5-90-1041-A3), a 3-4 foot wide cement walkway along the northern property line, sited along an existing wall to minimize visual impacts of the walkway, was approved as part of a bluff reconstruction and restoration, that the owners requested to repair a massive bluff blow-out. The area of the walkway experienced excessive runoff erosion extending from the top to the toe of the bluff, creating a gully along the northern property line and property wall. The Commission found that a walkway along the existing wall would assist in restoring the site and minimize any future erosion.

The absence of the promised landscaping at these sites has been referred to the Commission's Enforcement staff. A lot, located nine lots to the south of the subject lot, received a permit in 1991 to stabilize an "existing path " with redwood beams (5-90-1079 (Wright)). During consideration of the third stairway (5-90-1079), the applicant provided

[3] A web of unpermitted paths existed across several lots in 1972. An asterisk indicates that these were further modified without a CDP after 1973.
[4] This stairway has been rebuilt in a new location. Since there was a stairway on this lot in 1972, even though a permit was needed for its relocation, the relocated stairway is not included in staff report total as "unpermitted".

persuasive evidence that placement of redwood ties was merely a repair and stabilization of a pre-existing soft-footed path. The Commission approved two patios in conjunction with stairways, but it has approved no shade structures at the toe of the bluff.

The Commission has approved other development on the bluff face or at the toe of the bluff. A house to the south of the property received a permit to construct a walkway to an upper bluff terrace [5-01-409(Conger)]. The permit was conditioned not to extend seaward of a concrete swale, located at an elevation of approximately 95 feet, marking the historic top of the bluff. Four lots to the south of the subject lot, the Commission approved remedial sand colored concrete terrace drains and bluff restoration [5-90-868(Schreiber)], but no stairway and no development below mid-bluff. An owner of another lot received approval for a property line fence, extending down the bluff. The Commission denied an application for construction of stairs down the bluff face, a covered observation deck located towards the base of the bluff and bluff restoration for the endangered El Segundo Blue butterfly on a down coast site at 613 Paseo de la Playa [5-03-328 (Carey)][5]. The Commission acknowledges that several lots have inconspicuous pioneered paths down the bluff; shared with adjacent lots or the public, these are not improved and appear in 1973 photographs.

The Commission has approved five new houses on the bluff top lots and a number of additions to existing single-family houses and appurtenant structures, such as pools, jacuzzis, and patios on the top of the bluff. Most of the approved additions were at the top of the bluff, or inland of a three foot wide concrete lined drainage structure parallel to the bluff top, that represents the historic top of bluff for a number of lots south of 449 Paseo de la Playa. In approving development along this area of the bluffs, the Commission routinely imposed conditions limiting development to a 25-foot bluff top set back. In making these approvals, the Commission agreed with the applicants that a concrete swale located about ten feet below the house pads and parallel to the bluff top represented the historic top of the bluff [5-01-405A(Conger), P-5-77-716 (Warren)].

As shown in the tables above, the Commission has approved no structures other than paths and walls. The Commission has not approved any "shade structures" on the bluff or at the toe of the bluff. The Commission has approved only minor development along the bluff face.

Recently in June 2005, the Commission denied a proposed development on the bluff face located immediately to the south and abutting this applicant's property. The development included the construction of a stairway, retaining wall, and Trellis [Coastal Development Permit application No. 5-04-324(Bredesen)]. In denying the proposed project, the Commission found the proposed development would adversely impact the scenic and visual qualities of the coastal area and would substantially alter the natural appearance of the bluff.

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[5] The Commission's Enforcement Division is currently investigating unpermitted development along the bluffs at Paseo de la Playa in Torrance, including stairways and toe of slope improvements.

When the beach transferred to the City, the Commission approved a fence at the toe of the bluffs along five northern most lots, including this one, separating the private property from the beach. The northernmost lot has development on the bluff face that includes stairs and a small deck about 30 feet above the toe of the bluff and a volleyball court at sand level. The ramp, volleyball court and deck appear in the Commission aerial photo dated 1972 and existed prior to the effective date of the Coastal Act and the Coastal Zone Conservation Act of 1972. A shade structure visible in more recent photographs appears to have been constructed after the Coastal Act without a coastal development permit.

D. Scenic Resources/Community Character & Cumulative Adverse Impacts

The proposed amendment consists of after-the-fact approval of a 13-foot high, 480 square foot shade structure, with 8 10-inch posts and a 8 foot tall retaining wall, and thatched roof on an approximately 680 square foot concrete patio at the toe of the coastal bluff, and a 12-foot diameter thatched umbrella on an approximately 10 foot in diameter concrete pad at mid bluff, which is inconsistent with the following Coastal Act policy:

Section 30251 of the Coastal Act states, in part:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.*

While some bluff faces in southern California have been subdivided and developed, development generally does not extend down the Torrance bluffs. The bluffs extend from about 60 feet high at the north end to almost one hundred twenty feet high as the coast curves toward Palos Verdes. The bluff also becomes steeper going north to south, changing from a 2:1 slope covered with dune sand, to rocky cliffs at approximately 1:1. From the beach, the roofs of some of the houses on the top of the bluff, parts of the rear walls of those houses, and the edges of some patios are visible atop the bluff. With few exceptions, there is little development along the face of the Torrance bluffs.

The project site is located near the northern end of the 28 residential bluff top lots (Exhibits No. 2). The eight northernmost lots are developed with single-family residences, including one of the pre-Coastal Act stairways, two of the permitted stairways, three of the unpermitted stairways and all four unpermitted cabañas. The houses on these northernmost lots along this bluff are more visible for the public beach due to the lower height of the bluffs and flatter slope gradient. Even with these exceptions, the bluff face still resembles the bluff face shown in the sketch in the proposed 1981 LUP: irregular cliffs overlain by blown sand, vegetated with a mixture of ice plant and native plants.

Bluff face development on the northern most lot (417 Paseo de la Playa) occurred before passage of the California Coastal Act and was therefore never subject to the requirements of, or review under, the Coastal Act. There is also bluff face development on lots located

to the south on lots at 521 and 609 Paseo de la Playa. However, single-family homes existed on these lots prior to establishment of the Coastal Act. Except for the lots described above, bluff face development either does not exist or is unpermitted development.

Development along the bluffs must be sited and designed to protect views to and along the beach and to minimize the alteration of excising natural landforms. New development in this area must also be sited and designed to be visually compatible with the relatively undisturbed character of the surrounding area.

The proposed project is located on the bluff face immediately adjacent to the public beach. The bluff face at this site is highly visible from the public sandy beach. The applicant requests after-the-fact approval for a 13-foot high 480 square foot shade structure (with 8 10-inch posts and a 8- foot tall retaining wall to support the cut into the slope), with thatched roof on an approximately 680 square foot concrete patio at the toe of the coastal bluff, and an existing 12 foot diameter thatched umbrella on an approximately 10 foot in diameter concrete pad on the bluff face. A notch has been excavated into the lower portion of the bluff to accommodate the rear of the shade structure that is supported by an eight-foot high concrete retaining wall with two wing walls and eight posts along the front. The patios are constructed with four-inch thick, reinforced concrete leveled pads cut into the bluff. An unknown amount of excavation and vegetation removal took place to accommodate the patios.

a. *Landform Alteration*

The Coastal Act requires new development to be sited to *"minimize the alteration of natural land forms."* The proposed project would be located along a coastal bluff. The existing bluff is a natural landform visible from public vantage points such as the adjacent beach. Any alteration of this landform would affect views to and along the public beach.

b. *Community Character*

Pursuant to Section 30251 of the Coastal Act, new development must be visually compatible with the surrounding area. In addition, Section 30253 (5) requires the protection of *"special communities and neighborhoods which, because of their unique characteristics, are popular visitor destination points for recreational uses."*

The proposed project would result in a visible intensification of use of the site as compared to its undeveloped state (See Exhibits No. 3). The only development on the project site approved on the bluff face or at the toe was a concrete pathway along the northern property line, abutting the existing property wall, and a four foot high wall along the western property line, and landscaping consistent with the approved landscaped plan.

The lot located four lots to the north of the project has a pre coastal improved pathway and patio. The second lot to the north of the subject property has an unpermitted hardened accessway; as does the lots immediately to the south. Four lots, including the four lots to the north and two lots to the immediate south have unpermitted structures, but unpermitted development cannot be considered in determining the community character. Either way, the overall appearance of the bluff as a whole (all 28 lots), is natural and undeveloped. Although a four foot high wall was approved along the western property line, the development of the structures at the toe of the bluff and mid bluff are visible along the public beach and constitute a dramatic intensification and increase in visual impact over the approved development.

Since the 80's and early 90's, the Commission has learned a great deal about the degrading effects to bluffs caused by constructing structures and/or walls on bluff faces, including adverse impacts to public views and coastal community character. The project site is immediately inland of Torrance public beach, which serves as a popular visitor destination point for recreational uses. The existing patios and shade structures subject to this application are located midway down the bluff face and at the base of the bluff, immediately adjacent to the public beach.

Approximately 500 feet to the north of the site are a public park, beach parking lot, and pedestrian access ways that extend from the street and parking lot to the beach. Just north of the public park is Redondo Beach. Approximately ¾ of a mile to the south is a public beach access way and a public parking lot. Intensified private development along the bluff face will adversely impact the visual quality of the subject area, and will do so in a manner inconsistent with the community character, inconsistent with Sections 30251 and 30253 of the Coastal Act.

c. *Cumulative Impacts*

Section 30250(a) of the Coastal Act requires that new development be located where it will not have significant cumulative adverse effects on coastal resources. As described earlier the majority of development along Paseo de la Playa is located on the bluff top. The proposed shade structures and patios could set a precedent for future development to intensify bluff face development not only in this northern portion of the bluff but along the entire bluff face. Over time, incremental impacts can have a significant cumulative adverse visual impact. Other similarly situated property owners may begin to request authority for new construction on the bluff face, thus contributing to cumulative adverse visual impacts.

Conclusion

The Commission finds that the project, as currently proposed, is not sited and designed to protect scenic and visual qualities of the site as an area of public importance. Denial of the proposed project would preserve existing scenic resources and would be consistent with preserving the existing community character where approved (or pre-coastal)

development generally occurs solely at the top of the coastal bluff (on 22 out of 28 lots) and significant approved development (beyond simple trails) or development at the toe of the bluff occurs even more rarely. The alteration of the bluff from construction of the shade structures and patio would result in an adverse visual effect when viewed from public vantage points along the beach.

Allowing the proposed project would also lead to seaward encroachment of new development in an area where additional unpermitted development has occurred and threatens to affect the community character. The Commission finds that the proposed project would result in the alteration of natural landforms and would not be visually compatible with the character of the surrounding area. Consequently, the proposed project would increase adverse impacts upon visual quality in the subject area. Therefore, the Commission finds that the proposed project is inconsistent with Section 30251 of the Coastal Act and therefore must be denied. Denial of the project is consistent with the Commission's recent action in the same area with application 5-01-018 (Conger), where the Commission approved ancillary structures that were located above the historic top of the bluff, but rejected all development seaward of that line.

E. Habitat

Section 30240 of the Coastal Act states:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

The host plant for the El Segundo blue butterfly (*Euphilotes bernardino allyni*), an endangered species, is located in patches throughout the bluff face on many of the lots along Paseo de la Playa. In 1995, the United States Fish and Wildlife Service (USFWS) provided the Commission written notice (Letter, Gail Kobetich, 1995) that the butterfly and its habitat has been observed on the project site.

In 1990, the Commission approved the construction of a single-family residence at the top of the bluff. After grading the building pad, development stopped. Subsequently, in 1995 in response to erosion problems caused by the abandonment of the development after the pad was constructed, unpermitted development occurred on the bluff face consisting of a drainline, minor fill and placement of sandbags for erosion control purposes. The development on the bluff face adversely impacted the butterfly's habitat found on the property. In consultation with a resource specialist and the USFWS a restoration plan was

developed. The plan included planting of 200 plantings of Coastal Buckwheat along with non-native plants to stabilize the bluff. The bluff face was divided into three areas (Zone A, B and C). Zone A was required to be planted with the 200 plants of Buckwheat because of the developments impact on erosion of the bluff, and the minimum amount of non-native iceplant that was existing on the site. Zone B, located at the toe of the bluff, because of its relatively undisturbed nature was require to be planted with only native annuals and perennials pursuant to an approved plant palette. Zone C, located along the upper and southern portion of the site, was heavily impacted by non-native iceplant. Zone C was allowed to remain in its existing state to protect the slope from further erosion.

Because of the habitat and presence of the butterfly, permit amendment 5-90-1041A2 was obtained for restoration of the slope, and that permit required monitoring of the approved landscaping, pursuant to the restoration plan developed by the USFWS.

The two proposed shade structures are located in Zones A and B. These two zones were designated in the approved habitat enhancement plan as areas to be restored with *Eriogonum parvifolium* and other native plants to preserve and enhance the habitat value of the area for the El Segundo Blue butterfly (see Exhibit No. 7). The *Eriogonum*, like many dune plants expands radially through loose soils. Hardening or stabilizing the bluff, or irrigation is likely to be inconsistent with these processes and eliminates any habitat value and any chance of having the area restored either through natural processes or restoration efforts.

The applicant has not received USFWS review and approval of the structures within the restoration area. Allowing the proposed structures would result in allowing a new pattern of development on the bluff face. Allowing a new pattern of development, which brings development and associated human activity closer to existing habitat on the face and toe of the coastal bluff will have a cumulative impact on the El Segundo blue habitat and/or the butterfly itself. The Commission recognizes that approving the project described herein may set a precedent for future projects on other properties along this bluff, and the cumulative impacts of that would be severe in degrading what is left of the butterfly habitat in this area. The proposed development will replace environmentally sensitive habitat areas, will be disruptive of nearby sensitive habitat values, and would, if proliferated, be incompatible with the continuance of those habitat values along the bluffs. Therefore, the Commission finds that the proposed project is inconsistent with Section 30240 of the Coastal Act, and therefore denies the project.

F. Hazards

Section 30253 of the Coastal Act states, in pertinent part:

> *New development shall:*
>
> *(l) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*

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

Development on a coastal bluff is inherently risky due to the potential for bluff failure. Bluff development poses potential adverse impacts to the geologic stability of bluffs and the stability of residential structures and ancillary improvements. In general, bluff instability is caused by environmental factors and impacts caused by man. Environmental factors include seismicity, wave attack, drying and wetting of soils, wind erosion, salt spray erosion, rodent burrowing, percolation of rain water, poorly structured bedding and soils conducive to erosion. Factors attributed to man include bluff over steepening from cutting roads and railroad tracks, irrigation, over-watering, building too close to the bluff edge, grading into the bluff, improper site drainage, use of impermeable surfaces to increase runoff, use of water-dependent vegetation, pedestrian or vehicular movement across the bluff top, face and toe, and breaks in water or sewage lines.

Site Conditions and Geotechnical Conclusions

As described in the technical reports submitted with the underlying permit and in other reports on nearby lots, the bluffs in this area consist of sandy material at the north end, slowly being displaced by higher, rocky material as the bluffs extend south toward the Palos Verdes Peninsula. The applicant's geologic report submitted for the underlying permit, indicates that the bluff consists of blown sand over Pleistocene dunes. It notes that Miocene shales are exposed on lots to the south. The report indicates that the surface materials are subject to slippage and erosion and includes a number of recommendations concerning drainage.

The existing unpermitted patios, shade structures, and retaining walls subject to this application are located mid bluff and at the base of the bluff, adjacent to the beach. The applicant has not submitted any geologic reports to address the issue of structure stability on the bluff. However, structural stability would have to be achieved by hardening portions of the cliff face for the patios and structures. The unpermitted retaining wall at the rear of the shade structure at the toe of the bluff is necessary to support the bluff behind it, where it has been excavated, and to protect the structure from the weight of the bluff. This retaining wall adds to the hardening of the bluff face and is a form of a protective device that substantially alters the natural landform along the bluff.

Because the unpermitted development is located on a coastal bluff and includes a protective device that substantially alters natural landforms along bluffs and cliffs, the Commission finds that the approval of the unpermitted development would not be consistent with Coastal Act Section 30253 (2).

G. Beach Erosion and Beach Processes

Section 30235 states:

> ***Section 30235 Construction altering natural shoreline***
>
> *Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.*

The applicant has not submitted a wave uprush analysis. Staff geologist, Mark Johnsson, in reviewing a coastal engineering report done for the adjacent property to the south states:

> The report goes on to conclude that there has been no overall shoreline retreat at the site over the last four decades, that a conservative estimate of future beach erosion would reduce the beach width by about 50 feet in 100 years, and that the toe of the slope is not likely to be subject to damage even from the most extreme beach erosion and wave attack over the expected economic life of the improvements. I concur with these assessments. I do note, however, that the width of the beach is at least in part due to artificial beach nourishment upcoast, that resulted in a dramatic increase in beach width between 1946 and the present (Leidersdorf et al., 1994, Mark Johnsson, Staff Geologist).

Historically the sandy bluffs immediately inland of this beach have suffered from sloughing and collapse. While sloughing and collapse have been hazardous for beach visitors climbing on the bluffs, it has resulted in replenishment of the beach. The proposed construction of structures on the bluff face adjacent to the beach includes a retaining wall notched into the slope to prevent erosion and sloughing (Exhibits No 3). Without some erosion of the material from the bluffs, sand and other material from the bluffs will not be available as a source of replenishment of sand for the beaches. Section 30235 states that cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures.

The applicant is requesting after-the-fact approval for additional development that is landward of the previously approved 4 foot high wall (CDP 5-90-1041-A3), along the western property line. Although all proposed development is located landward of the wall and does not encroach onto the public beach, proposed development will be located at the toe of the bluff and on the bluff face. This proposed development is inconsistent with Section 30235, which requires minimal interference with natural processes related to shoreline sand supply. Although the existing wall approved in amendment No. 3 would hinder the migration of sand from the bluff to the beach, adding hardscape to the bluff face and at the toe eliminates those sandy areas from wind blown migration. Therefore, the project as proposed, reduces the amount of sand available to replenish this beach by

hardscaping the bluff. The project as proposed is therefore not required to be permitted pursuant to Section 30235 of the Coastal Act.

H. Public Access and Recreation

Sections 30210, 30220, and 30221 of the Coastal Act, among other sections, contain policies regarding public access to the shoreline. In addition, Section 30240 addresses appropriate development adjacent to parks and recreation areas.

Section 30210 states:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30220 states:

> *Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

Section 30221 states:

> *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

Section 30240 (b) states:

> *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

The unpermitted development is adjacent to a public beach and may have indirect impacts on public recreation by moving the line of private structures closer to the public areas, and, as noted above, by having long term impacts on sand supply. The subject site is located along a lower portion of a bluff face and the toe of a bluff on the seaward side of Paseo de la Playa, which is the first public road immediately inland of Torrance Beach. The subject site is highly visible from the sandy public beach. The pattern of development along this segment of Paseo de la Playa is such that structures are sited at the top of the bluff, while the bluff face remains largely undisturbed and vegetated. The bluff faces, generally fenced at the toe of the bluff, provide a buffer between the public beach and the private

residential uses. As discussed previously, only three properties out of twenty-eight along this stretch of Paseo de la Playa have permitted accessory structures or retaining walls at the toe of the slope. Two consist of concrete retaining walls and one consists of a pre-coastal terrace located about thirty feet above the toe of a bluff, and what appears to be a volley ball court at sand level (417 Paseo de la Playa). Although several lots have stairways or paved walkways traversing the bluff face (see table above) and some have unpermitted development at the toe of the bluff (currently under investigation by the Commission's Enforcement staff), the overall appearance of the bluff in this area is natural and undeveloped. Only one of the three permitted stairways (one permitted to accommodate easier access) includes highly visible switchbacks (at 429 Paseo de la Playa, CDP 5-85-755). This highly visible stairway is adjacent to, and north of, the project site. However, this stairway was not built according to the approved plans, thus increasing its visual impact.

The subject site also has a stairway on the property. The stairway was built to address an erosional problem and to provide access to the bluff face in order to maintain what was offered as part of a revegetation and erosion reconstruction program. This stairway is located adjacent to the property line and is sited next to an existing wall so as not to be obtrusive (CDP 5-90-1041-A3).

Public access is available directly seaward of the toe of the bluff at Torrance Beach. Development at this site, if approved, must be sited and designed to be compatible with Section 30240 (b) of the Coastal Act. Section 30240 (b) of the Coastal Act states that development in areas adjacent to parks and recreation areas shall be sited and designed to prevent impacts that would significantly degrade those areas or be incompatible with their continuance. It is necessary to ensure that new development be sited and designed to prevent seaward encroachment of development that would impact public access to coastal resources. After-the-fact approval of the unpermitted development, as proposed,, would result in significant new development encroaching seaward.

As described previously, the applicant is requesting after-the-fact approval for existing development just inland of the public beach and behind the approved four-foot high wall. While the requested as-built structures do not physically impede public access at the toe of the slope or to adjacent beach area, new private structures adjacent to the beach often facilitate private use of the public beach adjacent to the new private structures. In addition, discussions of coastal erosion often point out that the "hardening" of coastal bluffs contributes to the loss of beach sand by reducing the supply of material slowly eroding from the face of the bluff (Terchunian, A.V., 1988 and Department of Boating and Waterways and State Coastal Conservancy, 2002). Loss of sand means a narrower beach, which means loss of a coastal resource. As discussed previously, fewer than 10% of the lots that terminate at the toe of the slope along this stretch of Paseo de la Playa have permitted patios and/or retaining walls. Two consist of concrete retaining walls and one consists of a pre-coastal patio twenty feet above the toe of the bluff at the lower portion of the bluff (417 Paseo de la Playa). There are no approved shade structures. Other property owners along Paseo de la Playa may seek to intensify use of their

properties along the face and toe of the bluff if the unpermitted development is approved as requested. Increased intensification of private development located along the coastal bluffs adjacent to Torrance Beach will result in a less inviting beach appearance to the general public discouraging public use of the beach. The Commission finds that the area directly seaward of the unpermitted development is a publicly owned recreation area and that the proposed project would decrease the distance from the public beach to private residential uses, thereby significantly degrading the area for public recreation and would therefore be inconsistent with Sections 30210, 30220, 30221 and 30240 (b). Therefore, the Commission finds that approval of the unpermitted development is inconsistent with the public access policies and Section 30240 (b) of the Coastal Act and must be denied.

I. Unpermitted Development

Unpermitted development has occurred on site without benefit of the required coastal development permit including, but not limited to, the construction of a 13-foot high 480 square foot shade structure (with 8 10-inch posts and a 8 foot tall retaining wall), with thatched roof on an approximately 680 square foot concrete patio at the toe of the coastal bluff, and a 12-foot diameter thatched umbrella on an approximately 10 foot in diameter concrete pad at mid bluff. All of this development is located on the bluff face and adjacent to the public beach and is visible from the public beach.

Amendment No. 5-90-1041-A2, was submitted as the result of enforcement action by Commission staff to resolve the unpermitted removal of vegetation and to restore the bluff. The Commission approved the amendment with special conditions regarding restoration maintenance and monitoring of the landscaping and habitat. The special conditions required the applicant to agree to plant the area per the approved plant list and annually monitor the landscaping for a period of five years to ensure that a viable community of Eriogonum Parvifolium is established. The applicant has not submitted any of the required reports and it cannot be determined, without the applicant submitting a survey of vegetation on site, if the existing landscaping is consistent with the landscaping plan approved by the Commission. Furthermore, the unpermitted development is located in the two areas of the restoration area that was approved under CDP 5-90-1041-A2, as areas to be restored with Eriogonum and other native plants to preserve and enhance the habitat value of the El Segundo Blue butterfly. The unpermitted approximately 758 square feet of concrete pads eliminates a significant amount of area from revegetation and impacts habitat for the El Segundo Blue butterfly.

However, the Commission has not based its decision on the above-referenced alleged violations of the Coastal Act. It is because the proposed after-the-fact approval of the unpermitted development would be inconsistent with the Chapter 3 policies of the Coastal Act that the Commission is denying this application. The Commission's enforcement division will evaluate further actions to address the matters discussed in the prior paragraph.

Although construction has taken place prior to submission of this permit application, consideration of the permit application by the Commission has been based solely on the consistency of the proposed development with the policies of Chapter 3 of the Coastal Act. Commission action on this permit does not constitute a waiver of any legal action with regard to the alleged unpermitted development, nor does it constitute admission as to the legality of any development undertaken on the subject site without a coastal development permit.

J. Local Coastal Program

Section 30604(a) of the Coastal Act provides that the Commission shall issue a coastal development permit only if the project will not prejudice the ability of the local government having jurisdiction to prepare a Local Coastal Program that conforms with Chapter 3 policies of the Coastal Act.

On June 18, 1981, the Commission approved the City of Torrance Land Use Plan (LUP), with suggested modifications. Torrance identified the beach area as an important resource in its Land Use Plan and included a photographs of the bluffs in is document. However, the City did not accept the modifications, and the certified LUP has lapsed. The area that was not resolved included development standards for the beach and the bluffs; where the boundary line issues were unresolved. Because the City of Torrance does not have a certified LUP, the standard for this review is the Coastal Act.

Approval of the unpermitted development, as proposed, is inconsistent with the Chapter 3 policies of the Coastal Act discussed previously, specifically Sections 30211, 30235, 30240, 30251 and 30253 of the Coastal Act. Development on the coastal bluff would cause adverse impacts to the natural landforms, the coastal scenic resource, and public access. Section 30211 requires that the Commission protect existing public access to the beach, Section 30240 of the Coastal Act states that development in areas adjacent to parks and recreation areas and habitat areas shall be sited and designed to prevent impacts, which would significantly degrade those areas. Section 30251 of the Coastal Act states that permitted development should minimize landform alteration and visual impacts. Section 30253 of the Coastal Act states that new development should not contribute to significant erosion and geologic instability or be inconsistent with community character. Section 30235 only requires approval of protective devices where they are needed to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion. By approving development that is inconsistent with so many aspects of Chapter 3 of the Coastal Act, the proposed development would prejudice the City's ability to prepare a Local Coastal Program for the City of Torrance that is consistent with the Chapter 3 policies of the Coastal Act as required by Section 30604(a). Therefore, approval of the unpermitted development is found inconsistent with Section 30604(a), and the project must be denied.

K. Alternatives

Denial of the proposed project will neither eliminate all economically beneficial or productive use of the applicant's property, nor unreasonably limit the owner's reasonable investment backed expectations of the subject property. The applicant already possesses a substantial residential development of significant economic value of the property. When the Commission approved the existing single family home on the bluff top, development on the face of the bluff was specifically prohibited. In addition, several alternatives to the proposed development exist. Among those alternative developments are the following (though this list is not intended to be, nor is it, comprehensive of the possible alternatives):

1. No Project. This alternative would mean that no changes to the site as it existed before the unpermitted development took place would be approved. The owner would continue to use the existing home and approved accessory structures atop the bluff, and walkway down the bluff face. There would be no disturbance of the bluff face or the toe of the bluff and no seaward encroachment of development. The bluff face would remain as an undeveloped vegetated slope and would be consistent with community character as development would be limited to the top of the coastal bluff. The proposed project which would diminish the value of the public beach by discouraging public usage, would not be authorized. This alternative would result in the least amount of adverse effects to the environment.

2. Relocate development. A shaded patio located on the bluff top within the vicinity of the pool or added to the landward side of the property would provide the applicant the same type of use proposed at mid bluff and at the toe of the bluff.

L. California Environmental Quality Act (CEQA)

Section 13096 of Title 14 of the California Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The proposed project includes approval of unpermitted development on the bluff face and at the toe of the bluff. Coastal resources in the general area include scenic views from the public beach and public recreational access. As discussed previously, the majority of development along Paseo de la Playa is located along the bluff top. Allowing the proposed project would lead to bluff face development in an area where a proliferation of beach level structures and bluff face and paved walkways could create a seaward line of private structures on what has been and undeveloped bluff face. The Commission cannot regard the proliferation of unpermitted structures on the seaward face of the bluff as

establishing either the community character or a precedent. Additional unpermitted development has occurred that has encroached seaward and threatens to affect the community character. Over time, incremental impacts can have a significant cumulative adverse visual impact. Approving the project may set a precedent for future projects on other properties along this bluff. The cumulative impact of private structures, patios paved accessways, and stairways along the bluff face would degrade the public's recreational beach experience, and as indicated above, potentially reduce the sand supply available for beach replenishment. Further, on beaches where there is extensive private development adjacent to the public beach, conflicts arise concerning the level and hours of public use of the beach closest to these structures as homeowners attempt to protect their privacy.

Additionally, the unpermitted development has occurred in a potential habitat area of the El Segundo blue butterfly, a Federally Listed endangered species, in an area previously ordered restored by the Commission specifically to benefit that species.

As described above, the proposed project would have adverse environmental impacts. There are feasible alternatives or mitigation measures available, as described in the section above that would substantially lessen these significant adverse impacts that the activity will have on the environment. Therefore, the proposed project is not consistent with CEQA or the policies of the Coastal Act because there are feasible alternatives, which would lessen significant adverse impacts. Therefore, the project must be denied.

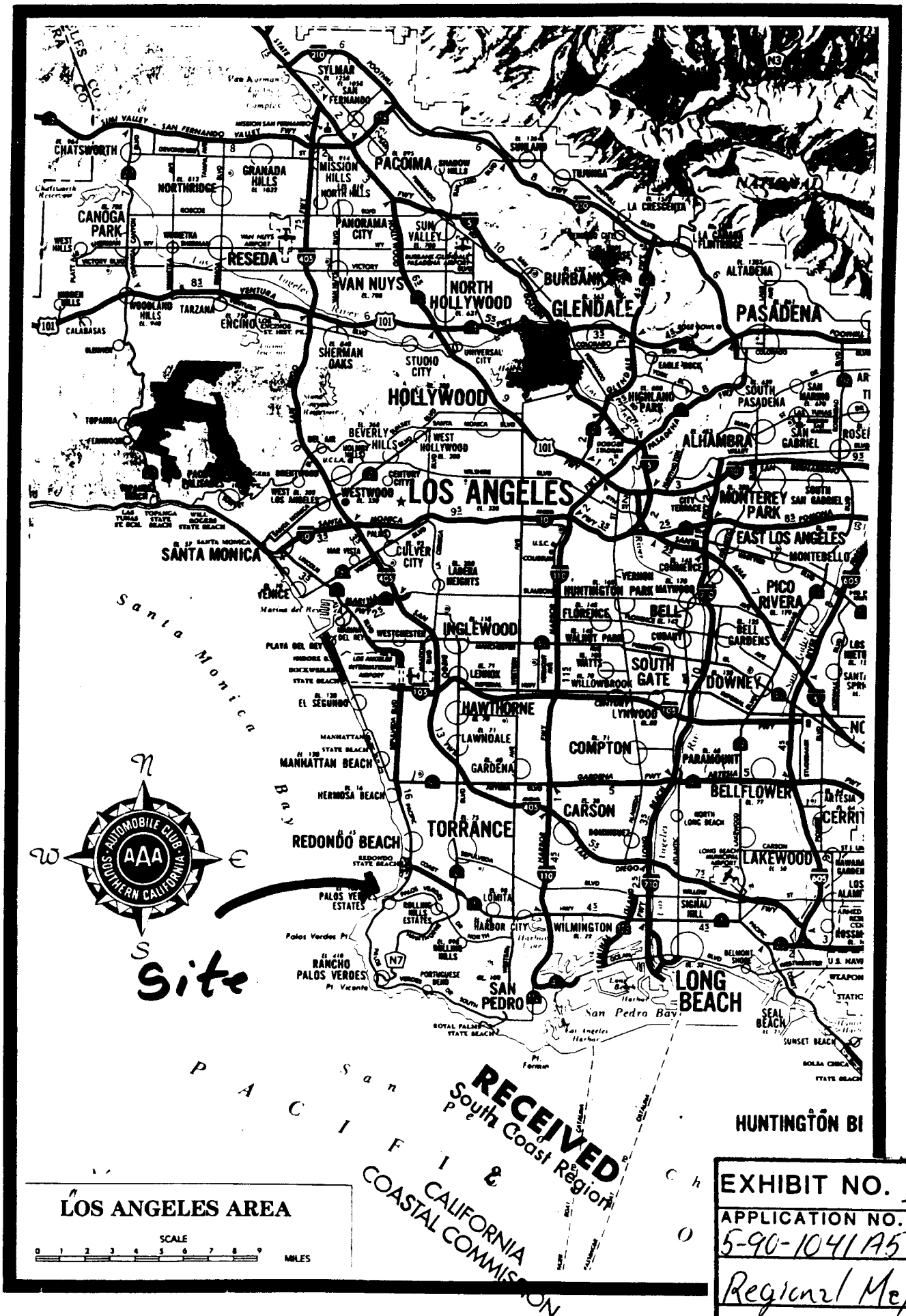
SUBSTANTIVE FILE DOCUMENTS:

1. Coastal Development Permits P-7342 (Hood), 5-97-050 (Kreag) and applicable amendments (Prince), 5-84-187 (Briles), 5-84-187-A (Briles), 5-85-755 (Briles), 5-90-1041 and amendments (Stamegna, Hawthorne Savings and Campbell), P-77-716 (Warren), P-7266 (Bacon), A-80-6753 (Bacon), 5-90-868 (Schreiber), 5-01-018 and 5-01-409 (Conger), 5-85-183 (Hall), 5-90-1079 (Wright), 5-91-697 (Wright), A-79-4879 (McGraw), 5-83-618 (Fire), 5-96-167 (Lichter), 5-01-080 (Palmero); 5-03-328 Tim Carey Trust), .5-03-212 (Bredesen), P-77-716 (Warren) , 5-85-183 (Hall), 5-90-1079 (Wright), 5-91-697 (Wright), A-79-4879; 5-03-328 (Carey), 5-83-618 (Fire).
2. Terchunian, A.V., 1988, *Permitting coastal armoring structures: Can seawalls and beaches coexist?* Journal of Coastal Research, Special Issue No. 4, p. 65-75.
3. United States Geological Survey, Monty A. Hampton and Gary B. Griggs, Editors, Professional Paper 1693, *Formation, Evolution and Stability of Coastal Cliffs -- Status and Trends, pp1-4, Introduction.*
4. *Geologic and Soils Engineering Investigation Proposed Single Family Residence, 437 Paseo de la Playa, Torrance, California for Mr. and Mrs. Robert*

Hood, (Project No. KB 1935) prepared by Kovacs – Byer and Associates Inc. January 23, 1976.

5. United States Department of the Interior, United States Fish and Wildlife Service, "*Habitat Restoration and Enhancement Plan, C.G. and V.C. Bredesen Trust Property, 437 Paseo de la Playa Redondo Beach, CA*," letter signed by Ken Corey for Karen Goebel, November 3, 3004
6. Department of Boating and Waterways and State Coastal Conservancy, 2002, "*California Beach Restoration Study,*" Sacramento, California, www.dbw.ca.gov/beachreport.htm.
7. City of Torrance, Aerial photograph, 1978.
8. City of Torrance, Aerial photograph, 1992
9. USGS, 1:40,000 map, Santa Monica Bay, 1893,
10. United States Army Corps of Engineers, 1:62,500 map, Redondo Beach, Quadrangle Sheet, 1944.
11. Cotton, Shires and Associates, Inc., "Geotechnical Investigation and Evaluation, 437 Paseo de la Playa, Torrance, California, " March, 2004.
12. Kelley and Associates, Environmental Sciences, Inc. Native Vegetation Landscaping Plan, 437 Paseo de la Playa, Torrance, Los Angeles County, California, November, 2003,
13. Kelley and Associates, Environmental Sciences, Inc. Native Vegetation Landscaping Plan, 437 Paseo de la Playa, Torrance, Los Angeles County, California, Revised 26 October, 2004
14. Skelley Engineering wave run-up and coastal hazard study, 437 Paseo de la Playa Redondo Beach, CA'" June, 2004.
15. SMP inc. Structural Analysis of Existing Detached Palapa Patio Cover, 437 Paseo de la Playa Torrance ca 90277, " 5-06-04, 8 pages.
16. David Skelly, Geosoils, Memorandum to Mr. Chris Bredesen, November 30, 2004.
17. Stanley E. Remelmeyer, City Attorney, City of Torrance, 1976. Position Paper of the City of Torrance Regarding the Proposal to Acquire Eight (8) Blufftop Parcels at Torrance; Requesting Deletion from the Acquisition List of the Proposal to Acquire Eight (8) Blufftop parcels at Torrance Beach;
18. Kelley, and Associates, Environmental Sciences, Inc. Supplemental Habitat Enhancement Plan, Native Vegetation Landscape Plan, seaward slope, 437 Paseo de la Playa, Torrance, Los Angeles County, California
19. Kelley and Associates, Environmental Services, Inc., "Native Vegetation Landscaping Plan, 437 Paseo de la Playa, Torrance, Los Angeles County, California, " November 2003.
20. Kelley and Associates, Environmental Sciences, Inc., Supplemental Habitat Enhancement Plan and Supporting Documents, 11 October 2004
21. Cotton, Shires & Associates, Inc., Geotechnical Investigation and Evaluation, 437 Paseo de la Playa, Torrance California, March, 2004
22. Skelly Engineering, "Wave Run-up and Coastal Hazard Study, 437 Paseo de la Playa, Redondo Beach, CA, " June, 2004,

23. SMP, Inc., "Structural Analysis of Existing Detached Palapa Patio Cover, 437 Paseo de la Playa, Torrance, Ca. 90277." CDP A-2019



LOS ANGELES AREA

SCALE

0 1 2 3 4 5 6 7 8 9 MILES

RECEIVED
South Coast Region
CALIFORNIA COASTAL COMMISSION

EXHIBIT NO. 1

APPLICATION NO. 5-90-1041A5

Regional Map

California Coastal Commission

View Enlarged Map | View Printin Instructions

County of Los Angeles: Rick Auerbach, Assessor

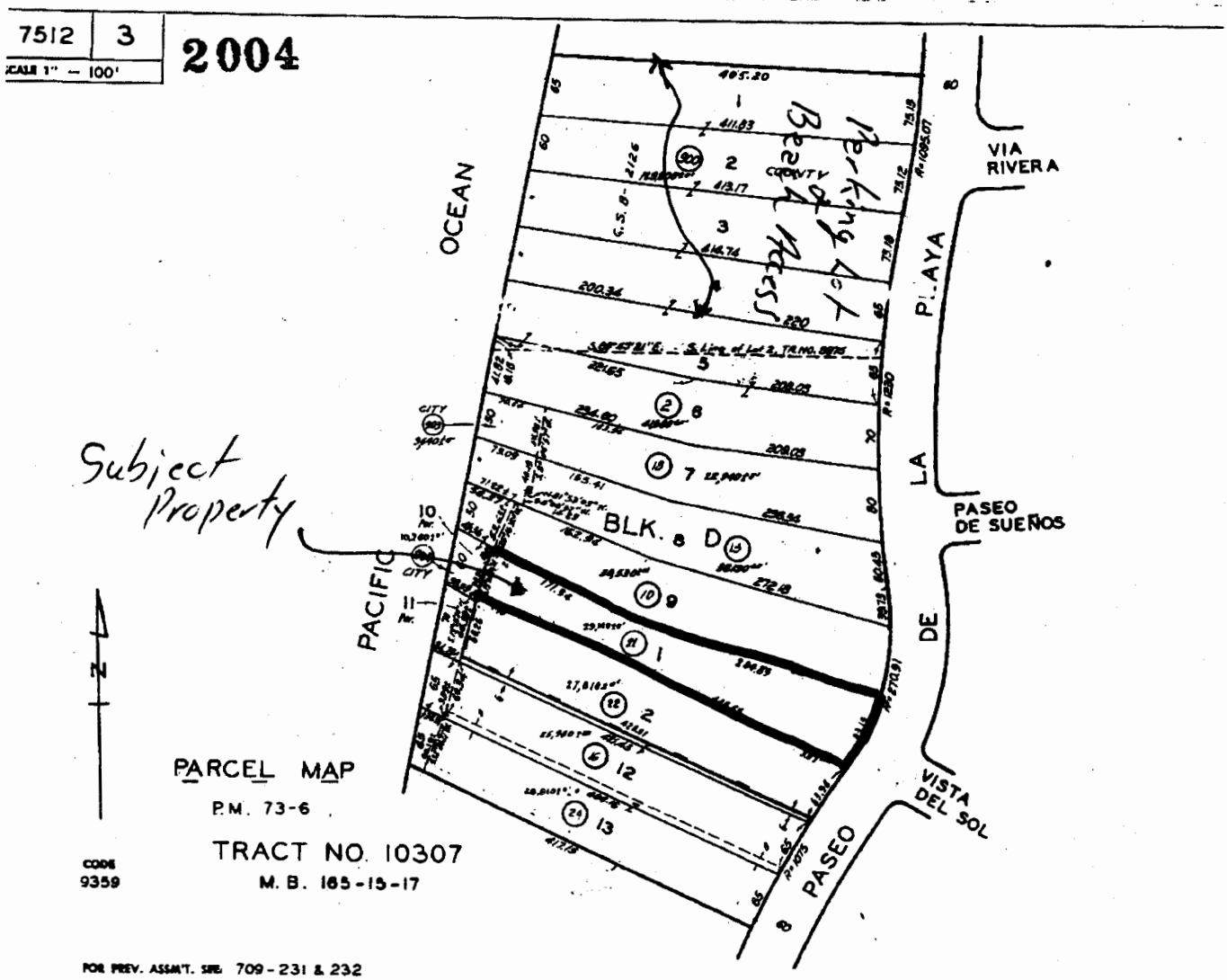


EXHIBIT NO. 2

Application Number 5-90-1041A5

Parcel Map

California Coastal Commission

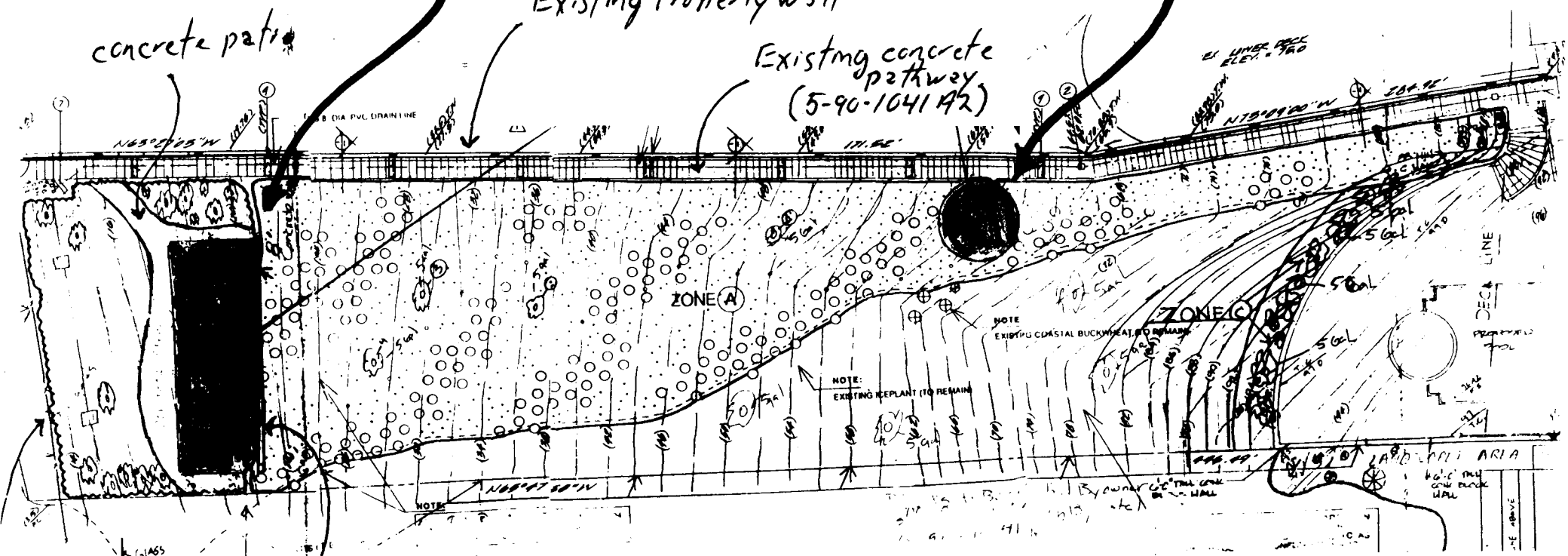
13' high shade structure with retaining wall and concrete pad

12' Thatched Umbrella with 10' diameter concrete pad

Existing Property wall

concrete patio

Existing concrete pathway (5-90-1041 A2)



Retaining wall

Existing Property wall (5-90-1041 A3)

EXHIBIT NO. 3

Application Number

5-90-1041 A5

Site Plan

California Coastal Commission

rovide a clear work program for the restoration of
ty from erosion. 2) protection of habitat of native species. 3)
significant stand of Eriogonum Parvifolium and other seabluff
coastal strand plants native to California.

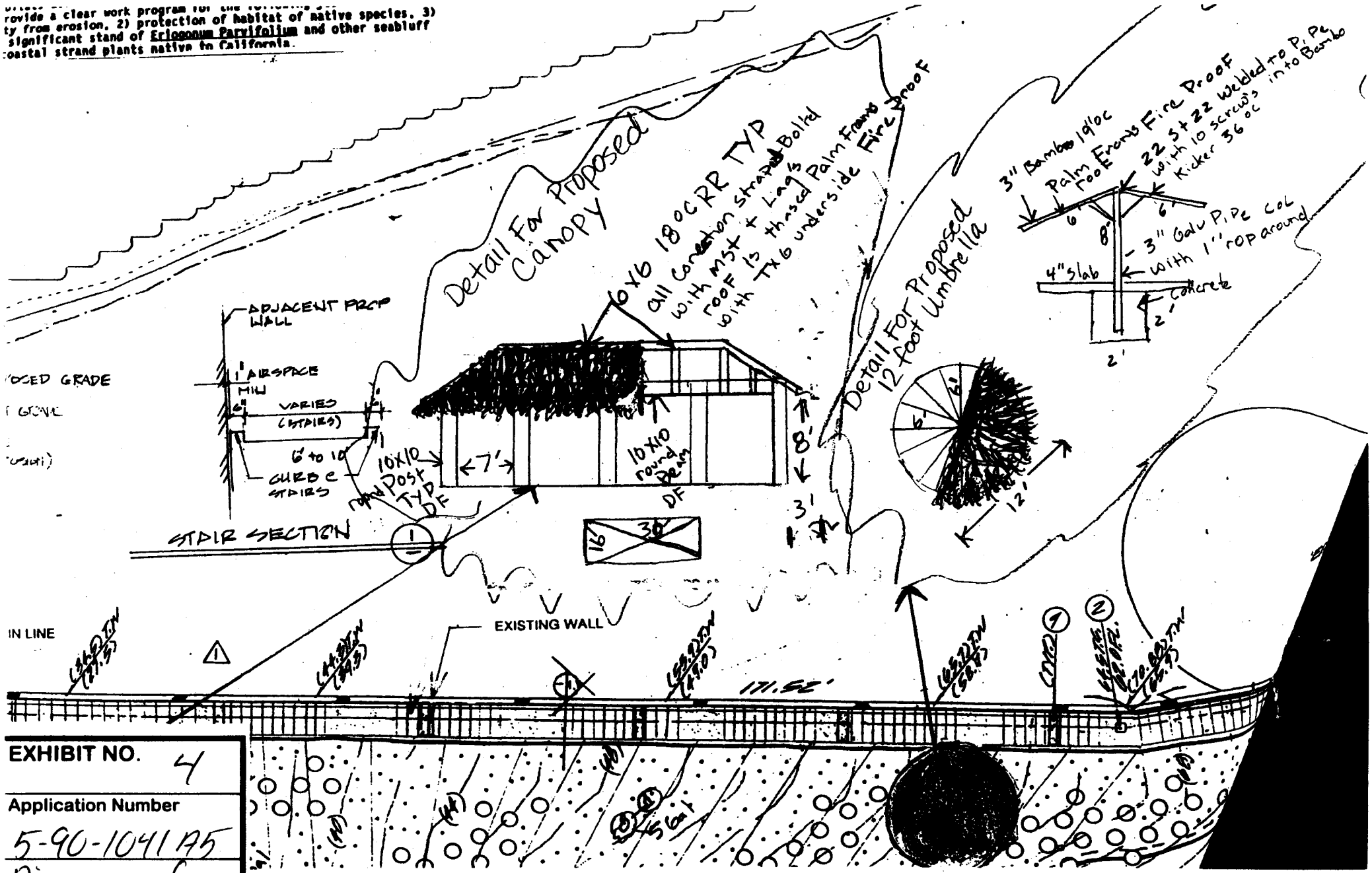


EXHIBIT NO. 4

Application Number

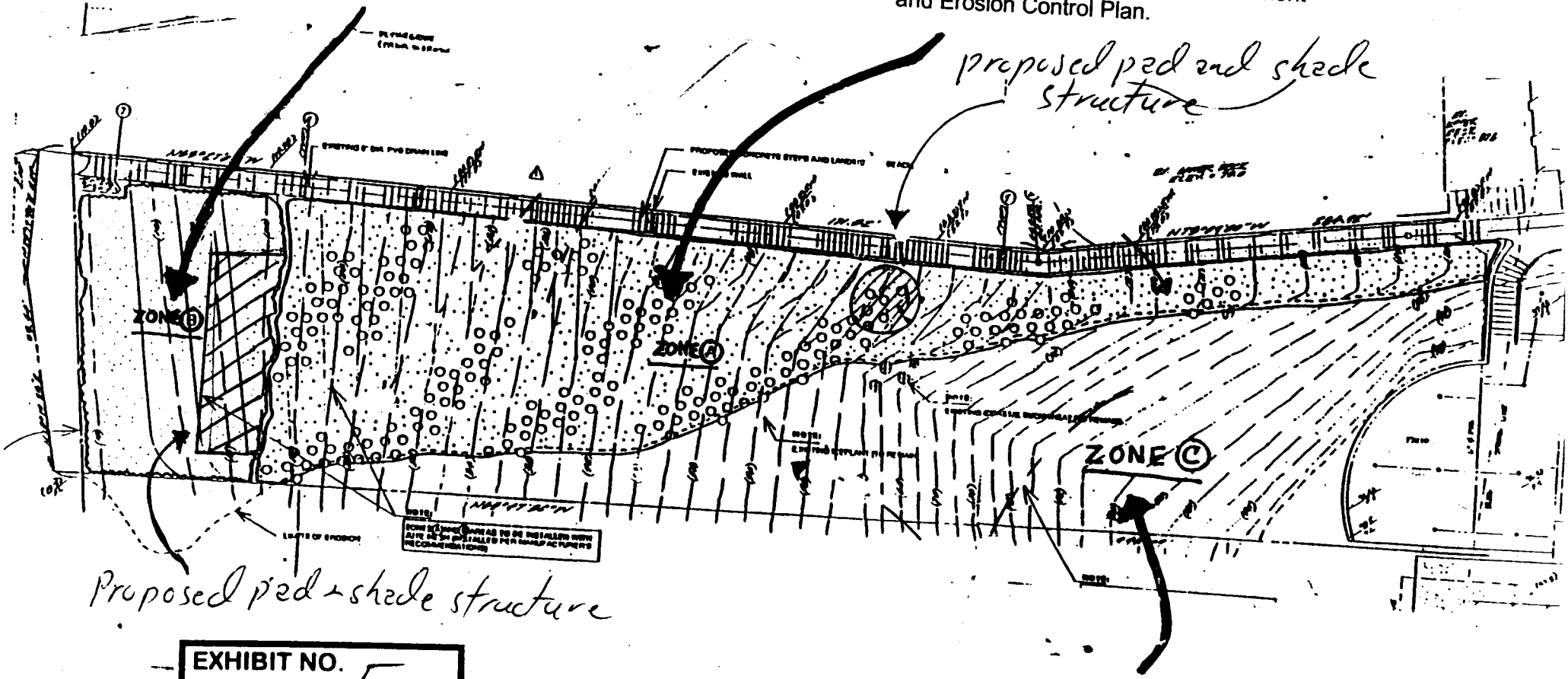
5-90-1041 A5

Diagram of Structures

California Coastal Commission

Zone B
Native Annuals and Perennials
Of the Seabluff Succulent Communities

Zone A
Reestablishment of Coastal Buckwheat.
Planting of native plants and temporary use of ice plant for erosion control, consistent with Habitat Enhancement and Erosion Control Plan.



Zone C
Planting of native, non-invasive plants, with the exception of iceplant for erosion control purposes

EXHIBIT NO. 5
Application Number
5-90-1041 A5
Approved Habitat Enhancement Site Plan
California Coastal Commission

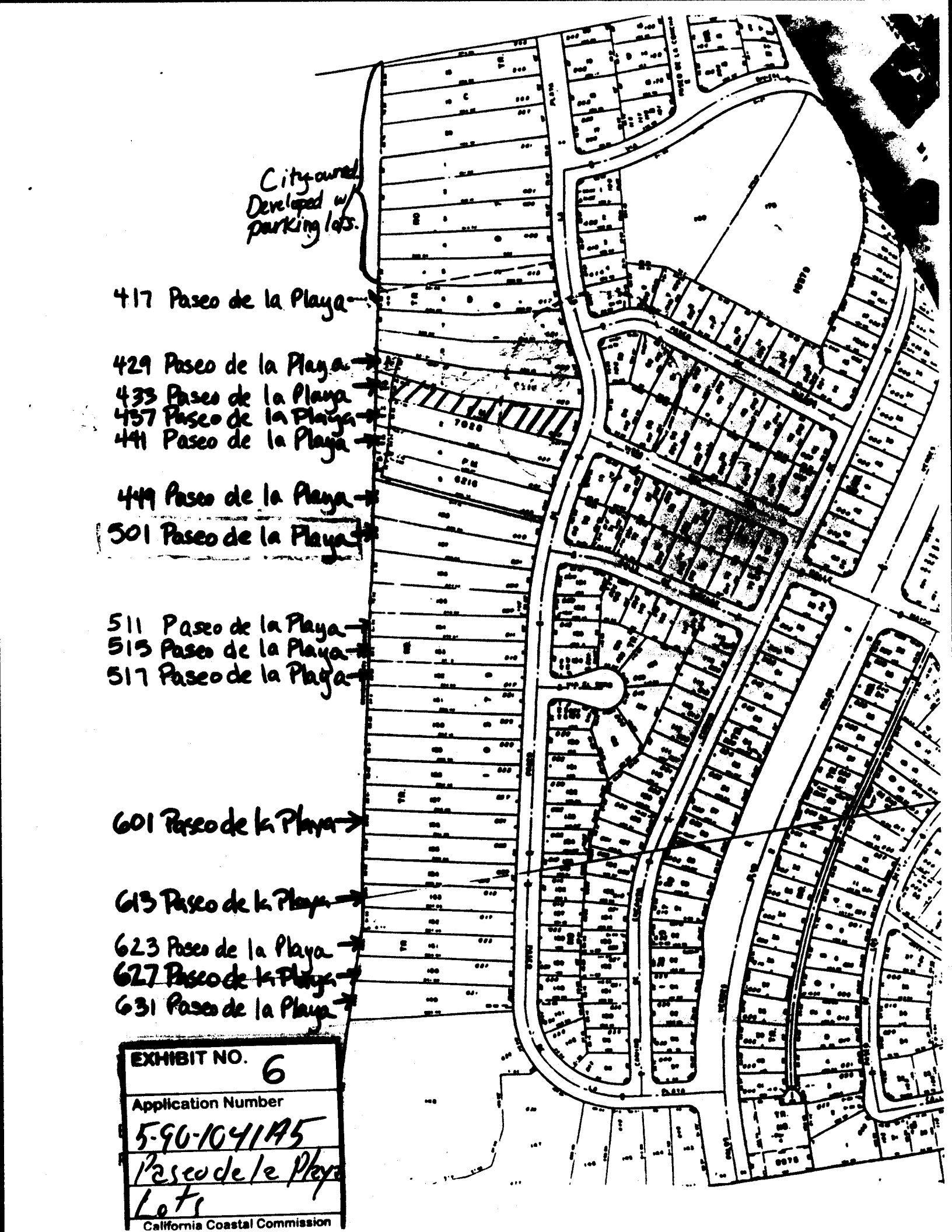


EXHIBIT NO. 6

Application Number

5-90-1041 A5

Paseo de la Playa

Lots

California Coastal Commission

Habitat Enhancement and Erosion Control Plan

433 Paseo de la Playa
Torrance, California

prepared for

Hawthorne Savings

by

Rudi Mattoni, PhD

Department of Geography
University of California, Los Angeles
CA 90095-1524
310-825-3019

EXHIBIT NO. 7
APPLICATION NO.
5-90-1041A2

Approved Habitat Enhancement Plan for Site

Project Location. The project is a vacant lot located at 433 Paseo de la Playa in the city of Torrance just south of the boundary of Redondo Beach. The lot is situated atop the west facing bluff of the Palos Verdes marine terrace and extends from the street to the public beach boundary (Plot map attached).

Site. The project site lies across a bluff which rises abruptly from an elevation of 14 feet, slightly above the public beach to the west, to the daylight line at about 90 feet elevation. This bluff face is about 220 feet in length, measured from the beach to the daylight line. The site width varies slightly from an average of 50 feet back The slope varies from about 3:1 to 4:1 depending on localized conditions, generally being steeper on the upper reach. The existing substrate is mostly pure free flowing coarse sand perched on weakly consolidated sandstone from pre-Flandrian deposits. Serious erosion occurred during heavy rains in 1995 along the northerly property line as a consequence of construction associated with installation of a drainage conduit and trampling by public use of the zone for beach access. Localized grade in this eroded zone approaches near vertical in short reaches where the weak sandstone is now exposed. The open access of the site now is been subject to human traffic which appears to have exacerbated erosion potential.

Background. The Malaga dunes represent the fragmented southernmost extension of the massive El Segundo dunes system. They were formed by sand drift across the lifted sedimentary deposits that form the north thrusting Palos Verdes marine terrace. A substantial data base exists for understanding the historic ecosystem of these dunes and their windward strand (Mattoni, 1992. The endangered El Segundo blue butterfly, Jr. Res. Lepid. 29:277-304 and references). Although the Malaga dunes and bluff face are now highly degraded, the presence of some residual native elements can provide the framework for a habitat enhancement program. The degree of ecological collapse has progressed to a point wherein preservation and natural succession will not resurrect the natural ecosystem without active management.

Coastal sand dunes represent a vanishing habitat in California. For the land area they cover, coastal dunes have a very high concentration of endemic species. On a statewide average, coastal dunes have been reduced to less than 25% of the area they originally occupied (Powell, 1981). In the following discussion, sand dunes refer to landforms comprised of free flowing sand. For the most part these dunes are of recent geological origin, having been formed within the past 10-12000 years, and are called Flandrian dunes. In many areas, including this site, older pre-Flandrian dunes form a base beneath the newer dunes. The pre-Flandrian dunes are wholly comprised of cemented sands of various hardness (sandstone) which clearly have physicochemical properties presenting quite different adaptive requirements to the plants and animals that utilize them for habitat.

One irreplaceable value of these dunes is their function as a refugium for many sand obligate species and as the sole significant reservoir for carrying these species into the future. Sand obligate species are species which require free flowing sand for persistence, a determination based largely on distributional and not functional information. Further, specialized herbivores and their specialized predators and parasitoids in turn are sand obligate if they depend on a sand obligate plant or plants.

A review of the geological history of the El Segundo sand dunes has been given by Cooper (1967), who described the status of the dune system in some detail, including the thesis work of local geology students. Although Cooper has been widely quoted regarding the historical extent of the dunes, most cited references of his work unfortunately were based on an early misinterpretation of Cooper's analysis with subsequent authors propagating the error. The actual Flandrian El Segundo sand dunes covered about 1165 ha (4.5 mi^2 or 2880 ac) instead of 18,100 ha or 36 mi^2 (*sic*) erroneously reported.

Prior to the arrival of European man, the active Flandrian dunes extended about 15 kilometers (9 miles) along the coast from the Playa del Rey bluffs to the Palos Verdes marine terraces, and reached an average of about 0.8 kilometers (0.5 miles) inland. To the north the dunes were limited by the Playa del Rey bluffs, a gradual transition still visible in a 1924 aerial photograph. At the foot of the bluffs, a dunes segment bordered both sides of Ballona Creek and extended north as low hummocks into what today is Ocean Park. To the east the large deflation plain of the pre-Flandrian dunes and the Torrance plain, with their largely forb meadow flora, formed the remaining boundary of the El Segundo sand dunes and enclosed them to the south in the vicinity of the Palos Verdes terraces at south Redondo Beach.

Habitat values.

Present

The present vegetation of the dune slope is depauperate. On the site, only 4 species of native plants were seen: coastal buckwheat (*Eriogonum parvifolium*), California sunflower *Encelia californica*), California croton (*Croton californica*), deerweed (*Lotus scoparius*), beach primrose (*Camissonia chieranthefolia*), and burweed (*Ambrosia acanthicarpa*). Only the latter two species are providing new recruitment. Several additional species in the list below were observed on adjacent property to the south (marked **M**) with a still richer flora known from the Palos Verdes bluffs further south (marked **P**). Altogether these records (marked **P**) show only 20% of the following minimum list of species which would be expected from the area prior to disturbance.

Native plants now cover less than 2% of the site. The most abundant exotics species of the site are poor quality iceplant (*Carpobrotus edulis*), and actively expanding European chrysanthemum (*Chrysanthemum coronatum*), sea rocket (*Cakile maritima*), and ripgut brome (*Bromus diandrus*).

Native animals have not been surveyed, but the fauna appears depauperate. The endangered El Segundo blue butterfly has been seen on the site as recently as 1994 (Morton, pers. comm. Audubon 4th July butterfly count). Few harvest ant colonies are active, few side bloch lizards were noted with some active digging by gophers.

Historical

The following is an exhaustive listing of all plant species found or likely Malaga Bluffs native plant species. The plan will involve restocking the few existing species and reintroduce the majority of species accounting for original floral diversity.

Perennials - Large shrub cover

Eriogonum parvifolium
Lupinus chamissonis
Rhus integrifolia
Isomeris arboria
Encelia californica
Haplopappus ericoides
Opuntia littoralis
Phacelia ramosissima
Datura wrightii
Baccharis pilularis
Lotus scoparius
Salvia mellifera

Subshrub cover

Erysimum suffrutescens
Dudleya lanceolata
Ambrosia chamissonia
Distichlis spicata
Abronia umbellatum
Camissonia chieranthifolia
Eremocarpus setigerus
Artemisia californica
Corethrogyne filaginifolia
Gnaphalium bicolor
Heterotheca grandiflora
Cuscuta californica
Curcubita foetidissima
Croton californica
Marah macrocarpa
Eschscholtzia californica
Dichlostemma pulchella
Galium angustifolium
Ambrosia psilostachya

Senecio douglasii
Artemisia dracunculus
Astragalus leucopsis
Calystegia macrostegia
Cardionema ramosissima
Mirabilis laevis
Solanum douglasii

Annuals

Festuca megalura
Dithyrea maritima
Plantago erecta
Calandrinia maritima
Phacelia cicutaria hispida
Chaenactis glabriuscula
Descurainea pinnata
Lepidium lasiocarpum
Cryptantha clevelandii
Lotus purshianus
Lotus strigosus
Calyptridium monandrum
Lupinus bicolor
L. truncatus
C. micrantha
Linaria canadensis
Heterotheca grandiflora
Crassula erecta
Stephanomeria virgata
Malacothrix saxatile
Camissonia lewisii
C. micrantha
Microseris heterocarpa
Rafinesquia californica
Senecio californicus

Enhancement

Given the theoretical impossibility of restoring an ecosystem approximating that historically found in the area, a more limited objective of revegetation will be adopted. This includes re-introducing all plant species (listed above) known to occur across the sand substrate and topoclimate of the site. The enhancement will include restocking the few existing species plus reintroducing those extirpated from the site and for which stock is available. These will be planted and maintained for a period of one growing season, at which time the maturity of the perennial species and re-seeding potential of the annuals should provide clues to persistence and the degree of care this

landscape will require. Our extensive experience with the El Segundo sand dunes and several sites across the Ballona Lagoon upland indicates the native flora is resistant to invasion by exotic species, thereby ever diminishing the necessity of weeding.

The most important ingredient of a successful program will be utilizing genetic stock that derives from close localities. The only exceptions may be those few species that no longer occur nearby or the widespread annuals that are needed in bulk for immediate erosion control implementation.

A tentative vegetation plan is attached.

Methods.

Grading. The site will be graded according to a plan attached. It is assumed that the substrate is clean/screened sand moved from the beachfront zone of wash down. Prior to grading, a biologist will inspect the area and mark all native shrubs that must not be disturbed and transfer any significant terrestrial animals present to safe sites.

Site preparation. At least one period of intensive watering will be followed by hand removal of all weed species. In the event of very high weed density, a single application of 1% Roundup will be made only on local patches. Hand weeding has the deleterious effect of soil disturbance, although the presence of high soil moisture by periodic overhead irrigation should minimize this impact. All weeded material will be removed from the site. A trained person familiar with all plant species will be perform all weeding.

Erosion control. Any locally steep banks above the will be covered with jute matting that is securely stapled into position according to accepted procedures. Stabilization will require rapid establishment of annual plants to minimize soil erosion from rain and wind. *Festuca megalura,* in conjunction with several other native species of annuals from this area will serve to bind the soil. When water is withdrawn, these annuals will die back and provide a mulch for the interplanted perennials. The latter will be planted in a manner to aid in the erosion control process.

Irrigation. A simple, temporary system of low flow gear driven sprinkler heads will be used. This system is cheap, easily replaced or repaired when vandalized, and provides gentle, slow water delivery. The system will be used to augment natural rainfall and extend the growing season to rapidly establish the perennial shrubs and bring up the annual seed bank for erosion control. The system will be useful in times of drought for future management.

Post-planting weed control. Post planting weed control will involve inspection and hand removal. This will be implemented regularly following winter germination to control the seed banks of exotic species. Once the cover of native perennial species is well established and large seed banks of the re-established annuals have built up, weedy species will virtually disappear. This has been observed in all projects we have designed, where, in spite of dense stands of tumbleweed, cheeseweed, and European chrysanthemum

immediately adjacent to the plot, virtually no individuals of these exotics survive in the native stands.

Plant species resources. All stock used will be derived from sources of the immediate vicinity or from environmentally similar situations. Certain of the seed sources for annuals, e.g. *Festuca,* may be obtained from commercial suppliers since sufficient quantities are not available. A few species are so rare (e.g. the listed endangered *Dithyrea maritima*) that local stock is currently unavailable.

Plant installation. Perennial seedling stock will be supplied in deepots or other containers with a high depth to width ratio to assure rapid root establishment into a low soil profile. These are indicated in the plant inventory control chart that follows. Planting holes larger and deeper than the containers will be dug, twice filled with water, 5-10 prills of Osmocote slow release fertilizer added and covered, and the plant installed and backfilled. Basins about one foot in diameter will be formed and topped with a 2 inch mulch and the plants well watered. Additional fertilizer is deleterious to natural systems.

Seed will be hand scattered as individual species and not in mixes. With seed broadcast during the early winter period following, but not during, the first rains, no preparation will be required except prior weeding. Seed will be lightly raked in and Seed beds will be immediately watered, . Seedbeds will not be fertilized or mulched.

Plant distribution plan. The plant list is given on the census charts and positions of keystone shrub plantings indicated on the attached plan. Variation in placement will be made to accommodate local topographic features which remain unknown until grading is completed.

Although the site will be overplanted, once natural hydrologic conditions are re-established, selection will maintain the fittest members of the community. One annual cycle will be required for plantings to establish. Thereafter irrigation will be restricted to times of prolonged drought.

Fencing. The existing fence separating the site from the public beach should be heightened to preclude vandalism and an access gate installed for service.

Signs. At least one sign will be erected on the fence, indicating the nature of the project and asking for public awareness and support.

Schedule. The optimal time for installation is from September through December. Germination of most annuals is only successful during this window. Furthermore some of the perennials (*Isomeris,* Bush Lupine) suffer less transplant shock in fall and early winter even though most perennials can be installed year-round given appropriate irrigation. We urge every effort be made to ensure site preparation can begin in early fall to provide time for regulating the alien species seed banks prior to planting.

Maintenance.

Once plantings are established and seed broadcast, it will be necessary to water depending on weather conditions and weeding. The latter was discussed above, and weeding will be provided over a one year period. Irrigation will depend on how long it is desired to extend the blooming season for certain of the perennial plants, such as the poppy, wallflower, and primroses, all of which will bloom into summer if watered. It must be recognized that prolonged watering increases weed establishment.

Monitoring

Plants. A record will be maintained of all planting dates and distributions, with all losses of perennial species noted. Over the one year maintenance period, replacement planting will be made at discretion, depending on the time of loss and the relative degree of lost to total cover.

Animals. Although there is no provision for monitoring animal populations, there would be value in providing information on the community of arthropods, particularly the El Segundo blue butterfly and ground-dwelling insects, as these will probably change over time with the transition of the site from an exotic weed patch to a native community. A large data base has been gathered for similar terrestrial communities at several Palos Verdes sites and at the El Segundo sand dunes (Mattoni and Novotny, unpublished). Because of variation in habitat size and history, a parallel program would be of scientific interest. There is no funding currently available for such monitoring, but the option should be kept in mind as a future research objective. Such monitoring is beyond the current program scope.

PLANTING RECORD AND CENSUS

Clearing started primary completed

Weed control

Species found on adjacent property to the south marked M, with those from the Palos Verdes bluffs marked P. Species restricted to the strand marked ST. Others known from El Segundo dunes.

	Present	Planting	1996	1997	1998
Extant plants-sustaining					
Ambrosia acanthicarpa					
Extant perennials-restock					
Dpot seed Eriogonum parvifolium	200				
Encelia californica	20				
Seed broadcast: Camissonia chieranthifolia	2 oz				
Lotus scoparius	1 lb				
Extirpated perennials/reintroduce					
Dpot seed: Isomeris arboria P	20				
Senecio douglasii P	20				
Mirabilis laevis P	40				
Haplopappus ericoides P	20				
Galium angustifolium P	20				
Artemisia dracunculus P	10				
C. soldanella ST	20				
Abronia maritima ST	40				
Gal seed: Rhus integrifolia P					
Band seed: Dudleya lanceolata P	70				
Corethrogyne filaginifolia P	70				
Calystegia macrostegia P	35				
Cardionema ramosissima	35				
Astragalus leucopsis P	70				
Ambrosia chamissonis M	35				
Abronia umbellatum M	70				
Phacelia ramosissima P	35				
Dpot cutting: Artemisia californica M					
Band cutting: Distichlis spicata M ST	36				
Direct cutting: Opuntia littoralis M	2 clumps				
Cuscuta californica M	25 clumps				
Seed planting: Croton californica M	100				
Marah macrocarpus M	20				
Datura wrightii M	5				
Cucurbita foetidissima P	20				
Seed broadcast: Lupinus chamissonis	6 oz				
Erysimum suffrutescens	2 oz				
Gnaphalium bicolor M	4 oz				
Eschscholtzia californica M	2 oz				
???Pholisma paniculatum					

	Present	Planting	1996	1997	1998
Extant annuals -restock Broadcast					
Festuca megalura	5 lb				
Extirpated annuals to be re-introduced					
Seed band:Dithyrea maritima	70				
Seed broadcast: Plantago erecta	2 oz				
Calandrinia maritima P	1 oz				
Phacelia cicutaria hispida P	.5 lb				
Chaenactis glabriuscula P	3 oz				
Descurainea pinnata P	2 oz				
Lepidium lasiocarpum P	2 oz				
Cryptantha clevelandii P	4 oz				
Lotus purshianus P	1 oz				
Lotus strigosus P	2 oz				
Calyptridium monandrum P	1 oz				
Lupinus bicolor P	1 lb				
L. truncatus P	2 oz				
C. micrantha P	.5 oz				
Linaria canadensis P	.5 oz				
Heterotheca grandiflora	2 oz				
Crassula erecta P	6 oz				
Stephanomeria virgata M	2 oz				
Invasive perennials to be removed					
Carpobrotus sp. sq. ft.					
Acacia spp					
Invasive annuals to be regulated					
Erodium spp					
Salsola iberica					
Bromus diandrus					
Brassica spp					
Cakile maritima					
Raphanus sativus					
Sonchus oleracea					
Picris echioides					
Chrysanthemum coronarium					
Cenchrus echinatus					
Hordeum leporinum					
Malva parviflora					
Conyza spp					