

CALIFORNIA COASTAL COMMISSION

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**Tu 8c**

July 26, 2006

An addendum was appended to this staff report on Thursday, August 3, 2006. Additional pages were added to this addendum on Monday, August 7, 2006.

TO: Commissioners and Interested Persons**FROM:** Deborah Lee, Senior Deputy Director, South Coast District
Teresa Henry, Manager, South Coast District
Karl Schwing, Supervisor, Regulation & Planning, Orange County Area
Meg Vaughn, Coastal Program Analyst**SUBJECT:** Major Amendment Request No. 1-06 to the City of Huntington Beach Certified Local Coastal Program (For Public Hearing and Commission Action at the August 8-11, 2006 meeting in San Pedro).**SUMMARY OF LCP AMENDMENT REQUEST NO. 1-06**

Request by the City of Huntington Beach to amend both the Land Use Plan (LUP) and the Implementation Program (IP) portions of the Local Coastal Program (LCP). The proposed Local Coastal Program (LCP) amendment is a project-specific amendment designed to make possible a low density residential development on a vacant, approximately 50-acre site comprising two legal lots, most of which is currently in agricultural production. Of the total project area, approximately 45 acres have long been located within the City of Huntington Beach. The remaining 5 acres were, until recently (2004), located within unincorporated County of Orange jurisdiction, within the Bolsa Chica LCP area. However, with the recent annexation, the entire site is within the City of Huntington Beach. Of the 45 acre portion of the site, approximately 40 acres were deferred certification at the time the City's overall Local Coastal Program was certified and remain uncertified today. This LCP amendment would incorporate that 40 acres and the newly annexed area into the City's exiting LCP and establish land use and zoning designations for those areas. The remaining five acre portion of the 45 acre area was certified at the time the City's overall LCP was certified as Open Space – Park (OS-P). The 40 acre area was originally deferred certification due in part to wetland issues.

The City's current amendment requests designation of approximately 38.5 acres as RL-7 (Low Density Residential – maximum 7 units per acre), approximately 8.2 acres as OS-P (Open Space – Park), and approximately 3.3 acres as OS-C (Open Space – Conservation). As proposed, the corresponding zoning would be: approximately 38.5 acres RL-FP2-CA (Low Density Residential-floodplain Overlay-Coastal Zone); 8.2 acres would be zoned OS-PR-CZ (Open Space-Parks and Recreation-Coastal Zone Overlay; and, 3.3 acres would be zoned CC-FP2-CZ (Coastal Conservation-Floodplain Overlay-Coastal Zone Overlay).

SUMMARY OF STAFF RECOMMENDATION:

As proposed the amendment would allow residential development of up to 7 units per acre, on 38.5 acres of the site. In addition, active park uses would be allowed within the proposed Open Space Parks designation. Wetland areas and a eucalyptus grove

Environmentally Sensitive Habitat Area (ESHA) that supports raptors are present at the site. Portions of the areas proposed to be designated and zoned for residential and park uses are within or adjacent to the wetlands and ESHA at the site. Thus the proposed residential and park land use designations and zoning would not be consistent with the requirements of Coastal Act Section 30233 regarding wetland protection or with Section 30240 regarding ESHA protection. The proposed land uses and zoning further preclude an appropriate buffer to allow continued raptor use of the ESHA as required by Section 30240 of the Coastal Act. Therefore, staff is recommending **DENIAL** of the Land Use Plan Amendment as submitted and approval of the amendment if modified to include revised footprints for the proposed land use designations that would be consistent with Section 30233 of the Coastal Act regarding development in wetlands and with Section 30240 regarding development in and adjacent to ESHA. In addition, suggested modifications regarding water quality, public access, visual resources and archaeological resources are recommended which would make the proposed amendment consistent with Sections 30230 and 30231 of the Coastal Act regarding water quality, and with Sections 30210 and 30252 of the Coastal Act regarding public access, with Section 30244 of the Coastal Act regarding archaeological resources, and Section 30251 regarding visual resources.

As submitted, the IP portion of the amendment is inconsistent with and inadequate to carry out the City's certified Land Use Plan, as staff is suggesting it would have to be amended. Thus, revised footprints for the proposed zoning are also recommended to bring the proposed IP amendment into conformance with the LUP policies regarding wetland and ESHA protection. Therefore staff is recommending **DENIAL** of the Implementation Plan Amendment as submitted, and approval if modified as provided below.

The motions to accomplish the staff recommendation are found on pages 3 – 5.

STANDARD OF REVIEW

For the proposed Land Use Plan amendment, the standard of review is conformance with and satisfaction of the requirements of the Chapter 3 policies of the Coastal Act. For the proposed Implementation Program amendment, the standard of review is conformance with and adequacy to carry out the provisions of the certified Huntington Beach Land Use Plan, as amended.

SUMMARY OF PUBLIC PARTICIPATION

Section 30503 of the Coastal Act requires public input in Local Coastal Program development. During the preparation, approval, certification, and amendment of any local coastal program, the public, as well as all affected governmental agencies, including special districts, shall be provided maximum opportunities to participate. Prior to submission of a local coastal program for approval, local governments shall hold a public hearing or hearings on that portion of the program which has not been subjected to public hearings within four years of such submission. The City held numerous public hearings on the proposed LCP amendment as shown on exhibit D.

All City staff reports were made available for public review in the Planning Department and in the Huntington Beach Public Library. Public hearing notices were mailed to property owners of record for the parcels that are the subject of the amendment as well as parcels within a 1,000 foot radius (including occupants), and notice of the public hearing was published in the Huntington Beach Independent, a local newspaper of general circulation.

ADDITIONAL INFORMATION

Copies of the staff report are available online on the Coastal Commission's website at www.coastal.ca.gov or at the South Coast District office located in the ARCO Center Towers, 200 Oceangate, Suite 1000, Long Beach, 90802. To obtain copies of the staff report by mail, or for additional information, contact Meg Vaughn in the Long Beach office at (562) 590-5071. The City of Huntington Beach contact for this LCP amendment is Scott Hess, Planning Manager, who can be reached at (714) 536-5271.

I. STAFF RECOMMENDATION

A. Denial of the LUP Amendment as Submitted

MOTION: *I move that the Commission certify Land Use Plan Amendment No. 1-06 to the City of Huntington Beach Local Coastal Program as submitted by the City of Huntington Beach.*

STAFF RECOMMENDATION TO DENY:

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

RESOLUTION TO DENY:

The Commission hereby denies certification of the Land Use Plan Amendment No. 1-06 as submitted by the City of Huntington Beach and adopts the findings set forth below on the grounds that the amendment does not meet the requirements of or conform with the policies of Chapter 3 of the Coastal Act. Certification of the Land Use Plan amendment would not comply with the California Environmental Quality Act because there are feasible alternatives or mitigation measures which could substantially lessen any significant adverse impact which the Land Use Plan Amendment may have on the environment.

B. Approval of the LUP Amendment with Suggested Modifications

MOTION: *I move that the Commission certify Land Use Plan Amendment No. 1-06 for the City of Huntington Beach if it is modified as suggested by staff.*

STAFF RECOMMENDATION TO CERTIFY WITH SUGGESTED MODIFICATIONS:

Staff recommends a **YES** vote. Passage of the motion will result in the certification of the land use plan amendment with suggested modifications and adoption of the following resolution and findings. The motion to certify with suggested modifications passes only upon an affirmative vote of the majority of the appointed Commissioners.

RESOLUTION TO CERTIFY WITH SUGGESTED MODIFICATIONS:

The Commission hereby certifies the Land Use Plan Amendment No. 1-06 for the City of Huntington Beach if modified as suggested and adopts the findings set forth below on the grounds that the Land Use Plan amendment with suggested modifications will meet the requirements of and be in conformity with the policies of Chapter 3 of the Coastal Act. Certification of the land use plan amendment if modified as suggested complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the plan on the environment, or 2) there are no further feasible alternatives or mitigation measures that would substantially lessen any significant adverse impacts which the Land Use Plan Amendment may have on the environment.

C. DENIAL OF THE IP AMENDMENT AS SUBMITTED

MOTION: *I move that the Commission reject the Implementation Plan Amendment No. 1-06 for the City of Huntington Beach as submitted.*

STAFF RECOMMENDATION OF REJECTION:

Staff recommends a **YES** vote. Passage of this motion will result in rejection of Implementation Program amendment and the adoption of the following resolution and findings. The motion passes only by an affirmative vote of a majority of the Commissioners present.

RESOLUTION TO DENY CERTIFICATION OF THE IMPLEMENTATION PROGRAM AS SUBMITTED:

The Commission hereby denies certification of the Implementation Plan Amendment No. 1-06 submitted for the City of Huntington Beach and adopts the findings set forth below on grounds that the Implementation Plan amendment as submitted does not conform with, and is inadequate to carry out, the provisions of the certified Land Use Plan as amended. Certification of the Implementation Program would not meet the requirements of the California Environmental Quality Act as there are feasible alternatives and mitigation measures that would substantially lessen the significant adverse impacts on the environment that will result from certification of the Implementation Program as submitted

D. Approval with Suggested Modifications

MOTION: *I move that the Commission certify the Implementation Plan Amendment No. 1-06 for the City of Huntington Beach if it is modified as suggested by staff.*

STAFF RECOMMENDATION:

Staff recommends a **YES** vote. Passage of this motion will result in certification of the Implementation Program with suggested modifications and the adoption of the following resolution and findings. The motion passes only by an affirmative vote of a majority of the Commissioners present.

RESOLUTION TO CERTIFY THE IMPLEMENTATION PROGRAM WITH SUGGESTED MODIFICATIONS:

The Commission hereby certifies the Implementation Plan Amendment 1-06 for the City of Huntington Beach if modified as suggested and adopts the findings set forth below on grounds that the Implementation Plan amendment with the suggested modifications conforms with, and is adequate to carry out, the provisions of the certified Land Use Plan as amended. Certification of the Implementation Plan amendment if modified as suggested complies with the California Environmental Quality Act, because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the Implementation Program on the environment, or 2) there are no further feasible alternatives and mitigation measures that would substantially lessen any significant adverse impacts on the environment.

II. SUGGESTED MODIFICATIONS

Certification of City of Huntington Beach LCP Amendment Request No. 1-06 is subject to the following modifications.

The City's existing language is shown in plain text.

The City's proposed language is shown in **bold text**.

The Commission's suggested modifications are shown in ***bold, italic, underlined text***.

Language to be deleted is shown in ~~strike-out text~~.

LAND USE PLAN SUGGESTED MODIFICATIONS:

SUGGESTED MODIFICATION NO. 1

Sub-Area Descriptions and Land Use Plan

The City's certified and proposed Land Use Plan (LUP) language, on page IV-C-11, under the heading: Zone 2 – Bolsa Chica, shall be modified as follows:

Existing Land Uses

Inland (Pacific Coast Highway and areas north to the Coastal Zone boundary.)
The majority of Zone 2, the Bolsa Chica, is located outside the City's corporate boundary, within the County of Orange. The area is in the City's Sphere of Influence ... A ~~44~~ **50** acre area between Los Patos ***the residential development along Kenilworth Drive*** and the ***East Garden Grove*** Wintersburg Flood Control Channel is vacant and includes a small section of the Bolsa Chica bluffs.

Coastal (Seaward of Pacific Coast Highway)

...

Coastal Element Land Use Plan

Inland (Pacific Coast Highway and areas north to the Coastal Zone boundary.)

The Coastal Element does not present a land use plan for the Bolsa Chica. The land area north of the Bolsa Chica, within the City's corporate and Coastal Zone boundaries, is built out consistent with its Coastal Element designation of low density. The area west of the Bolsa Chica is also developed consistent with the Coastal Element Land Use designation of low density residential and multi-family residential. ~~The vacant 44 acre area next to the~~

~~Wintersburg Flood Control Channel retains its existing designation as an “Area of Deferred Certification.” Prior to development of the site, an amendment to the City’s Local Coastal Program will be required, subject to Coastal Commission approval; the amendment would take effect upon Commission certification. Portions of this zone are included in the Community District/Sub-area Schedule as sub-areas 4G and 4J. **The Coastal Element land use designation for the vacant 45-acre area next to the East Garden Grove-Wintersburg Flood Control Channel was recently certified as RL-7 (Low Density Residential) and OS-P (Open Space – Park). In addition, approximately 5 acres of land was annexed from the County of Orange into the City of Huntington Beach. This area is designated RL-7 (Low Density Residential) and OS-C (Open Space – Conservation).**~~

The fifty (50) acre area (including the 5 acre area annexed by the City in 2004) adjacent to and immediately north of the East Garden Grove/Wintersburg Flood Control Channel and adjacent to and immediately west of Graham Street is land use designated Residential Low Density, Open Space – Parks, and Open Space – Conservation. (See Figure C-6a)

Approximately two (2) acres of wetland area exists at this site. In addition, Eucalyptus Grove Environmentally Sensitive Habitat Area (ESHA) exists at this site. The wetland and ESHA areas are designated Open Space –Conservation. In addition, all the area within 100 feet of the wetlands and all area within 100 meters of the ESHA are designated Open Space –Conservation.

The Wintersburg Channel Bikeway is identified at this site on the north levee of the flood control channel in the Commuter Bikeways Strategic Plan, which is the regional bikeways plan for Orange County (See page IV-C-49 and figure C-14).

SUGGESTED MODIFICATION No. 2

The table titled Zone 2 – Land Use Designations, on page IV-C-11, shall be modified as follows:

Zone 2 – Land Use Designations	
Residential	RL-7
Open Space	OS-P OS-S OS-C
“White Hole”	Area of Deferred Certification
Zone 2 – Specific Plan Areas	
None	
Zone 2 – General Plan Overlays	
4G, 4J	

SUGGESTED MODIFICATION NO. 3

Figure C-6 of the City’s Land Use Plan shall be modified to reflect the change in the City’s corporate boundary and to accurately reflect the correct areas of the certified land use designations (Residential – Low Density, Open Space – Parks, and Open Space Conservation) for the area.

SUGGESTED MODIFICATION NO. 4

New Figure C-6a shall be added to the City’s Land Use Plan, which shall be a site plan of the Parkside site and shall depict the approved land use designations on the site, including the location and extent of all wetlands, environmentally sensitive habitat areas, and the buffer areas for each. Figure C-6 shall include the following note: “The wetland and ESHA areas depicted on Figure C-6a shall not preclude recognition of additional wetland and/or ESHA area, as well as necessary buffer area, if such is discovered in the future.”

SUGGESTED MODIFICATION NO. 5

Add new subarea 4-K to table C-2 (Community District and Subarea Schedule) as depicted below (for clarity bold, underscore, italics are not used, but the entire subarea 4-K is to be added to the LUP):

Subarea	Characteristic	Standards and Principles
4-K	Permitted Uses	Categories: Residential Low Density (RL-7) Open Space Conservation (OS-C) Open Space Parks (OS-P) See Figure C-6a
	Density/Intensity	Low Density Residential Maximum of seven (7) dwelling units per acre.
	Design and Development	See Figure C-6a A development plan for this area shall include, consistent with the land use designations and Coastal Element policies, the following features: 1. A Public Access Plan, including, but not limited to the following features: ❖ Class I Bikeway (paved off-road bikeway; for use by bicyclists, walkers, joggers, roller skaters, and strollers) along the north levee of the flood control channel. If a wall between residential development and the Bikeway is allowed it shall include design features such as landscaped screening, non-

		<p>linear footprint, decorative design elements and/or other features to soften the visual impact as viewed from the Bikeway.</p> <ul style="list-style-type: none"> ❖ Public view park with views to the Bolsa Chica and ocean consistent with Coastal Element policies C 4.1.3, C 4.2.1, and C 4.2.3. ❖ All streets shall be ungated, public streets available to the general public for parking, vehicular, pedestrian, and bicycle access. ❖ Public access trails to the Class I Bikeway, public parks and to and within the subdivision, connecting with trails to the Bolsa Chica area and beach beyond. ❖ Public access signage. ❖ Provision of a public view park providing views to the Bolsa Chica area and ocean beyond. ❖ When privacy walls associated with residential development are located adjacent to public areas, visual impacts created by the walls shall be minimized through measures such as landscaped screening, use of an undulating or off-set wall footprint, or decorative wall features (such as artistic imprints, etc.), or a combination of these measures <ol style="list-style-type: none"> 2. Habitat Management Plan for all ESHA, wetland, and buffer areas. 3. Archeological Research Design consistent with Policies C5.1.1, C5.1.2, C5.1.3, C5.1.4, and C5.1.5 of this Coastal Element. 4. Water Quality Management Program consistent with the Water and Marine Resources policies of this Coastal Element. To the extent feasible, Natural Treatment Systems are preferred. 5. Pest Management Plan that, at a minimum, prohibits the use of rodenticides, pesticides, and herbicides. 6. Landscape Plan for non-habitat and non-buffer uses that establishes only non-invasive, low-water use plants, primarily native to coastal Orange County, shall be used. 7. Biological Assessment of the entire site. 8. Wetland delineation of the entire site. 9. Domestic animal control plan that details methods to be used to prevent pets from entering the ESHA, wetland, and buffers areas.
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10. Hazard Mitigation and Flood Protection Plan, including but not limited to, the following features:

- ❖ Demonstration that site hazards including flood and liquefaction hazards are mitigated;
- ❖ Assurance of the continuance of the wetlands.

Residential:

Residential development, including appurtenant development such as roads and private open space, is not allowed within any wetland, ESHA, or required buffer areas.

All on-site work shall assure the continuance of the wetlands.

Open Space Conservation:

A. Wetlands:

Only those uses described in Coastal Element Policy C 6.1.20 shall be allowed within wetlands.

All on-site work shall assure the continuance of the wetlands.

Wetland Buffer Area:

A buffer area is required along the perimeter of the wetlands and is required to be of sufficient size to ensure the biological integrity and preservation of the wetland the buffer is designed to protect.

A minimum buffer width of 100 feet shall be established.

Uses allowed within the wetland buffer are limited to:

- 1) those uses allowed within wetlands per Coastal Element Policy C 6.1.20; and,
- 2) restored wetland area that does not require any regular maintenance or disturbance, in conjunction with a water quality Natural Treatment System serving the Parkside site. However, no portion of the Natural Treatment System that requires periodic disturbance or contains roadways shall be allowed within 100 feet of wetlands.
- 3) No active park uses (tot lots, playing fields, picnic tables, bike paths, etc.) shall be allowed within 100 feet of wetlands.

		<p>B. <u>Environmentally Sensitive Habitat Areas:</u> Only uses dependent on the resource shall be allowed.</p> <p><u>Environmentally Sensitive Habitat Areas (ESHA)</u> <u>Buffers:</u> A buffer area is required along the perimeter of the ESHA and is required to be of sufficient size to ensure the biological integrity and preservation of the ESHA the buffer is designed to protect.</p> <p>A minimum buffer width of 100 meters shall be established.</p> <p>Uses allowed within the ESHA buffer are limited to:</p> <ol style="list-style-type: none">1) uses dependent on the resource;2) habitat restoration and management;3) restored wetland area for use in conjunction with a water quality Natural Treatment System is allowed up to within 5 feet of the ESHA;4) water quality Natural Treatment System, except that any portion of the treatment wetlands that require periodic disturbance or contain roadways shall be limited to the outer third of the buffer area.5) In addition to the 100 meter ESHA buffer, grading shall be prohibited within 500 feet of an occupied nest during the breeding season (considered to be from February 15 through August 31). <p>C. <u>Habitat Management Plan</u> shall be prepared for all areas designated Open Space Conservation.</p> <p>D. <u>Protective Fencing:</u> Protective fencing or barriers shall be installed along any interface with developed areas, to deter human and pet entrance into all restored and preserved wetland and ESHA buffer areas.</p> <p><u>Open Space Parks:</u></p> <p>Uses permitted by the Open Space Parks land use category; except that, no uses other than those allowed in Coastal Element Policy C 6.1.20 and restored wetland area, shall be allowed within 100 feet of a wetland or within 100 meters of an environmentally sensitive habitat area.</p>
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SUGGESTED MODIFICATION No. 6

Update the existing language on Page IV-C-54, under the heading Parks, to reflect proposed Parkside area to be land use designated Open Space – Parks. Also, update Table C-4, also on page IV-C-54 to reflect new Parkside park area.

Update figure C-16, Significant Recreational Resources, to reflect park area within the Parkside area.

SUGGESTED MODIFICATION No. 7

On page IV-C-60 and IV-C-61, under the heading Visual Resources, The Bolsa Chica Mesas, revise to include visual resources within Parkside area as follows:

The northwestern side of the Bolsa Chica Ecological Reserve includes bluffs that rise to an upland area known as the Bolsa Chica Mesa. These bluffs are primarily under the County's jurisdiction (only a small part of the bluff lies in the City) but are within the City's Sphere of Influence for potential future annexation. The mesas constitute a significant scenic resource within the City's coastal Zone. **In this area, a public view park will be established with development of the Parkside site (located west of and adjacent to Graham Street and north of and adjacent to the East Garden Grove Wintersburg Orange County Flood Control Channel), providing excellent public views of the Bolsa Chica and ocean. Use of the public view park will be enhanced with construction of the Class I bike path along the flood control channel and public trails throughout the Parkside site.**

SUGGESTED MODIFICATION NO. 8

On page IV-C-70 add the following language in the first paragraph under the heading Environmentally Sensitive Habitats, to include reference to the wetland and Eucalyptus ESHA on the Parkside site:

... The City's Coastal Element identifies ~~two~~ **three** "environmentally sensitive habitat areas" within the City: 1) the Huntington Beach wetland areas, ~~and~~ 2) the California least tern nesting sanctuary, **and 3) the wetlands and Eucalyptus ESHA on the Parkside site.** (See Figure C-21 **and Figure C-6a**). The Coastal Element includes policies to protect and enhance environmentally sensitive habitat areas in accordance with the Coastal Act.

Also, on page IV-C-72 add the following new section describing the Eucalyptus ESHA and wetlands on the Parkside site, after the paragraph titled California Least Tern Nesting Sanctuary:

Parkside Eucalyptus ESHA and Wetlands (See Figure C 6a)

Historically, this site was part of the extensive Bolsa Chica Wetlands system. As of 2006, three wetland areas were recognized at the Parkside site, a 0.45 acre wetland on the “former County parcel” in the southwest corner of the site, an XXX acre wetland near the base of the bluff near the western property line, and an XXX acre wetland near the mid point of the southern property line near the East Garden Grove Wintersburg Flood Control channel. These wetland areas as well as their buffer areas are designated Open Space Conservation, and uses allowed within this area are limited.

In addition, on the site’s western boundary, generally within the bluff area, is a grove of trees known as the Eucalyptus Grove. These trees are used extensively by raptors for nesting, roosting, and as a base from which to forage. The trees within this “eucalyptus grove” within and adjacent to the subject site’s western boundary constitutes an environmentally sensitive habitat area (ESHA) due to the important ecosystem functions they provide to a suite of raptor species. The trees are used for perching, roosting, or nesting by at least 12 of the 17 species of raptors that are known to occur at Bolsa Chica. Although it is known as the “eucalyptus grove”, it is important to note that the grove also includes several palm trees and pine trees that are also used by raptors and herons. None of the trees is part of a native plant community. Nevertheless, this eucalyptus grove has been recognized as ESHA by multiple agencies since the late 1970’s (USFWS, 1979; CDFG 1982, 1985) not because it is part of a native ecosystem, or because the trees in and of themselves warrant protection, but because of the important ecosystem functions it provides. Some of the raptors known to use the grove include the white tailed kite, sharp-shinned hawk, Cooper’s hawk, and osprey. Many of these species are dependent on both the Bolsa Chica wetlands and the nearby upland areas for their food. The Eucalyptus ESHA in the northwest corner is known to have supported a nesting pair of white tailed kites in the spring of 2005. Both the white tailed kites and the Cooper’s hawk are California Species of Special Concern.

Both the wetlands and Eucalyptus ESHA areas, as well as their required buffer areas, are designated Open Space Conservation to assure they are adequately protected.

SUGGESTED MODIFICATION NO. 9

Add the following policy to the certified Land Use Plan, on page IV-C-100 as new policy C 1.1.3a:

C 1.1.3a

The provision of public access and recreation benefits associated with private development (such as but not limited to public access ways, public bike paths, habitat restoration and enhancement, etc) shall be phased such that the public benefit(s) are in place prior to or concurrent with the private development.

SUGGESTED MODIFICATION NO. 10

Add the following policy to the certified Land Use Plan, on page IV-C-104 as new policy C 2.4.7:

C 2.4.7

The streets of new residential subdivisions shall be constructed and maintained as open to the general public for vehicular, bicycle, and pedestrian access, General public parking shall be provided on all streets throughout the entire subdivisions. Private entrance gates and private streets shall be prohibited.

SUGGESTED MODIFICATION NO. 11

Modify the following existing LUP Water and Marine Resources policies as follows:

C 6.1.6

(modify fourth paragraph)

To this end, the City shall continue implementation of the Municipal Non-Point Source **Stormwater** National Pollution Discharge Elimination System (NDPES) standards program **permit (Santa Ana Regional Water Quality Control Board Order No. R8-2002-0010, dated January 18, 2002)** of which the City is a co-permittee with the County of Orange through the Santa Ana Regional Water Quality Control Board. Per program parameters, continue to require a Water Quality Management Plan for all applicable new development and redevelopment in the Coastal Zone, ...

C 6.1.16

Encourage the Orange County Sanitation District to accept dry weather nuisance flows into the sewer treatment system prior to discharge. **New developments shall be designed and constructed to minimize or eliminate dry weather nuisance flows to the maximum extent feasible.**

C 6.1.25

Require that new development and redevelopment minimize the creation of impervious areas and, where feasible, reduce the extent of existing unnecessary impervious areas, and incorporate adequate mitigation to minimize the alteration of natural streams and/or interference with surface water flow. **The use of permeable materials for roads, sidewalks and other paved areas shall be incorporated into new development to the maximum extent feasible.**

Add new policy C 6.1.30

Natural or vegetated treatment systems (e.g. bio-swales, vegetative buffers, constructed or artificial wetlands) that provide auxiliary habitat benefits are preferred for new developments over mechanical treatment systems or BMPs (e.g. water quality treatment plants, storm drain inlet filters) with no habitat benefit and the potential for poor treatment performance if not adequately operated and maintained.

IMPLEMENTATION PLAN SUGGESTED MODIFICATIONS

SUGGESTED MODIFICATION NO. 1

Sectional District Map 28-5-11 (DM 33Z) of the City's Implementation Program (Zoning and Subdivision Ordinance) shall be modified to reflect the change in the City's corporate boundary and to accurately reflect the correct areas of the certified zoning (Open Space Conservation, Open Space Park, Residential Low Density) for the subject area as reflected in exhibit XX of this staff report).

III. FINDINGS

The following findings support the Commission's denial of the proposed LCP Land Use Plan amendment as submitted, and approval of the Land Use Plan amendment with the incorporation of suggested modifications; and, denial of the Implementation Plan amendment, as submitted, and approval of the Implementation Plan amendment with the incorporation of suggested modifications. The Commission hereby finds and declares as follows:

A. Land Use Plan and Implementation Plan Amendment Description

The proposed Local Coastal Program (LCP) amendment is a project-specific amendment designed to make possible a low density residential development on a vacant, approximately 50-acre site comprising two legal lots, most of which is currently in agricultural production. Most of the site is currently uncertified, and the LCP amendment would incorporate those areas into the City's existing LCP and establish land use and zoning designations for those areas as well as for the currently certified parts of the site. The City does not propose any changes to the text of its IP provisions.

The geographic area that is the subject of this proposed LCP amendment can be divided into three areas. See Exhibit C4. The largest section is an area of the City that was deferred certification by the Commission at the time the City's Land Use Plan (LUP) was originally certified, in 1982, and that deferral carried through to the eventual LCP certification in 1985. The area of deferred certification (ADC) is approximately 40 acres¹. This amendment request proposes to certify this area by bringing it within the City's existing LCP and applying land use and zoning designations to the area. Just northwest of the ADC is a 5 acre area that is currently certified (see footnote 1) and designated Open Space Parks. The City has resubmitted this area for certification with the same designations. Finally, there is a five acre area southwest of the ADC that was under the jurisdiction of the County of Orange until it was annexed by the City in 2004. Like the ADC, the City proposed to certify that area by bringing it within the broader City LCP, and land use designations and zoning are proposed for this area as well. The proposed amendment would allow the majority of the site to be developed with low density residential development, and would also set aside a portion of the site for open space uses including parks and conservation.

The amendment does not propose to create any new land use designations or zones that are not already used in the existing LCP. Each of the land use designations and zones

¹ The staff report and Commission findings from the 1982 LUP certification are not entirely clear about how much area was deferred certification. However, the City has clearly depicted the area subject to this LCP amendment (through the exhibit to its resolution) and clearly "resubmitted" any portions of that area that may currently be certified. For purposes of this staff report, we refer to the uncertified area as being 40 acres, and the acreage of the other areas subject to this LCP amendment are calculated accordingly. However, if the City does not accept the Commission's certification with suggested modifications, and the current *status quo* remains, the Commission does not, by these descriptions, take any position on the issue of what area is currently certified and what area is ADC.

proposed already exist within the certified Land Use Plan (LUP) and Implementation Plan (IP). The land use designations and zones that are proposed to be applied at the subject site have been applied elsewhere within the City’s certified LCP. However, because the site is an area of deferred certification or was recently annexed, no land use designation or zoning has ever been approved by the Commission at the subject site (with the exception of the 5 acre area designated and zoned Open Space Parks).

Specifically, the amendment request proposes the following land use designations and zoning (see exhibit C):

Land Use		Acres
RL - 7	Low Density Residential-Maximum 7 units per acre	38.4 acres
OS-P	Open Space-Park	8.2 acres
OS-C	Open Space-Conservation	3.3 acres

Zone		Acres
RL-FP2-CZ	Low Density Residential-Floodplain Overlay-Coastal Zone Overlay	38.4
OS-PR-CZ	Open Space-Parks and Recreation-Coastal Zone Overlay	8.2
CC-FP2-CZ	Coastal Conservation-Floodplain Overlay- Coastal Zone Overlay	3.3

The area of deferred certification is forty acres and the former County parcel is five acres. In addition to the 45 acre area, the City has also included in this amendment the five acre area that was not deferred certification. The certified area totals approximately 50 acres and is land use designated and zoned Open Space – Parks. Most of the certified five acre parcel is slope area and not usable as an active park area. The proposed amendment would retain that land use and zoning, and would expand that designation into the formerly deferred area, for a total of 8.2 acres of Open Space – Parks. This five acre segment brings the total size of the subject site to 50 acres (40 acre ADC, 5 acre former County parcel, 5 acre certified area).

Of the approximately 5 acre former County area, 1.6 acres are proposed to become low density residential and 3.3 acres are proposed to become Open Space – Conservation (these figures are included within the totals in the chart above).

In addition to establishing land use designations and zoning for the subject site, the amendment also proposes text changes to the LUP. The certified LUP includes a section of area by area descriptions. In this section of the LUP, the acreage figure is proposed to be changed to reflect the annexation of the former County parcel (from the current 44 acre figure to the proposed 50 acre figure). In addition, language describing the area as vacant and an area of deferred certification is proposed to be replaced with the following language:

The Coastal Element land use designation for the vacant 45 acre area next to the East Garden Grove-Wintersburg Flood Control Channel was recently certified as RL-7 (Low Density Residential) and OS-P (Open Space – Park). In addition, approximately 5 acres of land was annexed from the County of Orange into the City of Huntington Beach. This area is designated RL-7 (Low Density Residential) and OS – C (Open Space – Conservation).

The subject area is currently comprised of two parcels: one 45 acre parcel (historic City parcel) and one 5 acre parcel (former County parcel).

B. Site Description and History

The site address is 17301 Graham Street. It is bounded by Graham Street to the east, East Garden Grove Wintersburg Flood Control Channel to the south, unincorporated Bolsa Chica area to the west, and existing residential uses to the north (along Kennilworth Drive). The development to the north is located within the City. The land to the north and to the east of the project is located outside the coastal zone. The areas located east of Graham Street, south of the flood control channel, and immediately north of the subject site along Kennilworth Drive are all developed with low density residential uses. To the northwest, a multi-family condominium development, Cabo del Mar, exists. To the west of the subject site, along the top of the bluff on the western edge, is an undeveloped property know as the Goodell property. To the southwest of the subject site lies the Bolsa Chica wetlands restoration area. The 3.3 acre area on the subject site proposed to be land use designated Open Space Conservation is adjacent to the wetlands restoration area. West of the Goodell property is the site of the recently approved Brightwater development (coastal development permit 5-05-020). The Brightwater site and the Goodell property are located on the Bolsa Chica mesa.

The majority of the site is flat with elevations ranging from just above sea level to approximately 2 feet above sea level. The western portion of the site is a bluff that rises to approximately 47 feet above sea level. Also, generally near the mid-point of the southerly property line is a mound with a height of just under ten feet. The flood control channel levee at the southern border is approximately 12 feet above sea level.

Historically, the site was part of the extensive Bolsa Chica Wetlands system. In the southwest corner of the site, on the former County parcel, the City, property owner and Commission are in agreement that an approximately .45 acre wetland is present. In the 1980s, as part of the review of the County's proposed LUP for the Bolsa Chica, the Department of Fish and Game (CDFG) in the document titled "Determination of the Status of Bolsa Chica wetlands" (as amended April 16, 1982), identified this area as "severely degraded historic wetland – not presently functioning as wetland", and considered it within the context of the entire Bolsa Chica wetland system.

Also, in 1989, the U.S. Environmental Protection Agency (EPA) delineated a wetland area in the northwest area of the site, near the base of the bluff. Although subsequent studies

have contested the previous wetlands claims in this area, some of these studies rely on questionable factual assertions, and it has not been demonstrated that these studies have appropriately applied the Coastal Commission standard for determining the presence or absence of wetlands.

In addition, on the site's western boundary, generally within the bluff area, is a grove of trees known as the Eucalyptus Grove. This grove includes other types of trees as well as eucalyptus such as pines and palms. The trees are used extensively by raptors for nesting, roosting, and as a base from which to forage.

The majority of the subject site has been more or less continuously farmed since at least the 1950s.

At the time the City's LUP was first considered for certification, in 1981, the Commission denied certification, in part because the City proposed a low density residential land use designation for the site that is the subject of the present action and the Commission found the site to contain wetlands. The City re-submitted the LUP in 1982, but it made no change to the proposed low density residential land use designation for the subject site. Once again, the Coastal Commission in its action on the City's proposed Land Use Plan, denied the certification for the MWD site (as the subject site was previously known), finding that it did contain wetland resources and that the designation of this parcel was an integral part of the ultimate land use and restoration program for the Bolsa Chica. The Commission findings for denial of the LUP for this area note the importance of this area in relation to the Bolsa Chica LCP. Of the 3.3 acres proposed to be Open Space – Conservation, none is located within the 40 acre area that was deferred certification. The site was being farmed at the time of the Commission's denial of the low density residential land use designation for the subject site.

A related coastal development permit application has also been submitted for the subject site (5-06-021 Shea Homes, previously submitted and then withdrawn were application Nos. 5-05-256 and 5-03-029 for the same development proposal), as well as an appeal of a City permit for the certified area (A-5-HNB-02-376). The permit application and appeal request subdivision of the site to accommodate 170 single family residences, construction of the residences and associated infrastructure, preservation of the wetland identified on the former County parcel, and dedication and grading of active public park area. The most recent incarnation of the coastal development permit application was deemed complete on January 19, 2006. A waiver extending the time limit to act was signed by the applicant. The 270th day time limit to act on the permit is October 16, 2006. The coastal development permit application is expected to be scheduled for hearing at the Commission's October 11-13, 2006 meeting. The applicant waived the deadline for the Commission to act on the appeal, but the Commission anticipates acting on it in conjunction with the permit application in October.

C. LCP History

The LCP for the City of Huntington Beach, minus two geographic areas, was effectively

certified in March 1985. The two geographic areas that were deferred certification were the bulk of the subject site (known at that time as the MWD site – see footnote 1), and an area inland of Pacific Coast Highway between Beach Boulevard and the Santa Ana River mouth (known as the PCH ADC). The subject site is northeast of the Bolsa Chica LCP area. At the time certification was deferred, the subject area was owned by the Metropolitan Water District (MWD). The site has since been sold by MWD and is currently owned by Shea Homes. Both of the ADCs were deferred certification due to unresolved wetland protection issues. Certification of the subject site was also deferred due to concerns that it might be better utilized for coastal-dependent industrial facilities, since MWD at that time had a “transmission corridor” parcel within the Bolsa Chica Lowlands that it indicated could be used to connect seawater intake facilities located offshore to facilities located on its switchyard parcel in the City of Huntington Beach, through the subject parcel. This is no longer a possibility, since the State has taken over the lowlands, and given the development of the areas surrounding the subject parcel since 1982 (and pending development that has already been approved), this site is no longer appropriate for coastal dependent industry.

The PCH ADC was certified by the Commission in 1995. The wetland areas of that former ADC are land use designated Open Space – Conservation and zoned Coastal Conservation. No portion of the former PCH ADC is part of the current amendment request.

A comprehensive update to the City’s LUP was certified by the Commission on June 14, 2001 via Huntington Beach LCP amendment 3-99. The City also updated the Implementation Plan by replacing it with the Zoning and Subdivision Ordinance (while retaining existing specific plans for areas located within the Coastal Zone without changes). The updated Implementation Plan was certified by the Coastal Commission in April 1996 via LCP amendment 1-95. Both the LUP update and the IP update maintained the subject site as an area of deferred certification.

This LCP amendment was originally submitted as LCPA No. 2-02. LCPA 2-02 was subsequently withdrawn and re-submitted as LCPA 1-05. LCPA 1-05 was also withdrawn and re-submitted. The current amendment, LCPA 1-06 is the most recent submittal of the same amendment. No changes have been made to the amendment proposal during any of the withdrawal and re-submittals. The withdrawal and re-submittals were done in order to provide the property owner additional time to prepare and submit additional information regarding the presence of wetlands on-site and the use of the eucalyptus grove by raptors, and to allow Commission staff adequate time to review the additional information. LCPA 1-06 was received on April 13, 2006. On June 13, 2006, the Commission granted an extension of the time limit to act on LCPA No. 1-06 for a period not to exceed one year.

D. Land Use Plan Format

The City’s certified Land Use Plan includes a section of Goals, Objectives and Policies. These are organized by specific resources, including headings such as Land Use, Shoreline and Coastal Resource Access, and Recreational and Visitor Serving Facilities,

among many others. These are the certified policies that apply City-wide within the coastal zone. Another section of the certified LUP is the Technical Synopsis. The Technical Synopsis is an area-by-area description of each segment of the City's coastal zone. This section includes the descriptions of the existing land use designations. It also includes, after a textural description of the sub-areas, Table C-2. Table C-2 is titled "Community District and Sub-area Schedule" and it provides greater specificity of what is allowed and encouraged within each subdistrict. This greater level of specificity provides a more detailed, site specific description than would be provided if the land use designation or general policies were considered alone. Table C-2 provides language on how general policies and designations would apply to specific sub areas of the coastal zone. Taken all together, these work well as the standard for development in the coastal zone.

The format of the suggested modifications applies this same structure to the amendment site. Many of the issues addressed by suggested modifications would be required by the general LUP policies, but, consistent with the format of the LUP, the suggested modifications are intended to provide a greater level of detail that applies to the specific circumstances of the subject site. For example, although the City's public access policies may be adequate to require a bike path along the flood control channel levee, the LUP format calls the reader's attention to the fact that, at this particular site, a bike path is appropriate and is therefore being required in this amendment. If one were working from the policies alone, some opportunities at certain sites may not be recognized. The LUP's existing format significantly maximizes the protection of resources within the coastal zone. The suggested modifications carry out that same format in order to assure protection of resources at the amendment site.

Denial of the Land Use Plan Amendment as Submitted

1. Wetland

Wetlands often provide critical habitat, nesting sites, and foraging areas for many species, some of which are threatened or endangered. In addition, wetlands can serve as natural filtering mechanisms to help remove pollutants from storm runoff before the runoff enters into streams and rivers leading to the ocean. Further, wetlands can serve as natural flood retention areas.

Another critical reason for preserving, expanding, and enhancing Southern California's remaining wetlands is because of their scarcity. As much as 75% of coastal wetlands in southern California have been lost, and, statewide up to 91% of wetlands have been lost.

Section 30121 of the Coastal Act states:

"Wetland" means lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.

The Commission has further specified how wetlands are to be identified through regulations and guidance documents. Section 13577(b)(1) of the Commission's regulations states, in pertinent part:

Wetlands shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes ... For purposes of this section, the upland limit of a wetland shall be defined as:

- (A) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover;*
- (B) the boundary between soil that is predominantly hydric and soil that is predominantly nonhydric; or*
- (C) in the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation, and land that is not*

Section 30233(a) of the Coastal Act states:

The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

- 1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
- 2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
- 3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.*
- 4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
- 5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
- 6) Mineral extraction, including sand for restoring beaches, except in*

environmentally sensitive areas.

7) *Restoration purposes.*

8) *Nature study, aquaculture, or similar resource dependent activities.*

Section 30250 of the Coastal Act states, in pertinent part:

(a) New residential ... development ... shall be located ... where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.

In addition, the City's LUP includes Policy C 6.1.20, which limits filling of wetlands to the specific activities outlined in Section 30233 of the Coastal Act. And LUP policy C 7.1.4 states, in pertinent part: *"Require that new development contiguous to wetlands or environmentally sensitive habitat areas include buffer zones."*

The proposed amendment includes an Open Space Conservation designation on a 3.3 acre area within the former County parcel. The 3.3 acre area includes an undisputed wetland area (see exhibit H). The proposed Conservation designation is appropriate for this area. However, additional wetland areas exist at the subject site that would not be protected with the Conservation designation.

The Coastal Commission staff ecologist has reviewed considerable amounts of information regarding the extent of wetlands at the site, all of which are listed in his memorandum which is attached as K to these findings and is hereby incorporated into these findings in its entirety. The property owner has submitted numerous documents intended to demonstrate that there are no wetlands on site, beyond the wetlands recognized on the former County parcel. Other information addressing this issue has been submitted by citizens concerned by the prospect that development may be allowed at the site if the LUP amendment were approved as submitted (and as reflected in the related coastal development permit application 5-06-021, Shea Homes, and appeal A-5-HNB-02-376). The information submitted by concerned citizens has also been reviewed by the staff ecologist. In addition, the staff ecologist has reviewed historical information regarding the subject site and surrounding area. Based on his review of the available data, the Commission's staff ecologist determined that additional wetland areas exist at the subject site (see exhibit K). For the reasons listed in that memorandum and below, the Commission concurs and adopts its ecologist's conclusions. The additional wetland areas at the site are referred to as the Wintersburg Pond or WP, which is adjacent to the flood control channel levee along the southern edge of the site; and the Agricultural Pond or AP, located near the base of the bluff along the western edge of the property. The proposed LUP amendment would designate these wetland areas Low Density Residential and Open Space Parks. These land use designations allow grading, and the construction of houses, roads, and active parks, which would necessitate the dredging and filling of the wetlands. Such uses within wetlands are inconsistent with Section 30233 of the Coastal Act.

The memo from the Commission's staff ecologist states: "The available data suggest that portions of the agricultural field ... are inundated or saturated at a frequency and duration sufficient to support a preponderance of wetland plant species." Such areas meet the

definition of wetlands under the Coastal Act and the Commission's Regulations.”

As indicated above, the only real criterion for an area to constitute a wetland under the Coastal Act and implementing regulations is that the water table be at a certain minimum elevation for a certain minimum length of time. However, the minimum elevation and length of time are defined as that elevation and duration necessary “to promote the formation of hydric soils or to support the growth of hydrophytes.” Thus, the presence of hydric soils and hydrophytes serve as evidence that this one criterion is satisfied. As a result, in practice, there are three indicators that are used to determine whether or not a wetland exists: the presence of hydrophytic vegetation, the presence of hydric soils, and the presence of wetland hydrology. The Commission finds an area to be wetland if any one of the three indicators is present.

The first indicator, hydrophytic vegetation, can usually be directly observed to determine whether an area constitutes a wetland. The second indicator, hydric soils, is considered to exist if anaerobic conditions have developed in the upper part of the soil column due to the presence of water during the growing season. This can usually be inferred from color patterns or from soil tests showing reducing conditions, but it is often less obvious than observations of vegetation. Other than observing the soils, one can consider accepted field indicators for whether hydric soils are present such as whether the area ponds for seven days. Usually, the presence or absence of hydrophytes or hydric soils is the most useful method of determining whether a wetland exists. The third wetland indicator is hydrology – whether a site ponds for a certain length of time. However, the necessary length of time is not usually known. In addition, if a site ponds long enough to be a wetland, one or both of the other indicators are usually present as well. For those two reasons, vegetation and soils are the most commonly used indicators in identifying wetlands. However, those two indicators are not necessary as they do not actually define a wetland. Rather, an area is defined as a wetland based on whether it is wet enough long enough that it would support either of those two indicators.

Section 30121 of the Coastal Act provides the statutory definition of wetlands: “...lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes ...” Section 13577(b)(1) of the California Code of Regulations provides the regulatory definition of wetlands: “... land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes” Thus, the Coastal Act and the Regulations provide that a determination of the presence of wetlands may be made based on whether an area demonstrates the presence of sufficient water to promote hydric soils or to support hydrophytes, whether or not the soils and vegetation are present under existing conditions.

Because the site has been historically farmed and continues to be farmed as of the adoption of these findings, the typically used indicators currently cannot be observed. The repeated discing and plowing associated with the existing agricultural use prevents their development. Nevertheless, the evidence presented in the ecologists memo and summarized below indicates that the site is wet enough long enough to “support the

growth' of hydrophytes. Thus, the site meets the definition of wetlands contained in the Commission's regulations. Furthermore, the site also meets the Coastal Act definition of wetlands in that it is "periodically covered in shallow water".

As indicated above, for an area to qualify as wetlands, it must be saturated or inundated for a certain minimum length of time. The necessary length of time is not usually known. However, in this case, it can be inferred that the areas recognized as wetlands are inundated or saturated at a frequency and duration sufficient to support a preponderance of wetland plant species because, in short, nearby areas that pond for similar lengths of time do support a preponderance of hydrophytic vegetation. More specifically, this conclusion is based on two lines of evidence: (1) an examination of the vegetation at a nearby location that is similar in history, physical characteristics, and hydrology to the depressions in the agricultural field², and (2) an informed estimate of the frequency of continuous inundation for long duration (greater than 7 days) at various sites. Because we can infer, from the available evidence, that the subject areas remain wet for the minimum length of time required for this location, those areas meet the definition of wetlands under the Coastal Act and the Commission's regulations.

Areas WP and AP were matched by the Commission's staff ecologist, with wetland areas on the County parcel that were similar in elevation and topography. Inundation in the agricultural areas and at the reference wetlands was similar in pattern, further suggesting that the latter is a good proxy for the former. Therefore, since the dominant vegetation at the reference areas is mostly comprised of wetland species, it is reasonable to expect that the agricultural areas WP and AP would also support a predominance of hydrophytes in the absence of farming (i.e. that they are wet enough to support such vegetation).

Establishing the extent of wetlands at the site, given its history of farming and disturbance, is not straightforward. It appears the best approach is to base the wetland delineation on current conditions as inferred from recent topography and the available photographs of recent inundation.

Prior to about 1990, it appears from aerial photographs that significant inundation was generally confined to the area delineated as wetland by the EPA in 1989 (generally in the area of the AP). Based on analysis of aerial photographs dating from 1958 to 1985, the applicant's biological consultant concluded that inundation in that area tended to have a different footprint in different years and, based on this observation, he argues that no particular area should be identified as a wetland. However, all his estimated wetland

² In the second to last footnote in Dr. Dixon's memo, he notes that the topography of the reference site is actually similar to that of WP as it existed in 2003, not at present. More recently a box plough was used to fill area WP, which is apparent in 2006 topographic maps. The box plough fill is under investigation by Commission staff as an alleged violation. Accordingly, relying on the topography prior to the alleged violation yields the appropriate comparison. Additionally, the hydrology section of Dr. Dixon's memo states that LSA biologists stated that WP didn't pond until after about 1973. However, if this is due to changes in topography that occurred before 1973, it is again appropriate to focus on the post-1973 topography, as that represents current conditions. Conditions prior to 1973 may be irrelevant if topographical conditions changed prior to 1973, as such changes were pre-Coastal Act and therefore not Coastal Act violations.

polygons in the western portion of the agricultural field appear to fall within the area delineated by the EPA. In the absence of wetland vegetation, the drawing of wetland boundaries is an approximate exercise based on a small and haphazard collection of aerial photographs or ground observations and estimates of topography. Given the approximate nature of such delineations, it appears the consultant's results are actually additional evidence that the EPA delineation was both reasonable and accurate at the time it was made. Although, prior to about 1990, wetlands hadn't been delineated in the depression adjacent to the flood control channel (WP area) and inundation occurred there less frequently than in the area of the AP, in recent years, ample evidence exists to show that WP is inundated for long duration following significant rainfall.

Moreover, the entire area was originally deferred certification due to the historic presence of wetland on site. In deferring certification originally, the Commission found:

*North Properties of the Bolsa Chica (Between Wintersburg Channel & base of Bluffs)
(MWD Site #1 [virtually identical to the subject site of current LCP amendment³t])*

The LUP designates this site for low density residential uses. No modifications were made in the LUP from the previous denial by the Commission.

The Commission found in its "Preliminary Wetlands Determination for the Bolsa Chica Local Coastal Plan, March 11, 1980, that all available information demonstrated that the vast majority of the Bolsa Chica low lands exhibit all the characteristics set forth for the identification of wetlands pursuant to Section 30121 of the Coastal Act and concluded that the information supported a preliminary determination that areas identified on Exhibit J of the "Preliminary Determination" are wetland for the purposes of the Coastal Act. The Commission had also previously found in its denial of the City's LUP that this area contained wetland resources.

Since that action and the previous review of the City's LUP, the Commission and staff have examined additional information concerning the Bolsa Chica wetlands system. As part of the review of the Bolsa Chica LUP the Dept. of Fish and Game in the document "Determination of the Status of Bolsa Chica wetlands (as amended April 16, 1982) identified this area as "severely degraded Historic wetland – Not Presently Functioning as Wetland" and considered it within the context of the entire Bolsa Chica wetland system. The DFG determined that this area is part of a 1,000 acre degraded wetland system in the area outside State ownership which is capable of being restored. The DFG report noted:

³ As indicated in footnote 1, the boundaries of the MWD site at the time of the 1982 staff report were not entirely clear. However, the site clearly covered what is now the 40-acre ADC and may have covered the former County parcel and some of the 5-acre certified area as well. Moreover, it did not extend south of the flood control channel, so the observations recounted here are definitely applicable to the site that is the subject of the current application.

“The 440 acres of historic wetland which no longer function viably as wetland consists of approximately 250 acres of roads, and pads, 70 acres of agricultural land [including the subject site], and about 120 acres of viably functioning upland habitat. The roads and fill areas presently function as resting substrate for wetland-associated wildlife, and form narrow ecotones which add to and enhance the diversity of habitat available to wildlife. The 120 acres of upland habitat, considered in union, may be considered environmentally sensitive because of their special role in the Bolsa Chica wetland ecosystem. Were it not for the involvement of dikes, roads and relatively shallow fills, these 440 acres would be viably functioning wetlands.

The entire 1,324 acre study area, including 1,292 acres of historic wetland (in which 852 acres still function viably as wetlands [sic] constitutes a fundamentally inseparable wetland system of exceptional value to wildlife.”

The DFG also discussed potential restoration of these areas and noted that the amount of acreage and location of wetlands to be restored will be dependant on the amount of fill and existing wetlands which could be consolidated to allow some development in the lowlands.

Thus, when the Commission originally deferred certification of the subject site, it did so based on the presence of wetlands. The Commission found that the site contained wetlands even though the wetland functions were impaired, as is the case today. In addition, the Commission recognized that the site was an integral part of the overall Bolsa Chica wetland system and could feasibly be restored. If the site were to be restored it would be a valuable addition to the Bolsa Chica wetlands restoration project. Sources to feed a restored wetland at the site would come from rainfall and possibly from the adjacent flood control channel, as well as urban runoff. In any case, restoration of the site as a freshwater wetland would be consistent with the historic wetland system which would typically have included a freshwater component, albeit significantly inland of the subject site. The addition of freshwater habitat to the Bolsa Chica wetlands restoration would greatly increase the biodiversity of the overall restoration project. In addition, taken with the preservation of the eucalyptus grove, described below, the area would provide significant habitat benefits. However, there is no proposal for restoration at this time. Nevertheless, the Coastal Act requires protection of any areas that continue to qualify as wetlands.

Section 30233 of the Coastal Act requires that only the uses specified therein may be allowed within wetlands and even then only if the use is the least environmentally damaging alternative, and only when adequate mitigation is provided. The subject site was deferred certification due to the presence of wetlands on site. Substantial evidence exists that demonstrates the presence of wetlands at the subject site extends beyond the 3.3 acre area proposed to be designated Open Space Conservation in the proposed LUP amendment to the areas referred to as AP and WP herein. As proposed, those two areas would be land use designated Low Density Residential and Open Space Parks.

As proposed, the land use plan amendment would designate these two wetland areas for residential development and for use as active parks, inconsistent with Section 30233 of the Coastal Act, which allows only the eight enumerated uses in wetlands. Residential and active park are not uses allowed under Section 30233. Therefore, the Commission finds that the proposed amendment is inconsistent with the Coastal Act and must be denied.

In addition to protecting the wetland area itself, it is important to establish buffer areas between the wetland and development. Buffers, by separating development from wetlands, minimize the adverse effects of development on wetlands, thereby avoiding significant adverse effects to resources. Buffers also provide transitional habitat and upland area necessary for survival of various animal species. The Commission has typically found that a minimum 100-foot wetland buffer, or larger, is necessary to protect wetlands. Without the establishment of a minimum buffer size, projects could be approved with an inadequate buffer, jeopardizing the continuing viability of the wetland. Section 30250 of the Coastal Act requires that new development be located where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. Wetlands constitute a coastal resource. The City's certified LUP includes Policy C 7.1.4, which requires buffers around wetlands. This policy would apply to the subject site, but it allows a lesser buffer area if existing development or site configuration preclude a full 100 feet. In this case, such circumstances do not apply because the site is 50 acres in size and is not constrained by the site configuration or by existing development. A buffer less than 100 feet from all on-site wetlands is not adequately protective of the wetland. The proposed amendment does not recognize all wetland areas present on site and does not provide any buffer requirements specific to the site. Thus, as proposed, the amendment could result in locating development too close to the wetland, threatening the survival of the resource, inconsistent with Section 30250 which requires that the location of development not have adverse effect on coastal resources such as wetlands.

Furthermore, Section 30250 of the Coastal Act requires that new development be located where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. Wetlands are coastal resources. Based on information submitted with the related Coastal Development Permit application, a significant amount of earthwork would be necessary to prepare the site for residential development. It is anticipated that earthwork on the order of 400,000 cubic yards of cut and 600,000 cubic yards of fill (including 260,000 cubic yards that will be imported from off-site), with over-excavation to depths of up to 17 feet below sea level, will be necessary to eliminate potential hazards due to liquefaction, provide adequate structural support, and to raise the site above base flood elevation. It is essential that any earthwork undertaken on the site not interfere with the continuance of all on-site wetlands. No grading is allowed within the wetland under the Coastal Act (unless the grading is for the express purpose of wetland restoration). Grading outside of the wetland and necessary buffers, could only be considered if no adverse impacts to the wetlands resulted. If grading redirected groundwater and/or surface water flow such that water from the site no longer fed the wetlands, the development activity could have a significant adverse effect on the coastal resource (wetland) and thus would be inconsistent with Section 30250 of the Coastal Act. However, the proposed amendment does not include any requirements that other site development,

including earthwork, assure that the no significant adverse effects on the wetlands will result. Thus, even if no grading were to occur within the wetlands and buffer areas, adverse impacts to the quality of on-site wetlands might result from the LUP amendment as proposed.

Further, when invasive and/or non-native species are planted within the buffer areas or within areas adjacent to the buffer, those species can displace the plants within the buffer and wetland. Introduction of non-native and invasive plants within the wetland and buffer, resulting in displacement of the wetland plants, degrades the wetland and creates significant adverse effects on the wetland, which is a coastal resource, inconsistent with the requirements of Section 30250 of the Coastal Act. In order to protect the wetlands and increase the likelihood of continuation of the wetland, only non-invasive, native plants should be allowed within the buffer.

In sum, as submitted, the LUP amendment does not adequately protect wetland resources as required by Coastal Act Sections 30233 and 30250. It therefore does not meet the requirements of, and is not in conformity with, that policy and therefore must be denied.

2. Eucalyptus ESHA

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 area 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.*

In addition, the City's certified LUP includes the following policies:

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.

In the event that development is permitted in an ESHA pursuant to other provisions of this LCP, a "no-net-loss" policy (at a minimum) shall be utilized.

And

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 City's certified LUP also includes policy C 7.1.4, which requires that new development contiguous to wetlands or environmentally sensitive habitat areas include buffer zones.

The subject site contains environmentally sensitive habitat area (ESHA). The trees in the "eucalyptus grove" within and adjacent to the subject site's western boundary are ESHA due to the important ecosystem functions they provide to a suite of raptor species. The trees are used for perching, roosting, or nesting by at least 12 of the 17 species of raptors that are known to occur at Bolsa Chica. Although it is known as the "eucalyptus grove", it is important to note that the grove also includes several palm trees and pine trees that are also used by raptors and herons. None of the trees are part of a native plant community. Nevertheless, this eucalyptus grove has been recognized as ESHA for over 25 years (USFWS, 1979; CDFG 1982, 1985) not because it is part of a native ecosystem, or because the trees in and of themselves warrant protection, but because of the important ecosystem functions it provides. Some of the raptors found to be using the grove included the white tailed kite, sharp-shinned hawk, Cooper's hawk, and osprey.

Many of these species are dependent on both the Bolsa Chica wetlands and the nearby upland areas for their food. The trees have also been recognized by the Coastal Commission as ESHA as defined in Section 30107.5 of the Coastal Act in previous Commission actions. The Commission first recognized the ESHA status of the grove many years ago, and the California appellate court in 1999 did not question the designation of the Eucalyptus grove as an ESHA protected by the Coastal Act when, in 1995, the County of Orange, on behalf of the predecessor applicant, Koll Real Estate Group, attempted to relocate that portion of the Eucalyptus grove within their property, through the LCP process, to the Huntington Mesa, in order to make room for full development of the upper and lower benches of the Bolsa Chica Mesa.

It should be noted that the Eucalyptus grove ESHA mapped by DFG in 1982, stops abruptly along the extension of Bolsa Chica Street. However, the grove continues east from there and wraps around the base of the bluff at the western edge of the subject property (see exhibit). There is, however, no functional distinction between the area of the grove to the west of the Bolsa Chica Street extension and the rest of the grove. Raptors and other wildlife use and benefit from the entire grove. The abrupt truncation is not consistent with actual wildlife use and the habitat function of the entire grove. Thus, there is no justification for treating only the western end of the grove as ESHA and not the entire grove. For these reasons the Commission finds that the entire Eucalyptus grove constitutes ESHA that must be protected.

Section 30240 requires that ESHA be protected from significant disruption of habitat values and only uses dependent on those resources are allowed within ESHA. Development adjacent to ESHA must be sited and designed to prevent impacts which would significantly degrade those areas. Section 30240 further requires that development be compatible with the continuance of those habitat and recreation areas. This policy is carried over into the City's certified LUP in the policies cited above. Although the area of the Eucalyptus ESHA in the southwest corner of the site is appropriately proposed to be designated Open Space Conservation, the area of the Eucalyptus ESHA located in the

northwest corner of the site is proposed to be land use designated Open Space Parks. The Eucalyptus ESHA in the northwest corner is known to have supported a nesting pair of white tailed kites in the spring of 2005. In addition to the nesting kites, this area of the Eucalyptus ESHA provides similar roosting and perching opportunities for the suite of raptors. The Open Space Parks designation allows uses such as tot lots, playing fields and bike paths. Such uses are not resource dependant and, as such, allowing these uses within the ESHA is inconsistent with Section 30240 of the Coastal Act. In addition, these active uses within the ESHA would likely cause significant disruption, also inconsistent with Section 30240. Therefore, as proposed, the amendment is inconsistent with the resource protection policies of the Coastal Act, and therefore must be denied as submitted.

In order to assure the ESHA is protected and remains viable, in addition to precluding non-resource dependent development within the ESHA, a buffer zone around the ESHA must be established. A buffer zone would require that development adjacent to the ESHA be set back an appropriate distance from the ESHA. The setback is intended to move the development far enough away from the ESHA so as to reduce any impacts that may otherwise accrue from the development upon the ESHA and that would significantly degrade the ESHA or be incompatible with its continuance. The distance between the ESHA and development, the buffer zone, must be wide enough to assure that the development would not degrade the ESHA and also would be compatible with the continuance of the ESHA.

For purposes of establishing protective buffers, the eucalyptus grove ESHA boundary should be considered to fall along the drip line of the outermost trees of the grove (see exhibit). The specific area of an appropriate buffer is more difficult to quantify.

There is, to some degree, a subjective approximation element in assigning dimensions to protective habitat buffers or development setbacks. For example, it probably would not be possible to distinguish the different biological effects of a 100-foot buffer compared to a 110-foot buffer or those of a 300-foot-buffer from a 100-meter (328-foot) buffer. We tend to choose round numbers in whatever units we are using. However, the difference between a 100-foot buffer and a 100-meter buffer would provide discernable benefits to wildlife. Commenting on a proposed development that borders the eucalyptus grove ESHA on its western side (coastal development permit application number 5-05-020, Brightwater), wildlife agencies recommended a buffer width of 100 meters. However, the applicant's consultant's for that project recommended a 100 foot buffer. These large differences reflect differing opinions concerning the sensitivity of raptor species to disturbance and differences in opinion concerning the acceptable risk of disturbance impacts to raptors, especially raptors that have the potential for nesting at Bolsa Chica.

In an urban environment development setbacks are usually inadequate to protect all individuals of wildlife species of concern from significant impacts. In an urban setting a buffer is usually no more than one to several hundred meters, and usually less, whereas in a natural setting, a buffer of two kilometers has been found to be significantly more protective. For example, Findlay and Houlahan (1997) found a negative correlation between species richness in wetlands and the density of roads on land up to 2000 meters

from the wetland and concluded that narrow buffer zones were unlikely to protect biodiversity.

Development must be separated from ESHAs by buffers in order to prevent impacts that would significantly degrade those areas. Again, with regard to the Brightwater development, buffer recommendations from the same ESHA included a 150-meter buffer recommendation by Dr. Findlay, of the University of Ottawa. CDFG and USFWS previously recommended the establishment of a 100-meter buffer on the Bolsa Chica Mesa in the 1980's. The Coastal Commission staff ecologist recommended a minimum 100-meter buffer around the eucalyptus ESHA. In further studying the appropriate buffer for the Eucalyptus ESHA, Dr. Dixon (staff ecologist) stated:

The buffer around the Eucalyptus tree ESHA is particularly important if those trees are to continue to function as nesting habitat for a variety of raptors. The California Department of Fish and Game and the U.S. Fish and Wildlife Service recommended a 100-m buffer. A literature review found that raptor biologists recommended buffers for various species of nesting raptors from 200m to 1500 m in width, with the exception of 50-m buffers from visual disturbance for kestrels and prairie falcons ... In an independent review concerning a prior development proposal at Bolsa Chica with 100-foot (30-m) buffers, raptor expert Brian Walton opined that developers "...often rely on buffers that I find largely ineffective for reducing raptor fright/flight response." [and] "[t]hey describe unusual tolerance, habituated individuals or exceptions to normal raptor behavior rather than the more common behavior of wild birds."

The 100 meter buffer recommended by USFWS (1979), CDFG (1982), and by staff is necessary to prevent disturbance to raptors that utilize the eucalyptus ESHA, and, based on raptor expert Peter Bloom's estimates of foraging distances, is also large enough to provide significant foraging opportunities close to the nest. This is particularly important because distant foraging increases the risk of nest predation. White-tailed kites, a fully protected species in California, have frequently nested at Bolsa Chica, and are generally considered relatively sensitive to human disturbance. Therefore, buffers that are adequate to protect nesting white-tailed kites should be adequate for most of the other species that are likely to nest in the eucalyptus ESHA. The following minimum spatial buffers have been recently recommended for nesting white-tailed kites: 100m (Bloom, 2002); 100m (Holmgren, 6.7.2002); 50m (J. Dunk (raptor researcher) in person communication to M. Holmgren, 2002); 46-61m (with "low-frequency and non-disruptive activities"; Froke, 2002). These estimates suggest that a 100-m buffer is probably adequate, but not overly conservative. Thus, the Commission finds that a buffer zone from the eucalyptus ESHA that is 100 meters wide would be appropriate to allow continuance of the ESHA and not cause significant disruption to it. However, no uniform buffer zone from the Eucalyptus ESHA is proposed as part of the LUP amendment. In fact, active park area would be allowed immediately adjacent to the trees under the LUP amendment as proposed. In addition, residential development would be allowed immediately adjacent to the ESHA even though it cannot be considered compatible with the continuance of the ESHA.

Buffers should not be used for activities that have negative effects on the resources that are being protected.

Under the proposed LUP amendment, uses appurtenant to low density development such as roads would be allowed as close as 100 feet from the ESHA. The Open Space Park designation is proposed within and adjacent to the trees in the northwest corner of the site. Both of these uses within the locations proposed would not be consistent with the requirements of Section 30240 of the Coastal Act to protect ESHA. The land use designations that are acceptable within the ESHA are limited to only those designations whose uses are dependent upon the ESHA. In addition, an appropriate buffer zone must be established. As proposed the LUP amendment would land use designate areas within and adjacent to the ESHA with designations that would allow uses that are not dependent upon the ESHA, and that could significantly degrade the ESHA. The proposed amendment is not consistent with Section 30240 of the Coastal Act and therefore must be denied.

Active park uses may be acceptable within the outer third of the buffer, but are not compatible uses any closer to the ESHA. Thus, the Open Space Park designation within the ESHA and within the inner two thirds of the buffer zone are also inconsistent with Section 30240. Therefore, the Commission finds that the proposed amendment is inconsistent with Section 30240 which requires that ESHA be protected and so must be denied.

3. Water Quality

Section 30230 of the Coastal Act states:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 of the Coastal Act states:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30230 of the Coastal Act requires that marine resources be maintained, enhanced, and where feasible, restored. Section 30231 of the Coastal Act requires that the biological productivity and quality of coastal waters be protected and, where feasible, restored. Section 30231 further requires that the quality of coastal waters be adequate to maintain healthy populations of marine organisms. Section 30231 also requires the use of various means, including managing wastewater discharges, controlling runoff, protecting groundwater and surface water, encouraging wastewater reclamation, and protecting streams, to maintain and enhance water quality.

Development has the potential to adversely impact coastal water quality through the increase of impervious surfaces; increase of runoff, erosion, and sedimentation; and introduction of pollutants such as petroleum, cleaning products, pesticides, and other pollutants.

When development increases impervious surface area, the infiltrative function and capacity of the project site is decreased. The reduction in permeable surface therefore leads to an increase in the volume and velocity of runoff that can be expected to leave the site. The cumulative effect of increased impervious surface is that the peak discharge rate is increased and the peak occurs much sooner after precipitation events. Additionally, runoff from impervious surfaces results in increased erosion and sedimentation.

Further, pollutants commonly found in runoff associated with new development include:

- petroleum hydrocarbons such as oil and grease from vehicles;
- heavy metals;
- synthetic organic chemicals including paint and household cleaners;
- soap and dirt from washing vehicles;
- dirt and vegetation from yard maintenance;
- litter and organic matter;
- fertilizers, herbicides, and pesticides from household gardening;
- nutrients from wastewater discharge, and animal waste;
- bacteria and pathogens from wastewater discharge and animal waste.

The discharge of these pollutants to coastal waters can cause cumulative impacts such as:

- eutrophication and anoxic conditions resulting in fish kills and diseases and the alteration of aquatic habitat, including adverse changes to species composition and size;
- excess nutrients causing algae blooms and sedimentation increasing turbidity, which both reduce the penetration of sunlight needed by aquatic vegetation that provide food and cover for aquatic species;
- disruptions to the reproductive cycle of aquatic species;
- acute and sublethal toxicity in marine organisms leading to adverse changes in reproduction and feeding behavior; and
- human diseases such as hepatitis and dysentery.

These impacts reduce the biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes, reduce optimum populations of marine organisms and have adverse impacts on human health. Also where streams outlet on to recreational sandy beach areas, adverse impacts to public beach access can result.

The 50 acre project site is currently undeveloped, with the exception of farming activities. Under existing conditions, no runoff leaves the site. The majority of the site (38.5/50 acres or 77% of the site) is proposed to be land use designated low density residential. The remaining area is proposed to be designated Open Space Parks (8.2 acres) and Open Space Conservation (3.3 acres). According to the Water Quality Management Plan (WQMP) prepared for the related coastal development permit (5-06-021) for the subject site, "There are no pre-existing water quality problems with the project site."

However, installation of impervious surfaces and activities associated with residential development and related hardscape represent a potentially significant impact to water quality downstream of the project, including the Bolsa Chica wetlands, Huntington Harbor and ocean waters. Because under current conditions no runoff leaves the site, residential development that would be allowed under the proposed amendment would create new adverse impacts where none currently exist. In addition, water bodies immediately downstream of the subject site, such as the Bolsa Chica wetlands restoration area, Huntington Harbour, and Anaheim Bay Wildlife Refuge, are likely to suffer increases in water quality impairment when site development produces greater volumes and velocities of runoff as well as introducing increased pollutant loads.

In addition, although the existing LUP includes policies that require projects to incorporate water quality BMPs, none of the existing LUP policies express a preference for types of treatment control BMPs. A treatment control BMP is a system designed to remove pollutants from the runoff including the use of gravity settling, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process.

The preferred option for treatment control BMPs is, first, vegetative treatment (e.g. bio-swales, vegetative buffers, constructed or artificial wetlands), then, second, a combination of vegetative and mechanical systems or BMPs, and last, use of mechanical treatment systems or BMPs alone (e.g. site-specific water quality treatment plants, storm drain filters and inserts). There are a number of reasons for this preference including the often multiple benefits from non-mechanical BMPs such as pollutant removal, groundwater recharge, habitat creation, and aesthetics. Furthermore, maintenance needs are typically more apparent and less frequent with vegetative treatment systems and thus are more likely to remain effective than mechanical systems such as storm drain inserts and the like which can become clogged and otherwise suffer mechanical difficulties. If mechanical treatment control BMPs are not continually maintained they will cease to be effective, and consequently water quality protection would not be maximized.

Incorporating vegetative treatment systems becomes more and more feasible when site design and source control BMPs are implemented. The area of land necessary to

implement the preferred non-mechanical treatment systems can be minimized by incorporating site design and source control features into new development in the early planning stages. A site design BMP is a project design feature that reduces the generation of pollutants or reduces the alteration of the natural drainage features, such as minimizing impervious surfaces and the direct connectivity of impervious surfaces, as well as using permeable pavement. In addition, use of source control BMPs can also help to reduce the amount of land committed to a non-mechanical treatment system. A source control BMP is a practice that minimizes the introduction of pollutants and thus the release of pollutants into areas where they may be carried by runoff. Source control BMPs include: covering work areas and trash receptacles, practicing good housekeeping, and minimizing the use of irrigation and garden chemicals. One of the benefits of incorporating site design and source control BMPs into a development is that it becomes easier for a developer to incorporate natural treatment systems because, among other things, the use of site design and source control BMPs results in significantly less runoff needing to be treated and thus reducing the area needed to accommodate a natural treatment system.

Incorporating a Natural Treatment System or some other form of vegetated treatment system should be considered at the site. The current LUP water quality policies do not identify a preference for vegetated treatment systems, where feasible. Without such an LUP policy there is no guarantee they will be incorporated into projects when it is feasible to do so. Natural treatment systems, for the reasons described above, provide better water quality protection among other benefits. As proposed, the LUP amendment does not identify a preference for natural treatment systems when feasible. Consequently the amendment is not consistent with the water quality policies of the Coastal Act and must be denied.

The use of permeable materials for paved areas in new developments is a site design and source control measure which can reduce the rate and volume of the first flush of stormwater runoff and can help to minimize or eliminate dry weather flow. This type of BMP is becoming more common in new developments, so that costs of permeable pavements are approaching the costs of traditional pavements. By maintaining permeability on-site wherever feasible, a development can be designed to more closely retain the pre-development hydrologic functions of the site. And reducing the amount of runoff generated by a development reduces the volume and flow rate of runoff that may require a treatment control BMP. Use of permeable materials can help minimize impacts associated with the creation of impervious surface such as the increase in stormwater runoff, and corresponding reduction in infiltration. However, the proposed amendment does not include any discussion on the benefits of incorporating permeable materials into the design of future projects. Consequently the amendment is not consistent with the water quality policies of the Coastal Act and must be denied.

Although the City of Huntington Beach has an LUP policy to encourage the Orange County Sanitation District to capture and treat dry weather flows, it does not address the other mitigation measure for dry weather flow which is to minimize or eliminate dry weather flow from new development sites. Many sources of dry weather flow can be eliminated by site design and source control BMPs such as efficient irrigation, permeable pavement and

wetland treatment systems. The Commission finds dry weather flow in the arid climate of Southern California has the potential to adversely impact marine resources even if the runoff is clean or treated to the maximum extent feasible and that new development should minimize or eliminate those flows. As proposed, the amendment does not include any requirements to minimize or eliminate dry weather flows through the use of site design and source control BMPs. Consequently, adverse water quality impacts due to dry weather flows are not minimized. Consequently the amendment is not consistent with the water quality policies of the Coastal Act and must be denied.

While the Commission recognizes that the City's existing policies address water quality protection and improvement within the City, it also recognizes that there are additional, more specific steps that could be taken to further protect, restore and/or enhance the water quality of drainage generated at the subject site, and thus, the marine resources, biological productivity, and water quality of the ultimate receiving waters to which this project's effluent will flow. For that reason, the proposed amendment could not be found consistent with Sections 30230 and 30231 of the Coastal Act. The Commission's standard of review, which requires the preservation, protection, and enhancement of coastal resources including water quality, necessitates that the additional measures, outlined above, be imposed. Thus, the Commission finds that as proposed, the amendment is inconsistent with Sections 30230 and 30231 of the Coastal Act regarding water quality.

4. Public Access and Recreation

Section 30210 of the Coastal Act 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 30252 of the Coastal Act states, in pertinent part:

The location and amount of new development should maintain and enhance public access to the coast by ... (3) providing nonautomobile circulation within the development, (4) providing adequate parking facilities or providing substitute means of serving the development with public transportation, ... (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of onsite recreational facilities to serve the new development.

In addition, the City's certified LUP, contains the following policies regarding public access:

Provide coastal resource access opportunities for the public where feasible and in accordance with the California Coastal Act requirements.

Encourage the use of City and State beaches as a destination point for bicyclists, pedestrians, shuttle systems and other non-auto oriented transport.

*Encourage the utilization of easements and/or rights-of-way along **flood control channels**, public utilities, railroads and streets, wherever practical, for the use of bicycles and/or pedestrian (emphasis added).*

*Maintain existing pedestrian facilities and **require new development** to provide pedestrian walkways and bicycle routes between developments (emphasis added).*

Link bicycle routes with pedestrian trails and bus routes to promote an interconnected system.

Develop a riding and hiking trail network and support facilities that provide linkages within the Coastal Zone where feasible and appropriate.

Balance the supply of parking with the demand for parking.

Maintain an adequate supply of parking that supports the present level of demand and allow for the expected increase in private transportation use.

Maintain and enhance, where feasible, existing shoreline and coastal resource access sites.

Promote and provide, where feasible, additional public access, including handicap access, to the shoreline and other coastal resources.

Promote public access to coastal wetlands for limited nature study, passive recreation and other low intensity uses that are compatible with the sensitive nature of these areas.

Maintain and enhance, where necessary, the coastal resource signing program that identifies public access points, bikeways, recreation areas and vista points throughout the Coastal Zone.

Preserve, protect and enhance, where feasible, existing public recreation sites in the Coastal Zone.

Ensure that new development and uses provide a variety of recreational facilities for a range of income groups, including low cost facilities and activities.

Encourage, where feasible, facilities, programs and services that increase and enhance public recreational opportunities in the Coastal Zone.

Promote and support the implementation of the proposed Wintersburg Channel Class I Bikeway.

The provision of public access in new development proposals is one of the main tenets of the Coastal Act. This emphasis has been carried over into the City's certified LUP. In certifying the LUP, the Commission recognized, via the approved LUP policies, the importance of including measures such as providing and enhancing public access to the sea and other coastal resources, adequate parking and alternate means of transportation, low cost recreational uses, and public access signage, with new development.

The 50-acre site is located in close proximity to the Bolsa Chica wetlands restoration area (see exhibit G). The Bolsa Chica Wetlands at approximately 1,000 acres is the largest remaining wetland in Southern California. Following the 1997 State acquisition of most of the remaining wetlands that were under private ownership, a comprehensive Bolsa Chica wetlands restoration effort is now underway. In addition, because it is tidally influenced, the Bolsa Chica wetlands constitute "sea" according to the Coastal Act definition (Section 30115). Because there is no public road between the subject site and the Bolsa Chica wetlands, the site is between the sea and the first public road. As such, the area is given special significance with regard to the requirement for the provision of public access. Given the prominence of the adjacent Bolsa Chica wetlands, appropriate public access and passive recreational opportunities must be provided and conspicuously posted. Further, the Coastal Act gives priority to land uses that provide opportunities for enhanced public access, public recreation and lower cost visitor recreational uses.

Beyond the Bolsa Chica wetlands restoration area, is the Pacific Ocean and its sandy public beaches. Thus, public access to the Bolsa Chica area would, in turn, facilitate public access, via alternate means of transportation (bicycle and pedestrian), to the ocean beach beyond.

Although the certified LUP, includes (as listed above) strong public access policies, the proposed LUP amendment does not include any public access language specifically addressing public access needs appropriate for the site. In order to assure that access is maximized at the time of future site development, as described previously, specific language addressing access in the site specific section of the LUP is necessary. As proposed, no such language is included in the LUP amendment.

a) Bicycle Path

The subject site is immediately adjacent to the north levee of the East Garden Grove Wintersburg Flood Control Channel. The County's Commuter Bikeways Strategic Plan (the regional bikeways plan for Orange County) identifies a Class I bikeway along the flood control channel. This is also reflected in the City's certified LUP. Figure C-14, Trails and Bikeways Map in the certified LUP identifies a proposed bikeway along the flood control channel adjacent to the site. A letter from the County's Public Facilities & Resources Department dated January 8, 1998 (see exhibit J) states:

“Regarding the City’s proposal to continue the Class I bikeway northerly along the Wintersburg Channel to Graham Street: The County supports this. It would provide an excellent bikeway connection between the City’s road system and the off-road wetlands perimeter route. (We suggest referring to this entire route – between Graham Street and PCH – as the Bolsa Chica Bikeway).”

In addition, a letter from the County’s Public Facilities & Resources Department, dated February 13, 1998 (see exhibit J) commenting on a proposed tentative tract map for the subject site, states:

“A bicycle trail along the CO5 [East Garden Grove-Wintersburg Channel] north levee maintenance road will be required.”

A bike route in this area would provide substantial public access benefits. It is encouraged in existing LUP policies. It would provide a connection between existing inland routes and the Bolsa Chica area and is expected to be extended in the future along the remainder of the flood control channel levee adjacent to the Bolsa Chica Restoration area. When such an extension occurs (as is anticipated in the City’s LUP and by the County Public Facilities & Resources Department), the bike route would eventually link to the coast. An off road bicycle path already exists along the entire length of the City’s ocean fronting beach. A bike path at the subject site and along the remainder of the flood control channel would provide a new connection from inland bicycle paths to this coastal path. Not only would such a bicycle path provide substantial public recreational benefits, but it would also improve public access opportunities by providing alternate means of transportation to get to the coast and to the trails within the Bolsa Chica area. The City and the County have both indicated that a bicycle path in this location is desirable and appropriate. However, the proposed LUP amendment does not include any language specific to this site assuring that implementation of the bicycle trail will occur prior to or concurrent with sited development. Current LUP policy merely states “promote” and “encourage” its implementation. Therefore there is no assurance that it will be built in a timely manner, or perhaps that it will be built at all. Thus, the amendment as proposed cannot be found to be consistent with Sections 30210 and 30252 of the Coastal Act regarding and enhancing maximizing public access, and therefore, must be denied.

b) Public Streets and Parking

In addition, if the residential development that the proposed land use designation would allow were to be a private and/or gated development, public access would not be maximized or enhanced, inconsistent with Sections 30210 and 30252 of the Coastal Act. Private and/or gated entry into the residential community and/or private streets within the community would constrain the public’s ability to access the area proposed as public park as well as the public’s ability to access the public bike path along the flood control levee. In turn, public access to the Bolsa Chica area and ocean beyond would also not be provided. As stated previously, the site is between the first public road and the sea (in this case the Bolsa Chica wetlands). The provision of public parking within the area would allow visitors to begin a bike ride or walk along the levee, through the Bolsa Chica area,

and on to the ocean front, that might otherwise not be feasible. Public streets and public parking within the residential area would also allow visitors from beyond the immediate vicinity to use the park area.

In addition, ungated public streets would facilitate the use of interior public trails within the development. Interior trails would further maximize and enhance public access. Public trails could be established leading from Graham Street to the area proposed to be designated Open Space Parks, and from within the development back onto the bike way along the flood control channel. Also, public trails along the edge of the wetland and ESHA buffers would provide an excellent public access experience consistent with the requirements of Sections 30210 and 30252 to maximize and enhance public access with new development. The provision of interior trails within a future development at the site would be especially consistent with Section 30252's requirement that nonautomobile circulation be provided within the new development.

In order to assure that this aspect of public access (the provision of public parking within an ungated residential area with public streets and interior trails) is provided at the time the site is developed, language reflecting this must be incorporated into the LUP. However, no such language is proposed as part of the LUP amendment. Thus the amendment cannot be found to be consistent with Sections 30210 and 30252 of the Coastal Act regarding maximizing and enhancing public access, and therefore must be denied.

c) Provision of Re creation and Public Access Benefits

Residential development of the subject site that would occur pursuant to the proposed amendment would have adverse impacts on public access and recreation unless the above described measures are incorporated into the design of a future project. In order to assure maximum public benefit the public recreation and access measures would need to be provided in a timely manner. However, nothing in the proposed amendment or in the City's LUP currently requires that lower priority developments (such as residential) be phased to assure the provision of Coastal Act higher priority uses (such as public trails, parks, and parking) occurs prior to or concurrent with the lower priority development. Without such a phasing requirement, it is difficult to assure that necessary public benefits would occur in a timely manner, or possibly even at all. Thus, as proposed, the amendment is inconsistent with Sections 30210 and 30252 of the Coastal Act regarding maximizing and enhancing public recreation and access and therefore must be denied.

5. Visual Resources

Section 30251 of the Coastal Act states:

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 land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual

quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

In addition, the City's certified LUP contains the following policies:

C 4.2.1

Ensure that the following minimum standards are met by new development in the Coastal Zone as feasible and appropriate:

- a) *Preservation of public views to and from the bluffs, to the shoreline and ocean and to the wetlands.*
- b) *Adequate landscaping and vegetation.*
- c) *Evaluation of project design regarding visual impact and compatibility.*
- d) ...

C 4.7.1

Promote the use of landscaping material to screen uses that detract from the scenic quality of the coast along public rights-of way and within public view.

The subject site offers the opportunity to provide public views from the site to the Bolsa Chica wetlands area and to the ocean beyond. The related coastal development permit application (5-06-021) proposed a public viewing area in the southwest corner of the site. The southwest corner of the site is an excellent location for providing public views to and along the coast and scenic areas, as required by Section 30251. The location also works well with the anticipated bikeway along the flood control channel. However, the proposed LUP amendment does not include any discussion regarding provision of public view points in association with development of the site.

In addition, based on information submitted for the related coastal development permit application, it appears that elevations of the subject site may be raised in conjunction with any development of the subject site, such that future elevations may be similar to the elevation of the top of the flood control levee. The project described in the related coastal development permit application, includes a solid wall separating the rear yard area of future residences proposed under that application and the public bike path. The solid wall, proposed in the permit application to be ten feet high, immediately adjacent to the public bike path could have adverse visual impacts on public use of the bike path. However, adverse impacts could be minimized by incorporating measures such as landscaped screening, use of an undulating or off-set wall footprint, or decorative wall features (such as artistic imprints, etc.), or a combination of these measures. The proposed amendment does not address this issue and does not assure that potential visual impacts will be addressed at the time the site is proposed for development. Therefore the proposed amendment is inconsistent with Section 30251 of the Coastal Act regarding protection of visual resources within the coastal zone and must be denied.

6. Archaeological Resources

Coastal Act Section 30244 states:

Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

In addition, the City's certified LUP includes the following policies regarding Historic and cultural Resources:

Coordinate with the State Of California Historic Preservation Office to ensure that archaeologic, paleontologic and historically significant resources within the Coastal Zone are identified.

Where new development would adversely impact archeological or paleontological resources within the Coastal Zone, reasonable mitigation measures to minimize impacts shall be required.

In the event that any Native American human remains are uncovered, the County Coroner, the Native American Heritage Commission, and the Most Likely Descendants, as designated by the California Native American Heritage Commission, shall be notified. The recommendations of the Most Likely Descendants shall be obtained prior to the disposition of any prehistoric Native American human remains.

A completed archeological research design shall be submitted along with any application for a coastal development permit for development within any area containing archeological or paleontological resources. The research design shall determine the significance of any artifacts uncovered and make recommendations for preservation. Significance will be based on the requirements of the California Register of Historical Resources criteria, and prepared based on the following criteria:

- a) Contain a discussion of important research topics that can be addressed; and*
- b) Be reviewed by at least three (3) county-certified archeologists (peer review committee).*
- c) The State Office of Historic Preservation and the Native American Heritage Commission shall review the research design.*
- d) The research design shall be developed in conjunction with affected Native American groups.*
- e) The permittee shall comply with the requirements of the peer review committee to assure compliance with the mitigation measures required by the archeological research design.*

A County-certified paleontologist/archeologist, shall monitor all grading operations where there is a potential to affect cultural or paleontological resources based on the required research design. A Native American monitor shall also monitor grading operations. If grading operations uncover paleontological/archeological resources, the paleontologist/archeologist or Native American monitor shall suspend all development activity to avoid destruction of resources until a determination can be made as to the significance of the paleontological/archeological resources. If found to be significant, the site(s) shall be tested and preserved until a recovery plan is completed to assure the protection of the paleontological/archeological resources.

In conjunction with the Environmental Impact Report (EIR) prepared for with the related development project for the subject site, an Archaeological Assessment was prepared (Appendix H to the EIR, titled Archaeological Assessment of the SHEA Homes Project Tentative 15377 and Tentative Tract 15419, March 1997). A number of archaeological sites are believed to be present on the subject site. These include CA-ORA-83 (known as the Cogstone site), CA-ORA-1308 and 1309. The majority of CA-ORA-83 is located off-site, but three areas of CA-ORA-83 are believed to be located within the subject site. CA-ORA 1308 and 1309 were discovered and recorded in 1991. They are described as “possible” or “potential” archaeological sites. In any case, the extent and significance of the archaeological resources on the site, has not been conclusively determined. Thus, it is important that any future site development include a careful assessment of the presence and extent of archaeological resources. Although the LUP policies cited above, outline procedures for sites that potentially contain archaeological resources, nothing in the proposed amendment identifies the site as one with the potential for archaeological resources. Consequently, there is no assurance that the potential for archaeological resources to occur on the site will be recognized in conjunction with future development proposals. If the potential for archaeological resources at the site is not recognized in the proposed LUP amendment for the site, application of the policies cited above may be overlooked. The proposed LUP amendment, which specifically addresses the subject site, provides the appropriate opportunity to make clear that archaeological resources may be present on this site, and therefore these specific policies must be applied. Without such language within the LUP amendment, it cannot be found consistent with Section 30244 of the Coastal Act, and so must be denied.

7. Hazards

Coastal Act Section 30253 state, in pertinent part:

New Development shall:

- (2) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
- (3) 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 buffs and cliffs.

The proposed LUP amendment would land use designate much of the subject site for residential development. Other than farming activities, the site is currently undeveloped. Thus the suitability of the site for residential development must be considered.

Most of the site, except the bluff area on the site's western boundary, is comprised of lowlands that were once a part of the historic, extensive Bolsa Chica wetlands system. Historically the site functioned as a floodplain. However, with development of the East Garden Grove Wintersburg flood control channel in the 1960s, the site ceased serving that function. The northwestern corner of the site is crossed by a bluff, approximately 40 to 50 feet high, carved by the ancestral Santa Ana River. The portion of the site that is proposed to be land use designated residential is a very flat surface at an elevation of one to two feet below sea level.

The Commission's staff geologist has reviewed a great deal of technical information submitted in conjunction with the proposed LUP amendment and related coastal development permit application. The staff geologist's memo regarding the amendment site is attached as exhibit I and is hereby incorporated as though fully set forth herein, and the Commission concurs with and adopts the conclusions stated therein.

Potential geotechnical issues associated with residential development at the subject site include: ground shaking during a major earthquake on a nearby fault, possible surface rupture of the hypothesized Bolsa-Fairview Fault, liquefaction during such an earthquake, inadequate foundation support, and the stability of both natural and temporarily excavated slopes. In addition, development of the site raises certain hydrological issues. Following is a discussion in the staff geologist's memo of the potential issues:

"Reference (8) indicates that the soils at the subject site are subject to liquefaction during a major earthquake. In addition, the presence of peat could lead to settlement problems, because organic materials such as peat are subject to decay and volume loss with time. In order to mitigate for these hazards, Shea Homes proposes to overexcavate the entire site to depths as great as 17 feet below sea level, involving approximately 400,000 cubic yards of cut. Unsuitable fill material such as peat would be exported, and the remainder of the material – as well as approximately 260,000 cubic yards of imported fill, would be compacted to suitable densities to provide structural support and to be invulnerable to liquefactions."

The magnitude of over-excavation and recompaction in themselves raise some concerns. Since the over-excavation would extend well below sea level, dewatering will be necessary. The dewatering has the potential to lower ground water levels off-site, which could lead to settlement problems. In order to avoid settlement issues, the property owner's consultants have indicated that the excavation will take place in stages, with only narrow excavations open at any one time. In addition, a monitoring program to detect settlement would be in place. The property owner's consultants have indicated that water produced by the dewatering operations will be discharged into the storm water drainage

system. Information submitted by the property owner's consultants indicates that the water is suitable for disposal into the ocean.

Regarding slope stability the Memo prepared by the Commission's staff geologist states:

"The backcuts of the excavations undertaken to mitigate the liquefaction hazard will extend to the base of the north levee of the East Garden Grove Wintersburg Flood Control Channel. The loss of lateral support for the levee, especially if high pore water pressures persist due to the rapid removal of material in the cut, has the potential to destabilize the levees. Reference (12) contains slope stability calculations that demonstrate that even with the persistence of high pore pressures and loss of lateral support, the slope supporting the levee will have a factor of safety against sliding of 1.28, which is considered adequate for temporary excavations.

No slope stability calculations have been performed on the bluff in the northwestern corner of the site, and it is likely that it is only marginally stable. This area is planned for open space, however, so slope stability in this area is not a concern."

In 1968 the California Department of Water Resources mapped a strand of the Newport-Inglewood fault across the site and dubbed it the Bolsa Fairview fault. Apparently the fault was located only indirectly on the basis of topographic expression, vertical offset of the base of the Bolsa aquifer, abrupt water quality changes between closely spaced wells, limited sea water intrusion northeast of the fault, and pumping data. However, more recent studies by the California Division of Mines and Geology concluded that there was insufficient evidence to indicate that the fault was either active, or, in fact, even that it exists, and the State Geologist accordingly de-listed the fault under the Alquist-Priolo Act. Based on the more recent studies, it appears there is insufficient evidence to warrant inclusion of the fault as an identified hazard.

The subject site is, geomorphologically, a flood plain. However, construction of the levees associated with the East Garden Grove Wintersburg Flood Control channel have functionally isolated the river channel from the flood plain. Moreover, the site lies at elevations of 1 to 2 feet below sea level. Areas of the surrounding neighborhoods lie at elevations of as low as 5 feet below sea level. Low berms in the Bolsa Chic lowlands, in addition to the East Garden Grove Wintersburg flood control channel levees, protect these neighborhoods from tidal flooding. Storm water must be collected through a series of storm drains lying well below sea level, and pumped up into the East Garden Grove Wintersburg flood control channel through a forebay at the Slater pump station, which is on the south side of the flood control channel adjacent to the subject site.

The capacity of the existing flood control channel is insufficient to carry the 100-year flood event. The channel will carry only about 4,200 cubic feet per second and will overflow in a 100 year event. Because the south levee is mostly lower than the north, more water would overflow to the south, and into the Bolsa Chica wetlands, than to the north. Nevertheless a total of about 52 acre feet would overtop the north levee in a 100-year flood event.

In fact, overtopping of the levees will likely result in their complete failure, with a resultant loss of capacity of the flood control channel and inundation by ocean waters.

In studies designed to determine appropriate base flood elevations for future residential development at the subject site, the property owner's consultants have made use of many diverse hydrologic models that included complete failure of the East Garden Grove Wintersburg flood control channel levees, failure of the pumps, and variations in timing of the failures of both levees and pumps. Based on these studies, the property owner's consultants have demonstrated to the satisfaction of the Commission's staff geologist and to the satisfaction of the Commission that the 100-year Base Flood Elevations derived for the site are the worst case ponding elevations of all the hydrologic models considered and assure the safety of the site during a 100-year flood event.

With regard to siltation and vegetation in the flood control channel that impedes flow and reduces the capacity of the channel, the Memo states:

“Although these material would lower the capacity of the channels to carry small or moderate-level flows, in the high flows (~4000 cubic feet per second) corresponding to bank-full discharge, these material would be flushed from the channel.”

In order to raise pads above base flood elevations, significant amounts of fill material will be imported onto the site, raising the site elevations from the existing 1 to 2 feet below sea level to 5.5 to 11.4 feet above sea level. This raises the question of whether flood waters would be displaced to neighboring areas. However, the subject site as it currently exists is already at a higher elevation (1 to 2 feet below sea level) than surrounding areas (as low as 5 feet below sea level). Nevertheless, if no mitigation were undertaken flooding of these neighborhoods, although it would occur even without site development, would be exacerbated by the addition of fill at the subject site. The related coastal development permit application proposes to make several improvements to the area drainage system including improving the capacity and stability of the flood control channel, increasing the capacity of the storm drains under Kenilworth Drive and Graham Street, adding two new pumps to the Slater pump station, and constructing a “vegetated flood protection feature (essentially a vegetated berm) at elevation 11 feet above sea level between the bluff along the western site boundary and the north levee of the flood control channel. If all these improvements were implemented they would more than mitigate for the exacerbated flood condition caused by the addition of fill at the site.

Regarding tsunami hazard the Memo states:

“The Huntington Beach lowlands are quite vulnerable to a major tsunami. A tsunami that overtopped the low berms associated with the Pacific Coast Highway and the oil field roads in the Bolsa Chica wetlands could inundate a large area of the lowlands, much of which lies below sea level. The proposed “vegetated flood protection feature” and the improvements to the north levee of the East Garden Grove Wintersburg Flood Control Channel [proposed under the coastal permit application, not part of the LUP amendment], together with the increased pad

elevation, will lower the vulnerability of the Parkside Estates site. Although the placement of fill on the site would displace flood waters into the surrounding neighborhood during a major tsunami, the “vegetated flood protection feature” does lower the susceptibility of this area to smaller tsunamis.”

Regarding suitability of the subject site for development, the Memo concludes:

“In summary, the Parkside Estates is not suitable for residential development without fairly extensive mitigation measures, especially for the liquefaction and flood hazards. Shea Homes’ planned method of remediation involves extensive landform alteration in the form of adding fill to raise the site above Base Flood Elevation. Although this is not a generally recommended method of mitigating a flooding hazard due to the effects it can have on adjacent areas, the planned drainage system improvements more than mitigate for these effects. The necessary excavations and dewatering operations have the capacity to induce subsidence or other instability in adjacent sites, but these effects will be mitigated by doing the excavation in stages and by careful monitoring. The site will experience strong ground shaking during a major earthquake. Early reports that an active fault crosses the site cannot, however, be supported by the data currently available.”

As described above, residential development of the site carries with it certain risks. The mitigation measures, also described above, are not proposed as part of the LUP amendment. However, those mitigation measures demonstrate that, even though the site poses risks if developed, there are feasible measures available that, if implemented, would reduce the degree of risk to reasonable levels. Specific risk factors and specific mitigation measures to offset them are appropriately addressed during review of a specific development project via coastal development permit application review. However, before a residential land use designation can be deemed acceptable, it must be demonstrated that any potential risks associated with such development can be minimized to reasonable levels. The information provided by the property owner’s consultants have demonstrated that measures are available that would allow development of the site without creating unacceptable levels of risk to life and property.

Although information submitted relative to the related Coastal Development Permit indicates there are feasible mitigation measures available to minimize the level of risk involved with site development, there is no specific requirement in the proposed amendment to assure that measures necessary for risk reduction would be incorporated into future site development. Without such requirements in the amendment, there is no assurance that risks will be minimized as required by Section 30253 of the Coastal Act. Thus the proposed amendment is inconsistent with Section 30253 of the Coastal Act which requires that risks to life and property be minimized and that development assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area. Therefore the amendment must be denied.

8. Conclusion – Consistency with Chapter 3 Policies of the Coastal Act

As proposed, the Land Use Plan amendment contains significant deficiencies with regard to consistency with the Coastal Act. As proposed, the amendment cannot be found consistent with Sections 30210 and 30252 regarding maximizing access, 30251 regarding protection of public views, 30233 and 30250 regarding wetlands, 30240 regarding ESHA, 30244 regarding archaeological resources, and 30230 and 30231 regarding water quality of the Coastal Act. In sum, the proposed changes to the LUP do not meet the requirements of and are not in conformity with the policies in chapter 3 of the Coastal Act. Therefore, the amendment request must be denied as submitted.

E. Approval of the Land Use Plan Amendment if Modified

1. Incorporation of Findings for Denial of Land Use Plan as Submitted

The findings for denial of the Land Use Plan as submitted are incorporated as if fully set forth herein.

2. Wetland

Section 30233 of the Coastal Act limits the uses allowed within wetland to eight specifically enumerated uses. In addition, Section 30250 of the Coastal Act requires that new development be located where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. Wetlands constitute a coastal resource. Wetlands exist at the subject site beyond the area proposed to be designated Open Space Conservation. Wetland areas are proposed to be land use designated Low Density Residential and Open Space Parks. Consequently the proposed amendment would result in residential and recreational development within wetlands, inconsistent with the requirements of Section 30233 of the Coastal Act. Furthermore, the proposed land use designations would allow residential and park development within the area necessary for buffer zones between the wetlands and development, inconsistent with Section 30250 of the Coastal Act. However, the land use designation in the City's existing LUP that adequately protects wetlands is the Open Space Conservation designation. Therefore, the only way to assure protection of all on site wetlands is to designate all wetland areas on-site, as well as that amount of area necessary to provide adequate buffers, Open Space Conservation. If all of the wetland area and the necessary buffer area within the subject site were to be designated Open Space Conservation, rather than Low Density Residential and Open Space Parks, the LUP amendment would be consistent with Section 30233 regarding allowable development within wetlands and with Section 30250 regarding locating development where it will not have adverse effects on coastal resources. A revised land use for the subject site, which designates all wetland area and the necessary buffer area as Open Space Conservation is necessary. Only if modified as recommended to change the proposed land use designations to accurately reflect the extent of wetlands on site and to incorporate appropriate buffer area by land use designating these areas Open Space Conservation, can the proposed development be found consistent with the wetland protection policies of the Coastal Act.

Furthermore, Section 30250 of the Coastal Act requires that new development be located where it will not have adverse effects on coastal resources. Wetlands constitute a coastal resource. Based on information submitted with the related Coastal Development Permit application, a significant amount of earthwork would be necessary to prepare the site for residential development. It is essential that any earthwork undertaken on the site not interfere with the continuance of all on-site wetlands. No grading is allowed within the wetland under the Coastal Act (unless the grading is for the express purpose of wetland restoration). Grading, outside of the wetland, ESHA and necessary buffers, could only be considered if no adverse impacts to the wetlands resulted. If grading redirected groundwater and/or surface water flow such that water from the site no longer fed the wetlands, it could create an adverse effect on the wetland, which is a coastal resource, inconsistent with Section 30250 of the Coastal Act. The proposed amendment does not include any requirements that other site development, including earthwork, assure that no adverse effect occur to the wetlands. Thus, even if no grading were to occur within the wetlands and buffer areas, adverse impacts to on-site wetlands might result from the LUP amendment as proposed. However, if the amendment is modified to include language that requires the protection of the wetlands from all development on-site, the amendment could be found to be consistent with Section 30250 of the Coastal Act which requires no adverse effects to coastal resources occur.

In addition to land use designating all wetland area and necessary buffer area Open Space Conservation, additional measures must be incorporated into the LUP amendment for the subject site to assure that future development adjacent to the wetland and buffer areas and throughout the site does not adversely impact the wetland. For example, if no restrictions were placed on landscaping throughout the site, invasive plants within the residential areas could invade the wetland areas, potentially displacing the wetland plants. In addition, pets from the residential development, if unrestricted, may enter the wetland area causing disruption. As proposed the LUP amendment does not include any site specific restrictions regarding potential impacts to continuation of the wetland, inconsistent with Section 30250 of the Coastal Act. However if modified to include a prohibition on invasive plants throughout the site, and a requirement for a Pet Management Plan, and fencing along the buffer/development interface, as part of the site specific LUP language, the amendment could be found consistent with Section 30250 of the Coastal Act. Specific suggested modification to accomplish this are listed above.

The Commission finds that only if modified as suggested can the proposed land use plan amendment be found to be consistent with and adequate to carry out Section 30250 of the Coastal Act regarding wetlands.

3. Eucalyptus ESHA

The subject site contains environmentally sensitive habitat area (ESHA). The trees within the “eucalyptus grove”, within and adjacent to the subject site’s western boundary are ESHA due to the important ecosystem functions they provide to a suite of raptor species.

Section 30240 requires that ESHA be protected from significant disruption and that only uses dependent upon the resource are allowed within ESHA. In addition, Section 30240 requires development adjacent to ESHA be sited and designed to prevent impacts which would significantly degrade those areas. Section 30240 further requires that development be compatible with the continuance of the habitat area. This policy is carried over into the City's certified LUP ESHA policies.

As proposed, ESHA area would be land use designated Open Space Parks, which would allow active park uses within the ESHA. In order to assure the ESHA is protected, in addition to precluding development within the ESHA, a buffer zone around the ESHA must be established. As proposed, the LUP amendment designates necessary buffer area Open Space Parks and Low Density Residential. The proposed designations would allow residential and park uses within the required buffer areas. Residential and park uses within ESHA and its buffer are inconsistent with Section 30240 of the Coastal Act. The land use designation that protects ESHA by limiting uses within ESHA to those allowed under Section 30240 and that prevents disruption of the habitat is Open Space Conservation. In order to assure that development adjacent to the ESHA does not significantly degrade or impair the continuance of the ESHA, the appropriate land use designation for both the ESHA and its buffer area is Open Space Conservation.

Thus, the land designations within the ESHA must be limited to the designation that allows only those uses dependent upon the ESHA. In addition, the land use designation within the buffer zone must be the designation that allows only those uses compatible with the continuance of the ESHA, and that will not degrade the ESHA. As proposed the LUP amendment is not consistent with Section 30240 of the Coastal Act because the proposed land use designations within the ESHA and buffer area do not limit the uses consistent with Section 30240 of the Coastal Act. Therefore the amendment must be denied as proposed. However, if the proposed amendment were modified to land use designate all ESHA and necessary buffer area Open Space Conservation, the amendment would be consistent with Section 30240 of the Coastal Act.

In addition to land use designating all ESHA area and necessary buffer area Open Space Conservation, additional measures must be incorporated into the LUP amendment for the subject site to assure that future development adjacent to the ESHA and buffer areas and throughout the site does not adversely impact the ESHA. For example, if no restrictions were placed on landscaping throughout the site, invasive plants within the residential areas could invade the ESHA areas, potentially displacing the ESHA plants. In addition, pets from the residential development, if unrestricted, may enter the ESHA area causing disruption. As proposed the LUP amendment does not include any site development restrictions intended to eliminate the site development's potential disruptions to the ESHA, inconsistent with Section 30240 of the Coastal Act. However if modified to include a prohibition on invasive plants throughout the site, and a requirement for a Pet Management Plan, and fencing as part of the site specific LUP language, the amendment can be found consistent with Section 30240 of the Coastal Act. Specific suggested modifications to accomplish this are listed above.

Therefore, the Commission finds that only as modified can the proposed amendment be found to be consistent with Section 30240 of the Coastal.

4. Water Quality

Section 30230 of the Coastal Act requires that marine resources be maintained, enhanced, and where feasible, restored. Section 30231 of the Coastal Act requires that the biological productivity and quality of coastal waters be protected. The City's certified LUP includes policies that reflect the requirements of 30230 and 30231 of the Coastal Act.

Development has the potential to adversely impact coastal water quality through the removal of native vegetation, increase of impervious surfaces, increase of runoff, erosion, and sedimentation, introduction of pollutants such as petroleum, cleaning products, pesticides, and other pollutant sources.

The 50 acre project site is currently undeveloped, with the exception of farming activities. Under existing conditions, no runoff leaves the site. However, installation of impervious surfaces and activities associated with residential development and related hardscape represent a potentially significant impact to water quality downstream of the project, which include the Bolsa Chica wetlands restoration area, Huntington Harbour, and Anaheim Bay Wildlife Refuge. These downstream areas are likely to suffer increases in water quality impairment when site development produces greater volumes and velocities of runoff as well as introducing increased pollutant loads.

It is important that LUP language for the subject site clearly address potential adverse impacts arising due to post development runoff into the channel and significant water bodies downstream. This is especially true because no runoff currently leaves the site. However, the proposed amendment does not include such language. Without such language the LUP amendment is not consistent with the water quality policies of the Coastal Act.

In addition, although the existing LUP includes policies that require projects to incorporate water quality BMPs, none of the existing LUP policies express a preference for types of treatment control BMPs. The preferred option for treatment control BMPs is, first, vegetative treatment (e.g. bio-swales, vegetative buffers, constructed or artificial wetlands), then, second, a combination of vegetative and mechanical systems or BMPs, and last, use of mechanical treatment systems or BMPs alone (e.g. site-specific water quality treatment plants, storm drain filters and inserts). In addition, application of appropriate site design and source control BMPs reduces the amount of runoff that would need treatment control measures. Thus, site design and source control BMPs should be considered first in order to adequately size any necessary treatment control BMPs.

The use of permeable materials for paved areas in new developments is a site design and source control measure which can reduce the rate and volume of the first flush of stormwater runoff and can help to minimize or eliminate dry weather flow. The proposed amendment does not include any discussion on the benefits of incorporating permeable

materials into the design of future projects. However, if the amendment is modified as suggested to include this in LUP policy language, it would be consistent with the water quality policies of the Coastal Act.

In addition, as proposed, the amendment does not include any requirements to minimize or eliminate dry weather flows through the use of site design and source control BMPs. Consequently, adverse water quality impacts due to dry weather flows are not minimized. However, if the amendment were modified as suggested to incorporate policy language addressing this measure, the amendment would be consistent with the water quality policies of the Coastal Act and must be denied.

The current City of Huntington Beach LCP Policy 6.1.6 (paragraph 4) states that, the City shall continue implementation of the Municipal Non-Point [sic] Source National Pollution Discharge Elimination System (NPDES) standards program which is required by an order of the Santa Ana Regional Water Quality Control Board. The policy also states that the City will continue to require a Water Quality Management Plan for all applicable new development and redevelopment in the Coastal Zone. The Commission finds this policy should be modified to include the correct name and date of the permit and to incorporate this permit by reference into the Local Coastal Program. Updates to the NPDES permit (such as the update expected in 2007) should be submitted to the Executive Director for an LCP amendment.

While the Commission recognizes that the City's existing policies address water quality protection and improvement within the City, it also recognizes that there are additional, more specific steps that could be taken to further protect, restore and/or enhance the water quality of downstream sites (EGGW flood control channel, Bolsa Chica wetlands restoration area, Huntington Harbour, and Anaheim Bay Wildlife Refuge) that will be effected by runoff generated by development of the site. The proposed amendment could not be found consistent with Sections 30230 and 30231 of the Coastal Act, if feasible measures known to positively impact water quality were not included in language specific to the subject site as part of the current amendment proposal. The Commission's standard of review, which requires the preservation, protection, and enhancement of coastal resources including water quality, necessitates that the additional measures, outlined above, be imposed. Thus, the Commission finds that only if modified as suggested is the proposed amendment consistent with Sections 30230 and 30231 of the Coastal Act regarding water quality.

5. Public Access and Recreation

Coastal Action Section 30210 requires that public coastal access be maximized. Coastal Act Section 30252 requires that public access be maintained and enhanced through the provision of nonautomobile circulation within the development, adequate parking, and adequate recreational opportunities. These requirements are carried over and re-emphasized in the City's Land Use Plan public access policies. As proposed the LUP amendment would allow significant residential development to occur with no corresponding requirement for public access specific to the site. The site is located between the sea and

the first public road.

Although a portion of the site is proposed to be designated park, nothing in the proposed amendment would assure that it would be available to the general public via public streets and trails. The certified LUP identifies a Class I bicycle path along the flood control channel levee at the subject site. However, the proposed amendment makes no reference to the suitability of a bicycle path at the subject site. If a future residential development at the site included gates or private streets, a significant public access opportunity would be lost. In addition, public parking in the area would increase public access opportunities to the park area, the bicycle path and to the Bolsa Chica area beyond, as well as, ultimately, to the coast. However, there is nothing in the LUP amendment that would require the residential streets to be open and available to the public. Nor is there any requirement for interior trail connections between Graham Street, the public park areas, and the bicycle path for the interior of the site. In addition, nothing in the proposed amendment or in the City's LUP requires that lower priority developments (such as residential) be phased to assure provision of associated recreation and public access (such as public trails, parks, and parking) occur prior to or concurrent with the lower priority development. Without such a phasing requirement, it is difficult to assure that Coastal Act high priority uses would occur in a timely manner, or possibly even at all.

However, the proposed amendment could be modified such that site specific language in the LUP include reference to the Class I bicycle path along the flood control channel levee, interior trail connections, public parking and access on residential streets. This would allow direct public access throughout the site and to the Bolsa Chica restoration area and to the beach beyond. Furthermore, the proposed amendment could be modified to incorporate a policy requiring phasing of recreation and public access uses prior to or concurrent with lower priority uses. Modifications to accomplish these goals would bring the proposed amendment into conformity with Coastal Act Sections 30210 and 30252 which require that public access and recreation be maximized and enhanced. Therefore, the Commission finds that only if modified as suggested is the proposed amendment consistent with Sections 30210 and 30252 of the Coastal Act.

6. Visual Resources

Section 30251 of the Coastal Act requires that the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. The subject site offers the opportunity to provide public views from the site to the Bolsa Chica wetlands area and to the ocean beyond. The southwest corner of the site is an excellent location for providing public views to and along the coast and scenic areas, as required by Section 30251. The location also works well with the anticipated bikeway along the flood control channel. However, the proposed LUP amendment does not include any discussion regarding provision of public view points in association with development of the site.

Future residential development of the site is expected to include a wall separating residential development adjacent to the flood control levee from the anticipated public bicycle path along the top of the levee. If such a wall is proposed in the future, it could

create adverse impacts to public views along the bicycle path. However, adverse impacts could be minimized by incorporating measures such as landscaped screening, use of an undulating or off-set wall footprint, or decorative wall features (such as artistic imprints, etc.), or a combination of these measures.

The proposed amendment does not provide language to address site specific visual impacts and does not assure that potential visual resources will be protected at the time the site is proposed for development. Therefore the proposed amendment is inconsistent with Section 30252 of the Coastal Act regarding protection of visual resources within the coastal zone and must be denied. However, if the amendment were modified to incorporate measures specific to the site that protect and enhance public views, the amendment would be consistent with Section 30252 of the Coastal Act regarding protection of public views.

7. Archaeological Resources

Coastal Act Section 30244 requires that any impacts to significant archaeological resources be reasonably mitigated. The City's certified LUP includes policies which require, among other things, identification of resources and mitigation of any impacts. Significant archaeological resources are known to exist in the project vicinity, and may occur on the subject site.

However, the proposed LUP amendment does not include a specific requirement to avoid and/or mitigate archaeological impacts, even though the site is known to be in a potentially significant archaeological area. Without a cross reference in the site specific area discussion of the proposed LUP amendment to the archaeological policies in the LUP, there is no assurance that the potential for archaeological resources to occur on the site will be recognized in conjunction with future development proposals. If the potential for archaeological resources at the site is not recognized in the proposed LUP amendment for the site, application of the policies cited above may be overlooked. The proposed LUP amendment, which specifically addresses the subject site, provides the appropriate opportunity to make clear that archaeological resources may be present on this site, and therefore these specific policies must be applied. Without such language within the LUP amendment, it cannot be found consistent with Section 30244 of the Coastal Act.

However, if the amendment were modified to include a cross reference to the archaeological policies of the LUP, adverse impacts may be avoided and reasonable mitigation for unavoidable impacts could be implemented in conjunction with future site development, consistent with Section 30244 of the Coastal Act. Therefore, the Commission finds that only if modified as suggested, is the proposed amendment consistent with Section 30244 of the Coastal Act which requires that reasonable mitigation be required for adverse impacts to archaeological resources.

8. Hazards

Coastal Act Section 30253 state, in pertinent part:

New Development shall:

- (4) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
- (5) 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 buffs and cliffs.*

The proposed LUP amendment would land use designate much of the subject site for residential development. The Commission's staff geologist has reviewed a great deal of technical information submitted in conjunction with the proposed LUP amendment and related coastal development permit application. Potential geotechnical and hydrological issue are identified in the staff geologist's memo.

Residential development of the site carries with it certain risks. Although information submitted relative to the related Coastal Development Permit indicates there are feasible mitigation measures available to minimize the level of risk involved with site development, there is no specific requirement in the proposed amendment to assure that measures necessary for risk reduction would be incorporated into future site development. Without such requirements in the amendment, there is no assurance that risks will be minimized as required by Section 30253 of the Coastal Act. However, if the amendment were modified to include such a requirement it would be consistent with Section 30253 of the Coastal Act.

Thus, only if modified is the proposed amendment consistent with Section 30253 of the Coastal Act. Therefore the Commission finds that only if modified can the proposed amendment be found to be consistent with Section 30253 of the Coastal Act which requires that risks to life and property be minimized and that development assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area.

9. Priority of Use

Section 30222 of the Coastal Act states:

The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.

The LUP amendment does not propose to designate any portion of the site visitor serving commercial. Generally, in the City of Huntington Beach, the areas recognized as best for visitor serving commercial development are the areas along Pacific Coast Highway, and adjacent to and inland of the pier, and areas within and around Huntington Harbour. The

subject site is surrounded on three sides by existing single family residences, and doesn't really lend itself to visitor serving commercial development. Moreover, the LUP amendment as proposed and as amended will provide a Class I bicycle path, a public view area, public park area, and interior trails as well as public parking along the residential streets. Such uses constitute lower cost visitor serving recreational uses. As modified the recreational and public access provisions will be constructed prior to or concurrent with the residential uses. Therefore, the Commission finds that the proposed LUP amendment is consistent with Section 30222 of the Coastal Act which requires visitor serving commercial recreational facilities have priority over residential development.

10. Conclusion

As proposed, the Land Use Plan amendment contains significant deficiencies with regard to consistency with the Coastal Act. As proposed, the amendment cannot be found consistent with Sections 30210 and 30252 regarding maximizing and enhancing public access, 30251 regarding protection of public views, 30233 and 30250 regarding wetlands, 30240 regarding ESHA, 30244 regarding archaeological resources, and 30230 and 30231 regarding water quality of the Coastal Act. However, if the proposed amendment were modified as suggested in Section II of this staff report, the amendment would be consistent with the Chapter 3 policies of the Coastal Act. Therefore, the Commission finds that only if modified is the proposed amendment consistent with the Chapter 3 policies of the Coastal Act.

F. Denial of the Implementation Plan Amendment as Proposed

1. Incorporation for Findings for Denial of Land Use Plan as Submitted and Approval of the Land Use Plan if Modified

The findings for denial of the Land Use Plan as submitted and approval if modified are incorporated as though fully set forth herein.

2. Implementation Plan Amendment Description

The proposed Implementation Plan amendment would provide zoning for the subject site. Currently the subject site is comprised of an approximately 40 acre area of deferred certification, an approximately 5 acre area zoned Open Space Parks (OS-P), and an approximately 5 acre recently annexed, un-zoned area. The proposed amendment would modify Sectional District Map 28-5-11 (DMZ) to reflect the proposed zoning. The proposed zoning for the subject site is (see Exhibit F for the proposed zoning map):

Zone		Acres
RL-FP2-CZ	Low Density Residential-Floodplain Overlay-Coastal Zone Overlay	38.4
OS-PR-CZ	Open Space-Parks and Recreation-Coastal Zone Overlay	8.2

CC-FP2- CZ	Coastal Conservation-Floodplain Overlay- Coastal Zone Overlay	3.3
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Only the map change is proposed in the Implementation Plan amendment. No change to any text is proposed.

The standard of review for amendments to a certified Implementation Plan is whether the Implementation Plan, as modified, would be consistent with and adequate to carry out the policies of the certified Land Use Plan, as amended.

3. Wetlands

Policy C 6.1.20 of the City's certified Land Use Plan (LUP) states:

Limit diking, dredging, and filling of coastal waters, wetlands, and estuaries to the specific activities outline in Section 30233 and 30607.1 of the Coastal Act and to those activities required for the restoration, maintenance, and/or repair of the Municipal Pier and marina docks. Conduct any diking, dredging and filling activities in a manner that is consistent with Section 30233 and 30607.1 of the Coastal Act.

Section 30233 limits development within wetlands to eight specifically enumerated uses. Neither residential development nor active parks are uses specified in Section 30233 of the Coastal Act.

In addition, Policy C 7.1.4 of the LUP states, in pertinent part:

Require that new development contiguous to wetlands or environmentally sensitive habitat areas include buffer zones.

As described in greater detail in the findings for the Land Use Plan, the amendment proposes to zone wetland areas low density residential and open space park. The proposed zones would result in residential uses and active park uses within wetland areas. These uses are not consistent with the LUP policies cited above. In addition, the proposed zoning would not be consistent with the land use plan designation as modified by the suggested modifications to the proposed Land Use Plan amendment. As modified the land use designation for the wetland areas is Open Space Conservation. Therefore, the Commission finds that as proposed the Implementation Plan amendment is inconsistent with and inadequate to carry out the land use plan, specifically with LUP policy C 6.1.20 which limits the uses that may occur within wetlands. The IP amendment is also inconsistent with the land use designation for the site as modified by the suggested modifications to the proposed land use plan amendment.

Furthermore, LUP policy C 7.1.4 requires buffer zones for development adjacent to wetlands. The appropriate buffer area for the wetlands at the subject site is described in the findings for the denial of the land use plan amendment as proposed. In addition, the

proposed zoning would not be consistent with the land use plan designation as modified by the suggested modifications to the proposed Land Use Plan amendment. As modified the land use designation for the wetland areas and the required buffer area is Open Space Conservation. Therefore, the Commission finds that as proposed the Implementation Plan amendment is inconsistent with and inadequate to carry out the land use plan, specifically with LUP policy C 7.1.4 which requires buffer areas for development adjacent to wetlands. The IP amendment is also inconsistent with the land use designation for the site as modified by the suggested modifications to the proposed land use plan amendment.

For these reasons the Commission finds that the proposed Implementation Plan amendment is inconsistent with and inadequate to carry out the policies and land use designations of the certified Land Use Plan concerning wetlands and therefore must be denied.

4. Eucalyptus ESHA

Policy C 7.1.2 of the City's certified Land Use Plan states:

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.

In the event that development is permitted in an ESHA area pursuant to other provisions of this LCP, a "no-net-loss" policy (at a minimum) shall be utilized.

Policy C 7.1.3 of the City's certified Land Use Plan 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.

In addition, Policy C 7.1.4 of the LUP states, in pertinent part:

Require that new development contiguous to wetlands or environmentally sensitive habitat areas include buffer zones.

As described in greater detail in the findings for the Land Use Plan, the amendment proposes to zone ESHA open space park. The proposed zone would result in active park uses within ESHA areas. Active park use is not a use dependent on the resource. Thus, the uses allowed by the proposed zoning are not consistent with the LUP policies cited above. In addition, the proposed zoning would not be consistent with the land use plan designation as modified by the suggested modifications to the proposed Land Use Plan amendment. As modified, the land use designation for the ESHA areas is Open Space Conservation. Open Space Parks does not adequately implement the Conservation zoning. Therefore, the Commission finds that as proposed the Implementation Plan

amendment is inconsistent with and inadequate to carry out the land use plan, specifically with LUP policy C 6.1.20 which limits the uses that may occur within ESHA and requires that ESHA be protected against any significant disruption of habitat values. The IP amendment is also inconsistent with the land use designation for the site as modified by the suggested modifications to the proposed land use plan amendment.

Furthermore, LUP policy C 7.1.4 requires buffer zones for development adjacent to ESHA. The appropriate buffer area for the wetlands at the subject site is described in the findings for the denial of the land use plan amendment as proposed. In addition, the proposed zoning would not be consistent with the land use plan designation as modified by the suggested modifications to the proposed Land Use Plan amendment. As modified the land use designation for the ESHA areas and the required buffer area is Open Space Conservation. Therefore, the Commission finds that as proposed the Implementation Plan amendment is inconsistent with and inadequate to carry out the land use plan, specifically with LUP policy C 7.1.4 which requires buffer areas for development adjacent to ESHA. The IP amendment is also inconsistent with the land use designation for the site as modified by the suggested modifications to the proposed land use plan amendment.

For these reasons the Commission finds that the proposed Implementation Plan amendment is inconsistent with and inadequate to carry out the policies and land use designations of the certified Land Use Plan concerning ESHA protection and therefore must be denied.

G. Approval of the Implementation Plan Amendment if Modified

1. Incorporation for Findings for Denial of Land Use Plan as Submitted and Approval of the Land Use Plan if Modified

The findings for denial of the Land Use Plan as submitted and approval if modified are incorporated as though fully set forth herein.

2. Incorporation of Findings for Denial of Implementation Plan as Submitted

The findings for denial of the Implementation Plan as submitted are incorporated as if fully set forth herein.

3. Wetland

If Sectional District Map 28-5-11 (DMZ) were modified such that the proposed zoning corresponds to the land use designations as modified, specifically such that all wetland areas on site and the required buffer areas were zoned Coastal Conservation, then the Implementation Plan amendment, specifically the zoning map, would be consistent with and adequate to carry out the policies and land use designations of the certified Land Use Plan, as amended. Therefore the Commission finds that only if modified as suggested, is the proposed Implementation Plan amendment consistent with and adequate to carry out

the certified Land Use Plan, as amended.

4. ESHA

If Sectional District Map 28-5-11 (DMZ) were modified such that the proposed zoning corresponds to the land use designations as modified, specifically such that all ESHA areas on site and the required buffer areas were zoned Coastal Conservation, then the Implementation Plan amendment, specifically the zoning map, would be consistent with and adequate to carry out the policies and land use designations of the certified Land Use Plan, as amended. Therefore the Commission finds that only if modified as suggested, is the proposed Implementation Plan amendment consistent with and adequate to carry out the certified Land Use Plan, as amended.

5. Conclusion – Approval of the Implementation Plan Amendment if Modified

As proposed, the Implementation Plan amendment contains significant deficiencies with regard to consistency with and adequacy to carry out the policies and land use designations of the certified Land Use Plan, as amended. As proposed, the amendment cannot be found consistent with or adequate to carry out the policies of the certified Land Use Plan regarding allowable uses in wetland areas and ESHAs; nor can it be found consistent with or adequate to carry out the policy that requires buffer zones for development adjacent to wetland and ESHA. However, if the proposed amendment were modified as suggested in Section II of this staff report, the amendment would be consistent with and adequate to carry out the certified Land Use Plan, as amended. Therefore, the Commission finds that only if modified is the proposed amendment consistent with and adequate to carry out the certified policies and land use designations of the Land Use Plan, as amended.

IV. CALIFORNIA ENVIRONMENTAL QUALITY ACT

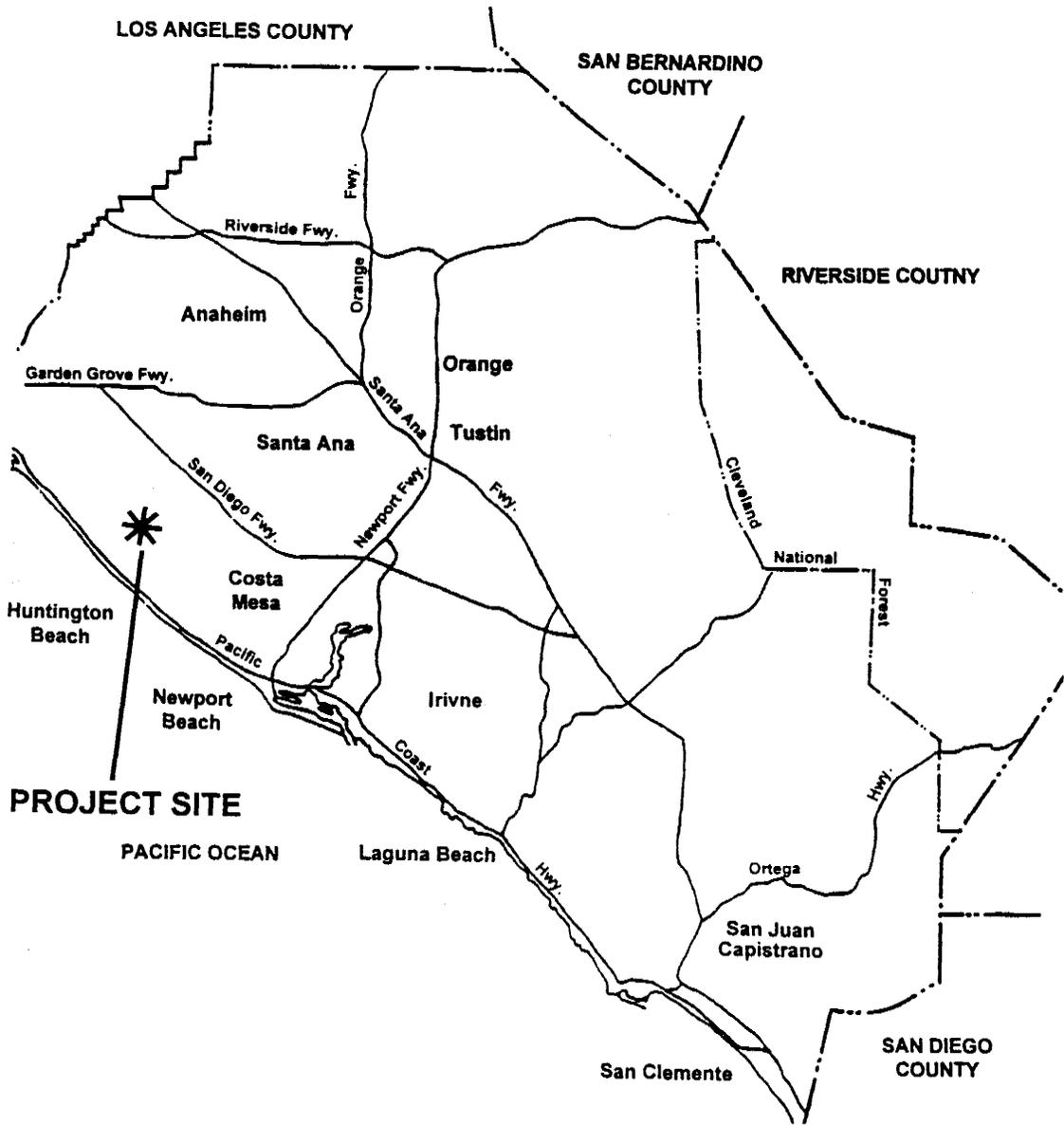
Section 21080.9 of the California Public Resources Code – within the California Environmental Quality Act (CEQA) - exempts local governments from the requirement of preparing an environmental impact report (EIR) in connection with its activities and approvals necessary for the preparation and adoption of a local coastal program (LCP). Instead, the CEQA responsibilities are assigned to the Coastal Commission. However, the Commission's LCP review and approval program has been found by the Resources Agency to be functionally equivalent to the EIR process. Thus, under Section 21080.5 of CEQA, the Commission is relieved of the responsibility to prepare an EIR for each LCP. Nevertheless, the Commission is required in approving an LCP submittal to find that the LCP does conform with the provisions of CEQA, including the requirement in CEQA section 21080.5(d)(2)(A) that the amended IP will not be approved or adopted as proposed if there are feasible alternative or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment. 14 C.C.R. Sections 13542(a), 13540(f), and 13555(b). The City of Huntington Beach LCP amendment 1-06 consists of an amendment to the both the Land

Use Plan (LUP) and the Implementation Program (IP).

As outlined in this staff report, the LUP amendment is not consistent with the Chapter 3 policies of the Coastal Act regarding public access and recreations, wetland, ESHA, marine resources, and land resources, as proposed. And also as outlined in this staff report, the proposed IP amendment is inconsistent with the wetland and ESHA protection policies of the Coastal Act. However, if modified as suggested, the amendment will be consistent with the public access and recreations, wetland, ESHA, marine resources, and land resources of the Coastal Act and the Land Use Plan, as amended. Thus, the Commission finds that the proposed LUP amendment, as modified, meets the requirements of and conforms with the Chapter 3 policies of the Coastal Act. In addition, the Commission finds that the IP amendment, if modified as suggested, is in conformity with and adequate to carry out the land use policies of the certified LUP. Therefore, the Commission finds that approval of the LCP amendment as modified will not result in significant adverse environmental impacts under the meaning of CEQA. Therefore, the Commission certifies LCP amendment request 1-06 if modified as proposed herein.

Parkside Estates EIR 97-2

City of Huntington Beach



①
No Scale

EDAW, Inc.

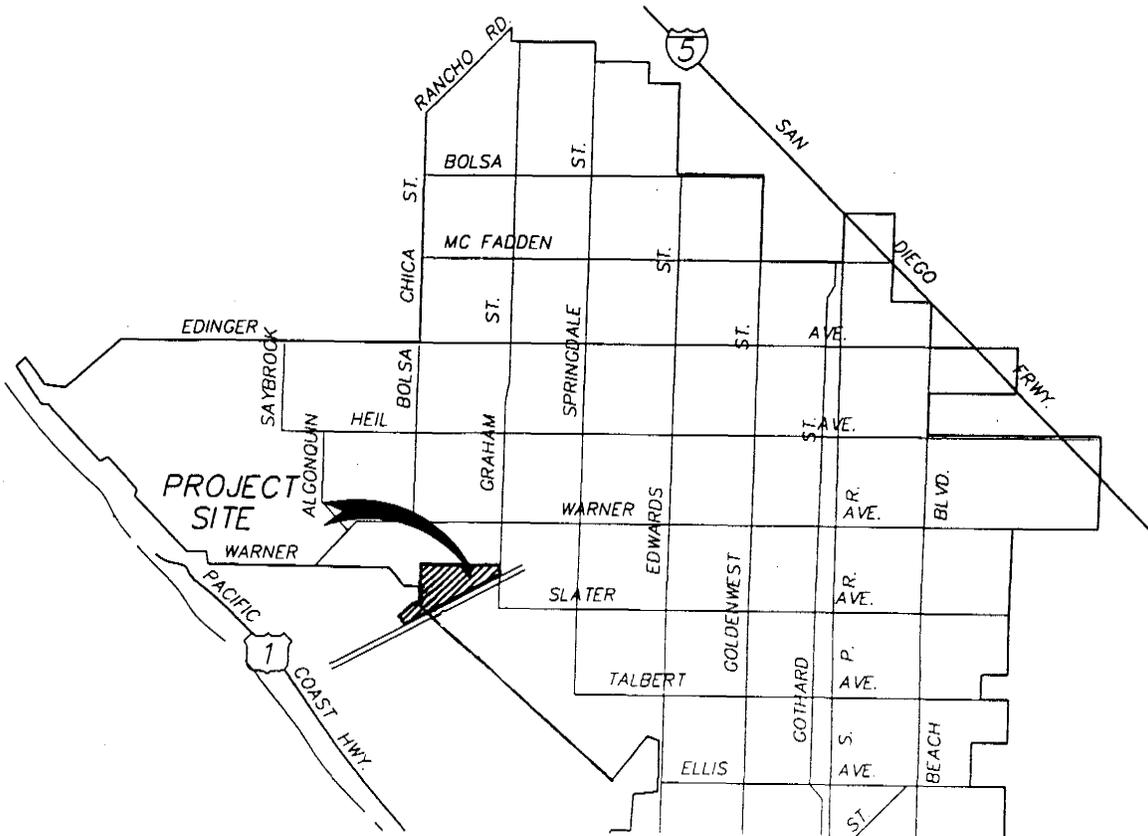
Source: EDAW, Inc. HNB LCPA 1-06

Exhibit **A**

Regional Location

Parkside Estates EIR 97-2

City of Huntington Beach



No Scale

EDAW, Inc.

HNB LCPA 1-06

Source: Hunsaker & Associates Irvine, Inc.

Exhibit **B**

Local Vicinity

Huntington Beach LCP Amendment 1-06 (Parkside)
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RESOLUTION NO. 2002-123

A RESOLUTION OF THE CITY COUNCIL OF
THE CITY OF HUNTINGTON BEACH ADOPTING LOCAL COASTAL
PROGRAM AMENDMENT NO. 96-4 TO AMEND THE LOCAL COASTAL
PROGRAM LAND USE PLAN AND IMPLEMENTING ORDINANCES TO
REFLECT GENERAL PLAN AMENDMENT NO. 98-1 AND ZONING
MAP AMENDMENT NOS. 96-5A AND 96-5B BY AMENDING ZONE 2-LAND
USE PLAN AND ACCOMPANYING TEXT OF THE CITY'S COASTAL ELEMENT FOR
THE REAL PROPERTY GENERALLY LOCATED ON THE WEST SIDE OF
GRAHAM STREET, SOUTH OF KENIL WORTH DRIVE AND REQUESTING
CERTIFICATION BY THE CALIFORNIA COASTAL COMMISSION

WHEREAS, the City of Huntington Beach seeks to amend its Local Coastal Program to reflect approximately 36.8 acres as Low Density Residential (maximum 7 units per acre) and 8.2 acres as Open Space-Park on 45 acres of the subject property within the City of Huntington Beach; and to reflect 1.6 acres as Low Density Residential (maximum 7 units per acre) and 3.3 acres as Coastal Conservation on an approximately 5 acre, pre-annexation portion of the subject property; and

After notice duly given pursuant to *Government Code* Section 65090 and *Public Resources Code* Section 30503 and 30510, the Planning Commission of the City of Huntington Beach held public hearings to consider the adoption of the Huntington Beach Local Coastal Program Amendment No. 96-4; and

Such amendment was recommended to the City Council for adoption; and

The City Council has, prior to the adoption of this Resolution, reviewed, considered, and certified as adequate and complete the Final Environmental Impact Report No. 97-2 (Exhibit F) and has adopted the Statement of Findings and Facts in Support of Findings, and Mitigation Monitoring Report for the Final EIR; and

The City Council, after giving notice as prescribed by law, held at least one public hearing on the proposed Huntington Beach Local Coastal Program Amendment No. 96-4, and the City Council finds that the proposed amendment is consistent with the Huntington Beach General Plan, the Certified Huntington Beach Local Coastal Program (including the Land Use Plan), and Chapter 3 of the California Coastal Act; and

The City of Huntington Beach intends to implement the Local Coastal Program in a manner fully consistent with the California Coastal Act.

NOW, THEREFORE, the City Council of the City of Huntington Beach does hereby resolve as follows:

02reso/LCPA 96-4/11/15/02

1

HNB LCPA 1-06

Exhibit C

Huntington Beach LCP Amendment 1-06 (Parkside)
Page 66

SECTION 1: That the real property that is the subject of this Resolution is bounded by Graham Street, the East Garden Grove-Wintersburg Flood Control Channel, unincorporated Bolsa Chica, and single-family homes along Kenilworth Drive and consists of approximately 45 acres within the City of Huntington Beach which includes the approximate 40-acre Area of Deferred Certification, and approximately 5 acres within the County of Orange (Exhibit A).

SECTION 2: That the Huntington Beach Local Coastal Program Amendment No. 96-1, consisting of General Plan Amendment No. 98-1 and Zoning Map Amendment Nos. 96-5A and 96-5B, a copy of which is attached hereto as Exhibits B and C, and incorporated by this reference as though fully set forth herein, is hereby approved.

SECTION 3: That the Local Coastal Program Land Use Plan/Coastal Element for the Subject Property is hereby changed (Exhibit D) as follows:

- A. The Area of Deferred Certification portion of the Subject Property amended to reflect approximately 2.8 acres as OS-P (Open Space-Park), and approximately 36.8 acres as RL-7 (Low Density Residential – maximum 7 units per acre); and
- B. Pre-General Plan an approximately 5 acre portion located within the County of Orange as OS-C (Open Space – Conservation) – approximately 3.3 acres, and RL-7 (Low Density Residential – maximum 7 units per acre) – approximately 1.6 acres.

SECTION 4: That the Local Coastal Program/Implementing Ordinances (Zoning Maps) for the Subject Property are hereby changed (Exhibit E) to be consistent with the General Plan, Local Coastal Program Amendment, and Coastal Element as follows:

- A. Rezone approximately 40 acres of the subject property to add CZ (Coastal Zone Overlay) to the existing RL-FP2 (Low Density Residential – Floodplain Overlay) designation; and
- B. Rezone 8.2 acres from RA-CZ (Residential Agriculture-Coastal Zone Overlay) and RL-FP2 (Low Density Residential – Floodplain Overlay) to OS-PR-CZ (Open Space-Parks and Recreation-Coastal Zone Overlay); and
- C. Pre-zone the approximately 5 acre portion located within the County of Orange as follows: approximately 1.6 acres RL-7 - FP2 – CZ (Residential Low Density – Floodplain Overlay – Coastal Zone Overlay); and approximately 3.3 acres CC - FP2 - CZ (Coastal Conservation – Floodplain Overlay – Coastal Zone Overlay).

SECTION 5: That all development shall comply with the requirements of the Local Coastal Program, including the Land Use Plan (Coastal Element) and Implementing Ordinances (Zoning and Subdivision Ordinance). The City will issue Coastal Development Permits in accordance with its Local Coastal Program, and intends the Local Coastal Program will, in all respects, be carried out in a manner fully in conformity with the Coastal Act.

Huntington Beach LCP Amendment 1-06 (Parkside)
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MS. 2002-100

SECTION 6: That the City hereby requests delegation of Coastal Development Permit authority for the deferred certification area and pre-annexation area of the affected property. The date upon which the City shall begin issuing Coastal Development Permits shall be upon this Local Coastal Program Amendment certification and, for the pre-annexation area, upon Local Agency Formation Commission's approval of the annexation.

SECTION 7: That the California Coastal Commission is hereby requested to consider, approve and certify Huntington Beach Local Coastal Program Amendment No. 96-4.

SECTION 8: That pursuant to Section 13551(b) of the Coastal Commission Regulations, Huntington Beach Local Coastal Program Amendment No. 96-4 will take effect automatically upon Coastal Commission approval, as provided in *Public Resources Code* Sections 30512, 30513 and 30519. In the event that the Coastal Commission proposes revisions, this Land Use Plan and Implementing Ordinances amendment shall not take effect until the City Council adopts the Commission modifications and all the requirements of Section 13544 of Title 14 of the California Code of Regulations are met.

SECTION 9. This resolution supercedes City Council Resolution No. 2002-101.

PASSED AND ADOPTED by the City Council of the City of Huntington Beach at a regular meeting thereof held on the 18 day of November, 2002.

Debbie Cook

Mayor

ATTEST:

Connee Brockway

City Clerk

APPROVED AS TO FORM:

Gail Hutton

City Attorney

BA 11-13-02

JP 11/15/02

REVIEWED AND APPROVED:

Ray Julian

City Administrator

INITIATED AND APPROVED:

[Signature]

Planting Director

FOR HZ

EXHIBITS

- A. Vicinity Map.
- B. Resolution Adopting General Plan Amendment No. 98-1. *(Res No. 2002-100)*
- C. Ordinances for Zoning Map Amendment Nos. 96-5A and 96-5B. *(Ord. Nos. 3584 and 3585)*
- D. Changes in Coastal Element/ Land Use Plan:
Pg. IV-C-11 Discussion and Table
Pg. IV-C-21 Figure C-26
- E. Changes in Coastal Element/ Implementing Ordinances: DM 33Z
- F. Resolution Certifying Final Environmental Impact Report No. 97-2 *(Res No. 2002-97)*

C3

EXHIBIT "A" to Res. No. 2002-123

LANNING

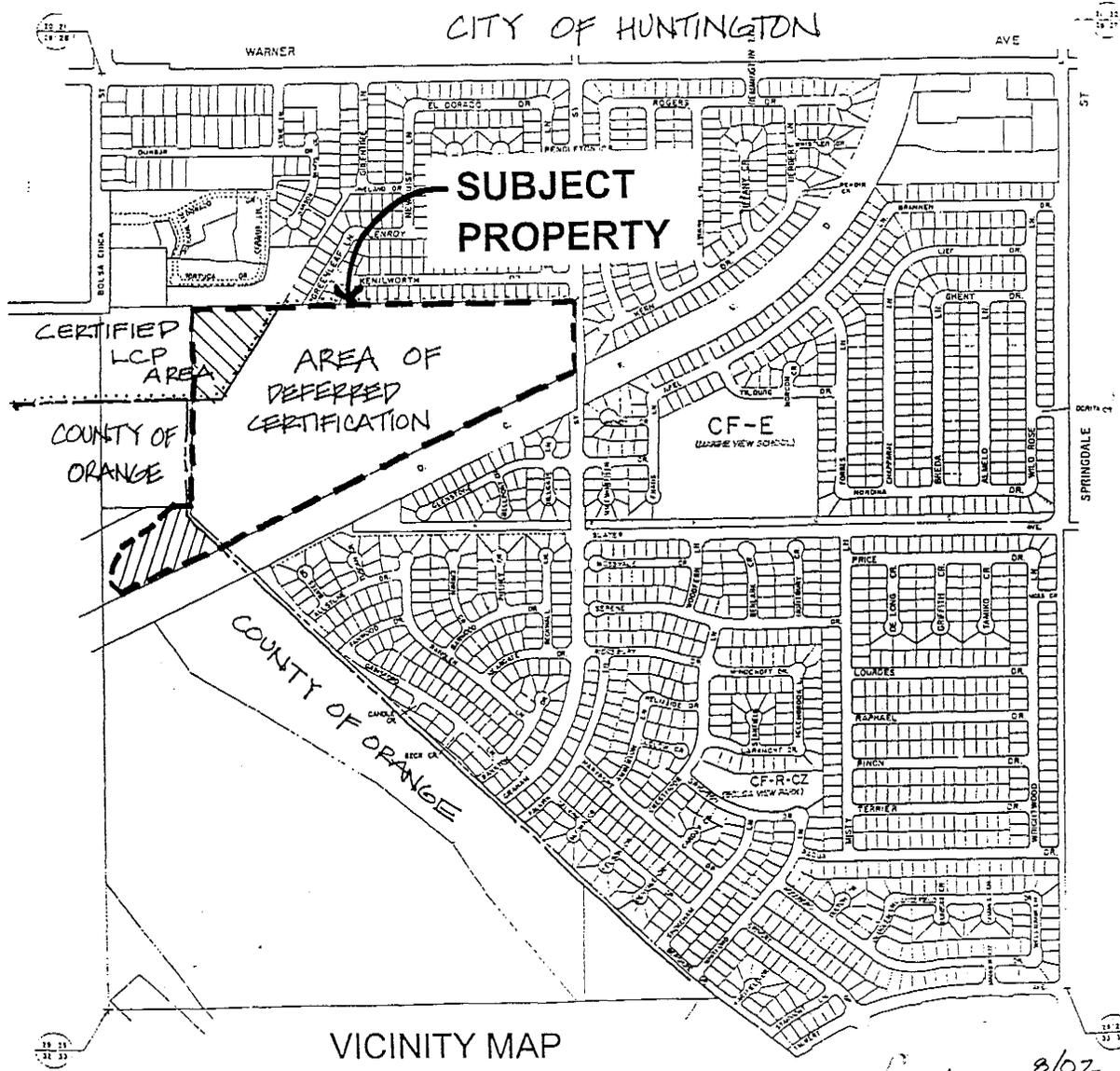
SECTIONAL DISTRICT MAP • 28-5-11



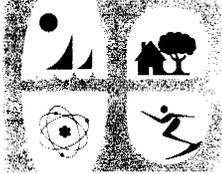
1" = 100'

CITY OF
HUNTINGTON BEACH 
ORANGE COUNTY, CALIFORNIA

USE OF PROPERTY MAP



Cy 8/02



City of Huntington Beach

2000 MAIN STREET

CALIFORNIA 92648

DEPARTMENT OF PLANNING

Phone 536-5271
Fax 374-1540
374-1648

December 23, 2002

Steve Rynas
Orange County Area Supervisor
South Coast Area Office
California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, CA 90802-4302

Re: **HUNTINGTON BEACH LOCAL COASTAL PROGRAM AMENDMENT
NO. 02-2 (PARKSIDE ESTATES)**

Dear Mr. Rynas:

The City of Huntington Beach is transmitting Local Coastal Program Amendment (LCPA) No. 02-2 pursuant to City Council Resolution No. 2002-123 (HB LCPA No. 96-4). The Local Coastal Program Amendment is requested to amend the City's certified Local Coastal Program (Land Use Plan and Implementing Ordinances) relative to the adoption of a general plan amendment and zoning map amendment for approximately 50 acres in the Coastal Zone. Approximately 45 acres of the site are within the City of Huntington Beach and 4.9 acres of annexation area are within the County of Orange. Following is a summary of the project.

PARKSIDE ESTATES RESIDENTIAL AND OPEN SPACE AREA

Pursuant to Section 13551(a) of Article 15 of the California Coastal Commission Regulations, the City Council adopted Resolution No. 2002-100, and Ordinance Nos. 3584 and 3585 on October 21, 2002 (second reading of the Ordinances on November 6, 2002), and Resolution No. 2002-123 on November 18, 2002 to amend the City's certified Local Coastal Program to include a mix of three land uses for the subject site as follows:

<u>LAND USE DESIGNATION</u>	<u>ACREAGE</u>
Low Density Residential	38.4
Open Space – Park	8.2
Open Space – Conservation	<u>3.3</u>
TOTAL:	49.9

Copies of the relevant documents are enclosed. The proposed Local Coastal Program Amendment No. 02-2 is submitted as a major amendment that will take affect

HNB LCPA 1-06

Exhibit D

Huntington Beach LCP Amendment 1-06 (Parkside)
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Page 2

1. Project Description

The project site address is 17301 Graham Street. It is bounded by Graham Street to the east, East Garden Grove-Wintersburg Flood Control Channel to the south, unincorporated Bolsa Chica area to the west, and existing residential uses to the north. The proposed amendment would amend the Land Use Plan (LUP) and Implementing Ordinances for the subject 50-acre area as follows:

- The LUP currently designates the 45-acre portion of the property within the City as Open Space – Park and Area of Deferred Certification. The LUP would be amended to reflect approximately 36.8 acres of Low Density Residential (max. 7 u/nac) area, and 8.2 acres of Open Space – Park area. The zoning map would be changed to depict approximately 36.8 acres as RL-FP2-CZ (Low Density Residential with Floodplain and Coastal Zone Overlays), and 8.2 acres as OS-PR-CZ (Open Space – Parks and Recreation – Coastal Zone Overlay).
- For the 4.9-acre portion of the property within the County of Orange, the LUP would reflect 3.3 acres of Open Space – Conservation area and 1.6 acres of Low Density Residential (max 7 u/nac) area as a pre-annexation designation. The zoning map would depict 3.3 acres as CC-FP2-CZ (Coastal Conservation with Floodplain & Coastal Zone Overlays) and 1.6 acres as RL-7-FP2-CZ (Residential Low Density with Floodplain & Coastal Zone Overlays) as a pre-annexation designation.

Environmental Impact Report (EIR) No. 97-2 was processed concurrently with these entitlements and certified by the City Council on October 21, 2002. In addition, an annexation request to annex the 4.9 acre portion of the property into the City from the County of Orange was approved by the City Council on October 21, 2002.

There was an appeal of the Planning Commission's approval of two tentative tract maps, a conditional use permit, and coastal development permit that was conditionally approved by the City Council on October 21, 2002 in conjunction with the LCPA. These entitlements were conditionally approved including the Coastal Development Permit and do not become effective until such time as the LCPA is certified by the Coastal Commission.

The development project is a request to subdivide approximately 50 acres of property for development of 170 single family homes and dedicate an 8.2 (gross) acre neighborhood park. One tentative tract map is for a 162 single family residential lot subdivision on the 45 acre portion of the development site that is located in the City, and a separate tentative tract map is for an 8 single family residential lot subdivision on the 4.9 acre portion of the development site that is in the County. Approval of the annexation request by LAFCO is necessary for the County portion of the project to proceed. In the event that the annexation is not approved, an alternate layout on the tentative tract map has been conditionally approved that ensures that the project can be self-contained and function adequately within the City.

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The 50-acre site is owned by Shea Homes. Shea Homes intends to develop their site as soon as they receive the required approvals. The site has been used for farming since the 1950's.

2. General Plan Conformance

Although the majority of the site is within a non-certified area of the LCP, it has been zoned and general planned Low Density Residential and Open Space since the 1970's. In 1996, the City of Huntington Beach completed a comprehensive update to its General Plan, at which time it maintained the Low Density Residential and Open Space Land Use designations on the subject site within the City of Huntington Beach.

The proposed Local Coastal Program Amendment represents a change to the LUP (General Plan Amendment No. 98-1) and Implementing Ordinances (Zoning Map Amendment Nos. 96-5A & 5B) by expanding the amount of open space area within the City by 2.8 acres and adding a CZ (Coastal Zone) Overlay to the existing Low Density Residential zoning on the subject property. It was determined by the City Council that these entitlements are consistent with the goals, objectives and policies of the City's General Plan and certified LCP.

Goals and policies of the City's General Plan include:

Policy LU 9.3: Provide for the development of new residential subdivisions and projects that incorporate a diversity of uses and are configured to establish a distinct sense of neighborhood identity.

Objective LU 14.1: Preserve and acquire open spaces for the City's existing and future residents and provide, maintain and protect significant environmental resources, recreational opportunities and visual relief from development.

Policy LU 14.1.1: Accommodate the development of public parks, coastal and water-related occupational uses, and the conservation of environmental resources in areas designated for Open Space on the Land Use Map.

Goal LU 3: Achieve the logical, orderly, and beneficial expansion of the City's services and jurisdictional limits.

RSC Policy 2.1.3: Require parkland acquisitions to be fiscally efficient and beneficial to the needs of the community.

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Huntington Beach LCP Amendment 1-06 (Parkside)
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Applicable Goals and Policies of the City's Coastal Element include:

- Develop a land use plan for the Coastal Zone that protects and enhances coastal resources, promotes public access and balances development with facility needs.
- Encouragement of alternatives to the private automobile for transportation to recreation areas.
- Preservation of adequate arterial capacities for recreational traffic.
- Protection of significant habitat areas requiring wetland enhancement and buffers in exchange for development rights.
- Improvement of the aesthetic and biological quality of wetland areas.
- Ensure that prior to approval of new development, that adequate sewage facilities can be provided to serve such development.
- Ensure that prior to approval of new development, that adequate drainage can be provided to serve such development.
- Ensure that prior to approval of new development, that adequate water service can be provided to serve such development.
- The City shall, at minimum, consider the following when evaluating annexation proposals in the coastal zone:
 - a. Is the area to be annexed adjacent to existing corporate boundaries?
 - b. Does/will the area to be annexed contain land uses that are compatible with City land uses?
 - c. Does/will the area to be annexed contain land uses that have the ability to provide economic benefit to the City?
 - d. Would the area to be annexed place an undue or excessive burden on the City's and/or other service provider's ability to provide services?
 - e. Would the area to be annexed place an undue burden on school and other public services?

3. Coastal Issues

On September 10, 2002 and September 24, 2002, the Planning Commission held hearings to consider the Parkside Estates project. There were several people who spoke for and against the project. Neighbors who spoke in opposition cited concerns

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Huntington Beach LCP Amendment 1-06 (Parkside)
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about traffic, storm water flooding, subsidence, fault lines, flood control channel capacity, liquefaction, Slater Pump capacity, and Fire Department response times.

The Planning Commission continued the project from the September 10, 2002 meeting and requested clarification regarding items pertaining to the Environmental Impact Report (EIR). Following the public hearing on September 24, 2002, the Planning Commission certified the EIR, and approved the subject entitlements.

At the October 21, 2002 City Council meeting there were 35 people who spoke to the Parkside project. The same issues raised at the Planning Commission meeting were raised at this meeting, including the issue of wetlands on the subject site.

The proposed LCPA does not conflict with the policies of the Coastal Element of the General Plan as described in Section 2 of this letter. Both State & Federal agencies that have jurisdictional authority over the determination of wetland existence on-site have made findings about the property. They concluded that the portion of the site within the City of Huntington Beach does not contain wetlands. They acknowledged that the County portion of the project site contains wetlands (estimated 0.2 acres of patchy pickleweed and 0.4 acres of EPA delineated pocket wetlands). Thus, the conclusion that 3.3 acres of the County portion is to be designated Open Space – Conservation. These 3.3 acres includes buffer areas.

In reference to water quality concerns there is a requirement for a Water Quality Management Plan showing conformance to the Orange County Drainage Area Management Plan and current National Pollution Discharge Elimination System (NPDES) requirements. It is required to be reviewed by the City and Orange County Coastkeepers prior to issuance of any grading or building permits.

In terms of coastal access, the project will not be gated, and there will be an 8.2 acre public park as well as conditions imposed requiring dedication of trails throughout the project and improvements to the trail adjacent to the flood control channel.

Finally, because the project is designed to be consistent with the General Plan for the City, the analysis has shown that there is adequate infrastructure in place or that can be constructed to serve the entire site. The proposed LCPA is submitted pursuant to Section 13511 of the Coastal Commission Administrative Regulations, which conforms to the requirements of Chapter 6 of the Coastal Act.

4. Compatibility with Surrounding Uses

The proposed LCPA will be compatible with existing land uses in the vicinity. The low density residential uses are consistent with the existing residential uses to the north, east and south. In addition, the project has been designed and EIR No. 97-2 includes mitigation measures to address potential impacts to residential uses to the north.

The existing 5.4-acre triangular area designated on the General Plan Land Use Map for a neighborhood park does not accommodate useable park area. The reconfiguration and expansion of this area proposed through the General Plan Amendment will provide

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for a park that is 8.2± gross acres in size including 4.1± acres of bluff and down slopes and a 4.1± acre flat area at the base of the bluff, which will accommodate recreational activities.

The General Plan is also being amended to designate the 4.9-acre site proposed for annexation as a mix of RL-7 (Residential Low Density-maximum 7 units per acre), and OS-C (Open Space – Conservation). The proposed General Plan Amendment will permit a density that is consistent with surrounding land uses within the City, while preserving a portion of the area known to have sensitive biological resources. The Low Density Residential land use designation is located towards the east end of the annexed area, adjacent to the 45 acre parcel general planned and zoned for Low Density Residential. The westerly portion of the annexed parcel to be Open Space Conservation is compatible with the Bolsa Chica area.

5. Processing

The following is a summary of processing pursuant to Section 13552 (b) (c) of the California Coastal Commission Regulations concerning the adoption of the project and its relationship to other sections of the city's certified Local Coastal Program.

- a. Staff determined, as required by the California Environmental Quality Act (CEQA), that an EIR was necessary for the project. EDAW, Inc. was hired to prepare EIR No. 97-2 to analyze the potential impacts of the project. A chronology of the procedure and public comment periods for the EIR is shown on pages 7-8 of the Huntington Beach Planning Commission Staff Report for EIR No. 97-2 dated September 10, 2002 (Enclosure No. 5). There was a scoping meeting to take comments on the Initial Study and Notice of Preparation (NOP) held on October 9, 1997, as well as a public information meetings on May 14, 1998 and July 25, 2001.
- b. The proposed project was discussed at four (4) Planning Commission study sessions held on August 13, 2002, August 27, 2002, September 10, 2002, and September 24, 2002. The study sessions were open to the public.
- c. The proposed project was discussed at two (2) Planning Commission public hearings held on September 10, 2002 and September 24, 2002. The public hearing was advertised in the City's usual local newspaper and notice sent to property owners and occupants within a 1000 foot radius, interested parties, applicant, and individuals/organizations that commented on the environmental documents.
- d. The proposed project was discussed at one (1) City Council study session held on October 7, 2002. The study session was open to the public.
- e. The proposed project was discussed at one (1) City Council public hearing held on October 21, 2002. The public hearing was advertised in the City's local newspaper and notice sent to property owners and occupants within a 1000-

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foot radius, interested parties, and individuals who spoke at the Planning Commission meetings.

6. Public Participation

All legal notices for the public hearings made reference to the future Local Coastal Program Amendment. All staff reports were made available for public review in the Planning Department and the Huntington Beach Public Library. During the public hearing process, staff made every effort to maximize public participation in the process. Pursuant to Section 13552 (a) of the Coastal Commission Administrative Regulations, enclosed are copies of the measures taken to ensure public participation, public hearing notices, mailing labels, and the minutes from the public hearings. Please refer to the enclosed public hearing minutes for the complete comments received at the public hearings.

Briefly stated, however, there were 17 speakers at the September 10, 2002 Planning Commission hearing, and 12 speakers at the September 24, 2002 Planning Commission hearing. Their comments focused on the flood zone designation, traffic impacts, subsidence and seismic activity, ponding on the site, dewatering, soil compaction, liquefaction, water quality and hydrology.

The attached submittal includes a list of items being provided to the Coastal Commission. Upon your review of the enclosed information, please call me if you need any additional information or clarification of the items provided. I will make myself available to meet with you to discuss or review any of the enclosed items at the earliest possible time. The City of Huntington Beach respectfully requests that the application be scheduled for the earliest possible Coastal Commission meeting. If you have any questions please contact Scott Hess, Planning Manager at (714) 536-5554.

Thank you for your prompt consideration of this matter.

Sincerely,



Howard Zelefsky
Planning Director

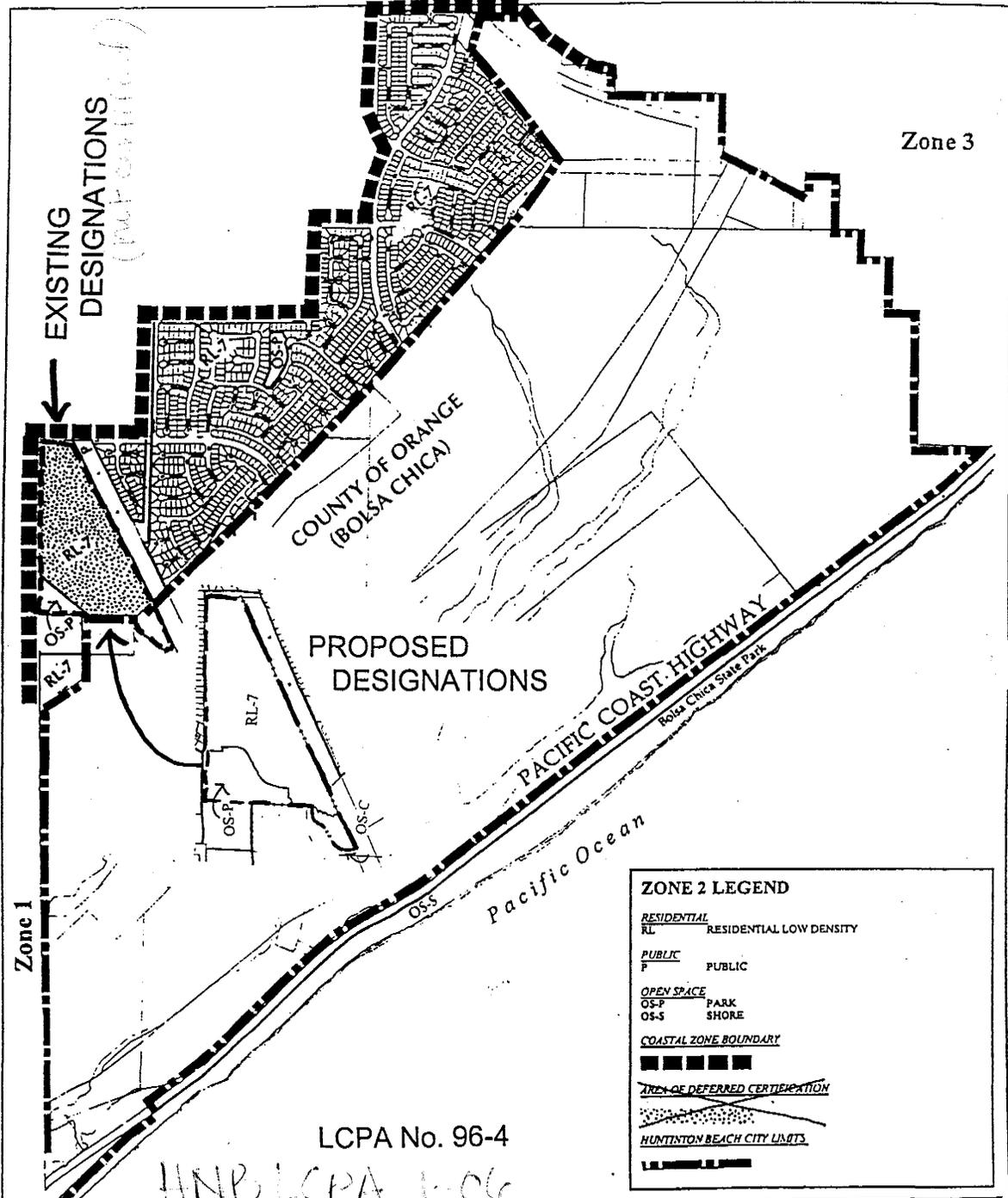
Enclosures

c: Scott Hess, Planning Manager
Mary Beth Broeren, Principal Planner
Ron Metzler, Shea Homes

Huntington Beach LCP Amendment 1-06 (Parkside)

ENCLOSURES	DATES
1. Statement of Action Letter from City Council with Minutes (LCPA No. 96-4).	December 18, 2002
2. Resolution No. 2002-123 (LCPA No. 96-4) with attached Resolution No. 2002-100 (General Plan Amendment No. 98-1), Ordinance No. 3584 (adding "CZ" overlay to existing zoning and zoning 8.2 acres as Open Space – Park), Ordinance No. 3585 (pre-zoning the 4.9 acre portion of the property within the County of Orange to Coastal Conservation and Low Density Residential), and Resolution 2002-97 (certifying Final EIR No. 97-2).	November 18, 2002
3. Local Coastal Program Amendment No. 96-4 Approved Request for Action City Council Report.	November 18, 2002
4. General Plan Amendment No. 98-1, Zoning Map Amendment No. 96-5A and 96-5B, and Local Coastal Program Amendment No. 96-4 Approved Request for Action City Council Report (includes Planning Commission Staff Reports).	October 21, 2002
5. EIR No. 97-2 Approved Request for Action City Council Report (includes Planning Commission Resolution, Planning Commission Staff Report dated September 10, 2002 with letters in opposition and/or support submitted to the Planning Commission before meeting, and Planning Commission Staff Report dated September 24, 2002 addressing the Planning Commission's concerns.	October 21, 2002
6. Approved City Council Minutes	October 21, 2002
7. Late Communications to City Council	October 21, 2002
8. List of Comment Slips Received at City Council Meeting	October 21, 2002
9. Notice of City Council Public Hearing, Proof of Publication, Copy of Mailing Labels.	October 10, 2002
10. Mailing Labels to use for California Coastal Commission Hearing of all property owners and occupants within 1000 foot radius, interested parties, applicant, individuals/organizations that commented on the environmental documents, and those that spoke at the Planning Commission and City Council public hearings.	December 18, 2002
11. Notice of Action Letters from Planning Commission for General Plan Amendment No. 98-1, Zoning Map Amendment No. 96-5A & 96-5B, Local Coastal Program Amendment No. 96-4, Annexation No. 98-1, and EIR No. 97-02.	September 26, 2002
12. Parkside Estates Narrative Booklet.	August 28, 2002
13. Approved Planning Commission Minutes.	September 24, 2002
14. Approved Planning Commission Minutes.	September 10, 2002
15. Notice of Planning Commission Public Hearing, Proof of Publication, Copy of Mailing Labels.	September 1, 2002
16. Parkside Estates EIR No. 97-2: Volume I – Response to Comments on Draft EIR and New Alternatives to the Draft EIR.	July, 2002
17. Parkside Estates EIR No. 97-2: Volume II – Final EIR.	July, 2002
18. Parkside Estates EIR No. 97-2: Volume IIA – Final EIR Technical Appendices.	July, 2002
19. Parkside Estates EIR No. 97-2: Volume III – Comment Cards and Letters; Public Information Meeting – May 14, 1998 and July 25, 2002.	July, 2002
20. City of Huntington Beach Natural Resources Chapter Coastal Element.	November, 2001

De



HUNTINGTON BEACH COASTAL ZONE
ZONE 2 LAND USE PLAN

CITY OF HUNTINGTON BEACH COASTAL ELEMENT

EXISTING AND PROPOSED
LAND USE PLAN



EXHIBIT 'E'

PLANNING

ZONING

DM 33Z

SECTIONAL DISTRICT MAP • 28-5-11

**CITY OF
HUNTINGTON BEACH**
ORANGE COUNTY, CALIFORNIA

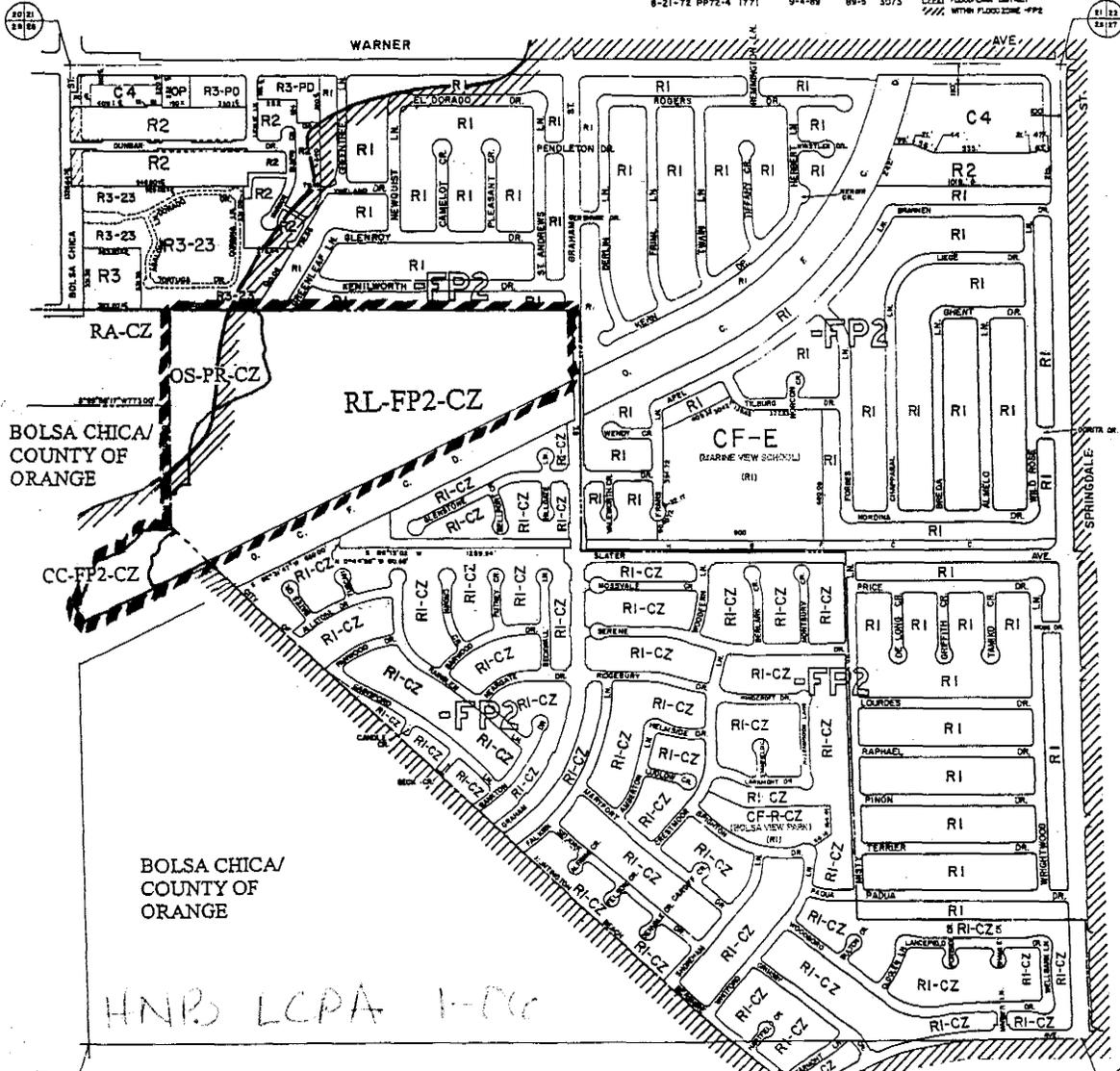


ADOPTED AUGUST 15, 1980

AMENDED DATE	ZONE CASE	ORD. NO.	AMENDED DATE	ZONE CASE	ORD. NO.
8-3-83	352	1000	10-18-72	71-2013	1781
10-7-83	343	1007	5-5-75	73-2	1578
4-6-84	396	1045	12-5-75	73-09	2229
5-18-84	426	1056	12-6-76	78-21	2133
4-5-85	505	1132	4-17-79	78-5	2279
10-18-85	528	1162	1-5-79	78-25	2350
6-6-86	64-16	1215	5-7-79	78-148B	2365
5-1-87	67-6	1319	5-7-79	79-2	2388
7-17-87	67-12	1359	6-15-81	81-4	2452
8-7-87	PP72-2	1343	7-2-84	84-7	2708
2-5-88	67-35	1389	8-20-84	84-3	2719
4-7-89	89-3	1487	4-1-85	85-1	2725
7-17-71	71-9	1658	1-17-85	FLOOD ZONE	2806
2-22-72	71-45	1723	10-5-87	87-1	2806
8-21-72	PP72-4	1771	9-4-89	89-5	3073

NOTE:
ALL DIMENSIONS ARE IN FEET
ANY ZONE ADJOINING ANY RIGHT OF WAY
IS INTENDED TO EXTEND TO THE CENTER
OF SUCH RIGHT OF WAY

- LEGEND:**
- [Symbol] QUALIFIED CLASSIFICATION
 - [Symbol] LOW DENSITY RESIDENTIAL DISTRICT
 - [Symbol] HIGHWAY COMMERCIAL DISTRICT
 - [Symbol] MEDIUM-HIGH DENSITY RESIDENTIAL DISTRICT
 - [Symbol] MEDIUM DENSITY RESIDENTIAL DISTRICT
 - [Symbol] OFFICE PROFESSIONAL DISTRICT
 - [Symbol] RESIDENTIAL AGRICULTURAL DISTRICT
 - [Symbol] COMMUNITY FACILITIES EDUCATION DISTRICT
 - [Symbol] COMMUNITY FACILITIES RECREATION DISTRICT
 - [Symbol] COASTAL ZONE SUPPLY
 - [Symbol] COASTAL ZONE BOUNDARY
 - [Symbol] RETRACTION LINE
 - [Symbol] ULTIMATE RIGHT OF WAY
 - [Symbol] PRELIM PLAN OF STREET ALIGNMENT
 - [Symbol] FLOODPLAIN DISTRICT
 - [Symbol] WITHIN FLOOD ZONE -FPZ

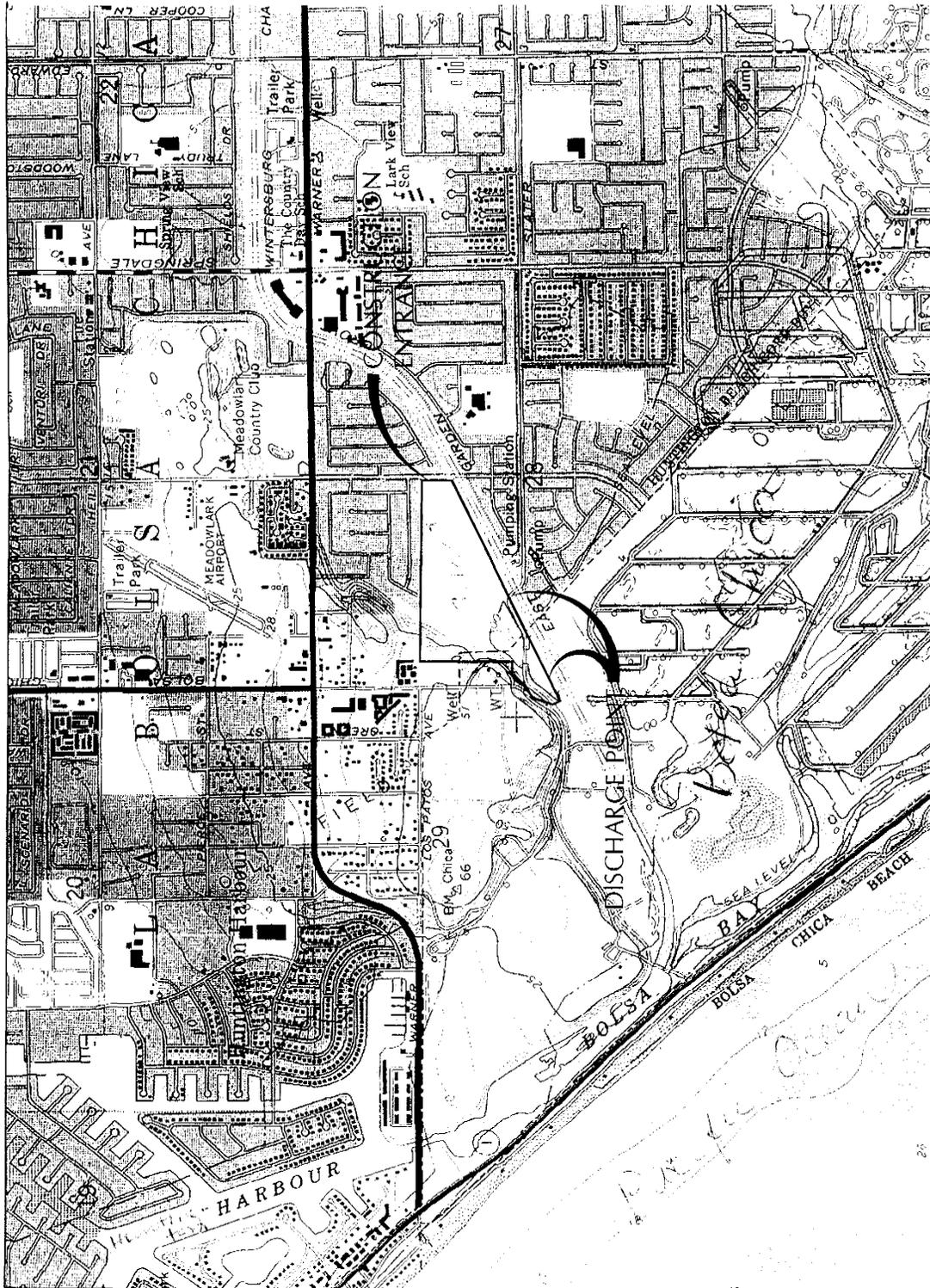


IMPLEMENTING ORDINANCES/ DM33Z (Revised)

proposed

Exhibit F

HNB LCPA 1-06



DATE PREPARED:
06/03/00

PREPARED FOR:
CUEA HOMES

PREPARED BY:

HN13LCPA 1-06

Exhibit G,

Huntington Beach LCP Amendment 1-06 (Parkside)
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STATE OF CALIFORNIA—THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, GOVERNOR

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400



24 July 2006

GEOTECHNICAL REVIEW MEMORANDUM

To: Meg Vaughn, Coastal Program Analyst
From: Mark Johnsson, Staff Geologist
Re: LCPA HNB-MAJ-LCPA1-06 and CDP 5-06-021 (Shea Homes)

With regard to the above-referenced project-driven LCPA and CDP application, I have reviewed the following documents:

- 1) Hunsakers and Associates 1997, "East Garden Grove - Wintersburg Channel (C05) 100-year inundation study for Tract 15377 & 15419, City of Huntington Beach", 9 p. hydrologic report dated 18 August 1997 and signed by S. E. Barnhart (CE 25167).
- 2) Hunsakers and Associates 1998, "Hydrology and hydraulic analysis for Tract 15377 & 15419, City of Huntington Beach", 4 p. hydrologic report dated 10 March 1998 and signed by S. E. Barnhart (CE 25167).
- 3) Pacific Soil Engineering 1998, "Preliminary geotechnical investigation, Proposed residential development, Tentative tract 15377, City of Huntington Beach, California and tentative tract 15419, County of Orange, California", 36 p. geotechnical report dated 2 February 1998 and signed by T. Wolfe (CEG 1626), M. and J. B. Castles (GE 192).
- 4) Pacific Soil Engineering 1999, "Response to comments pertaining to Parkside Estates EIR #97 Draft Environmental Impact Report, Tentative Tract 15377, City of Huntington Beach, California", 26 p. report dated 29 July 1999 and signed by M. F. Mills (CEG 994), J. B. Castles (GE 192) and T. Wolfe (CEG 1626), M.
- 5) Jordan, N.M., 2000, Diffusion Hydrodynamic Model: Using DHM rainfall-runoff output to estimate urban watershed existing condition hydrology: Journal of Floodplain Management, v. 1, p. 11-14.
- 6) Pacific Soil Engineering 2001, "Response to draft EIR comments, Parkside Estates, Tentative Tract 15377, City of Huntington Beach, California", 8 p. report dated 11 October 2001 and signed by J. B. Castles (GE 192).

HNB LCPA 1-06

Exhibit II

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- 7) Pacific Soil Engineering 2001, "Response to City of Huntington Beach regarding final EIR, Parkside Estates, Tentative Tract 15377, City of Huntington Beach, California", 3 p. report dated 12 October 2001 and signed by J. B. Castles (GE 192).
- 8) Pacific Soil Engineering 2002, "Response to City of Huntington Beach comments on Response to EIR Comments Document, Parkside Estates, City of Huntington Beach, California", 4 p. report dated 13 June 2002 and signed by J. B. Castles (GE 192).
- 9) Exponent 2002, "Consolidated report, FEMA submittals, detailed flood Insurance Study, Shea Homes Parkside Estates, Tentative tract Nos. 15377 & 15419, Expanded watershed analysis of East Garden Grove-Wintersburg Channel watershed from tide gates to I-405 freeway", 78 p. report dated 10 August 2002 and signed by Exponent.
- 10) Pacific Soil Engineering 2003, "Results of groundwater constituent testing, Parkside Estates Project, City of Huntington Beach, California", 1 p. report dated 5 August 2003 and signed by D. Obert and J. B. Castles (GE 192).
- 11) Pacific Soil Engineering 2004, "Summary of required grading operations and construction monitoring requirements, Parkside Estates, Tract 15377, City of Huntington Beach, California", 8 p. report dated 15 January 2004 and signed by J. B. Castles (GE 192).
- 12) Pacific Soil Engineering 2005, "Transmittal of additional information, temporary slope stability calculations, Parkside Estates, Tract 15377 in the City of Huntington Beach, California", 1 p. letter report to Mark Johnsson dated 26 April 2005 and signed by J. B. Castles (GE 192).
- 13) Exponent 2005, "Shea Homes topographic and displacement analysis with FEMA UNET Model", 7 p. report dated 18 May 2005 and signed by N. M. Jordan (PE).
- 14) Exponent 2006, "Correlation and frequency analysis of groundwater at Parkside Estates", 15 p. Technical memorandum dated 22 February 2006 and signed by N. M. Jordan (PE).
- 15) Exponent 2006, "Frequency analysis of precipitation and ponding at Parkside Estates", 16 p. Technical memorandum dated 22 February 2006 and signed by N. M. Jordan (PE).
- 16) Exponent 2006, "Summary response to Coastal Commission questions on flood control hydrology and hydraulics", 10 p. Technical

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memorandum dated 24 March 2006 and signed by N. M. Jordan (PE 44012).

I also have reviewed and commented on the draft Environmental Impact Report (EIR), and have reviewed the final EIR. In addition, I have had numerous meetings with the project proponent's technical consultants, especially Jim Castles and Mike Mills (geotechnical consultants with Pacific Soils Engineering), Neil Jordan (hydrologic consultant with Exponent), and Steve Barnhart (hydrologic consultant with Hunsakers and Associates). I have discussed hydrologic aspects of the project with Robert Riggetts of the City of Huntington Beach Public Works Department. In addition, I have visited both the subject site and the surrounding neighborhoods on several occasions.

This memo represents a review of both geotechnical and hydrologic issues raised by the proposed project.

Geomorphology of the site

The majority of the Parkside Estates site lies in the lowlands between Huntington Mesa and Bolsa Chica Mesa, known as the Bolsa Gap. In the recent geologic past, these lowlands, like the lowlands between Huntington Mesa and Costa Mesa, were occupied by the ancestral Santa Ana River, which shifted its position across these broad, low plains. Prior to channelization of the river and the construction of the East Garden Grove-Wintersburg Flood Control Channel, these lowlands constituted the broad floodplain of the lower Santa Ana River. Although the site is considered a floodplain geomorphologically, the levees associated with the East Garden Grove-Wintersburg Flood Control Channel prevent it from serving as a functional floodplain today. The northwestern corner of the property is crossed by a bluff, approximately 40 to 50 feet high, carved by the ancestral Santa Ana River. The portion of the site that is to be developed is a very flat surface at an elevation of one to two feet below sea level.

The site is underlain by 150-200 feet of very young marine and alluvial deposits, which are underlain unconformably by shallow marine sandstone, claystone and siltstone of the Pleistocene San Pedro Formation.

Geotechnical Issues

Geotechnical issues associated with the proposed project include ground shaking during a major earthquake on a nearby fault, possible surface rupture of the hypothesized Bolsa-Fairview Fault, liquefaction during such an earthquake, inadequate foundation support, the stability of both natural and temporarily excavated slopes, and tsunamis. Because the tsunami hazard is closely related to other hydrologic issues, I will discuss tsunamis in the "hydrology" section of this memo.

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Direct Seismic Hazards

The active Newport-Inglewood fault passes approximately 2000 feet south of the site. An earthquake along this fault would likely result in severe ground shaking and liquefaction of the soils at the site. The ground shaking hazards can be partially mitigated for by adherence to the Uniform Building Code given the design parameters outlined in reference (3), and the liquefaction hazard is discussed below.

Although no unequivocally active faults cross the site, the California Department of Water resources did map a strand of the Newport-Inglewood Fault across the site in 1968, and dubbed the strand the Bolsa-Fairview Fault. According to reference (3), the fault was located only indirectly on the basis of topographic expression, vertical offset of the base of the Bolsa aquifer, abrupt water quality changes between closely spaced wells, limited sea water intrusion northeast of the fault, and pumping test data. Accordingly, the State Geologist identified the fault as potentially active, and it was zoned as a Special Study Zone under the Alquist-Priolo Act. More recent studies by the California Division of Mines and Geology concluded that there was insufficient evidence to indicate that the fault was either active or, in fact, even that it exists, and the State Geologist accordingly de-listed the fault under the Alquist-Priolo Act. The studies undertaken as part of the EIR for the Parkside Estates project failed to yield any evidence for the existence of the fault. Accordingly, although the presence of the fault cannot be ruled out, the indirect evidence put forth by the Department of Water Resources seems insufficient to warrant the inclusion of the fault as a an identified hazard.

Foundation support and liquefaction hazards

Reference (8) indicates that the soils at the site are susceptible to liquefaction during a major earthquake. In addition, the presence of peat could lead to settlement problems, because organic materials such as peat are subject to decay and volume loss with time. In order to mitigate for these hazards, Shea Homes proposes to overexcavate the entire site to depths as great as 17 feet below sea level, involving approximately 400,000 cubic yards of cut. Unsuitable fill materials such as peat would be exported, and the remainder of the material—as well as approximately 260,000 cubic yards of imported fill, would be compacted to suitable densities to provide structural support and to be invulnerable to liquefaction.

Several concerns arise regarding this overexcavation and recompaction. Since the excavations will extend well below sea level, dewatering operations will be necessary. Dewatering will be accomplished through a series of nine wells, 60 feet in depth, that are detailed in reference (11). This dewatering operation has the potential to result in lowering of ground water levels off-site, which could lead to settlement problems. In order to mitigate for this hazard, the excavation will take place in stages, with only narrow excavations open at any one time. In addition, a monitoring program will be in place (detailed in reference 11) to detect any settlement that occurs, allowing time for mitigation efforts. In my opinion, these efforts will greatly reduce the subsidence danger, but that some risk of subsidence of adjacent properties does remain. The

water produced by the dewatering operations will be discharged into the storm water drainage system. Reference (10) demonstrates that this water is suitable for disposal into the ocean.

Slope stability

The backcuts of the excavations undertaken to mitigate the liquefaction hazard will extend to the Base of the north levee of the East Garden Grove Wintersburg Flood Control Channel. The loss of lateral support for the levee, especially if high pore water pressures persist due to the rapid removal of material in the cut, has the potential to destabilize the levees. Reference (12) contains slope stability calculations that demonstrate that even with the persistence of high pore pressures and loss of lateral support, the slope supporting the levee will have a factor of safety against sliding of 1.28, which is considered adequate for temporary excavations.

No slope stability calculations have been performed on the bluff in the northwestern corner of the site, and it is likely that it is only marginally stable. This area is planned for open space, however, so slope stability in this area is not a concern.

Hydrologic Issues

The Parkside Estates site is, geomorphologically, a flood plain. However, construction of the levees associated with the East Garden Grove Wintersburg Flood Control Channel have functionally isolated the river channel from the flood plain. Moreover, the Parkside Estates site lies at elevations of 1 to 2 feet below sea level. Areas of the surrounding neighborhoods lie at elevations of as low as 5 feet below sea level. Low berms in the Bolsa Chica lowlands, in addition to the East Garden Grove Wintersburg Flood Control Channel levees, protect these neighborhoods from tidal flooding. Storm water must be collected through a series of storm drains lying well below sea level, and pumped up into the East Garden Grove Wintersburg Flood Control Channel through a forebay at the Slater Pump station, which is on the south side of the flood control channel adjacent to the Parkside Estates parcel.

The capacity of the existing flood control channel is insufficient to carry the 100-year flood event. References (1) and (2) conclude that the channel will carry only about 4,200 cfs and will overflow in a 100 year event. Because the south levee is mostly lower than the north, more water would overflow to the south, and into the Bolsa Chica wetlands, than to the north. Nevertheless a total of about 52 acre feet would overtop the north levee in a 100-year flood event.

In fact, overtopping of the levees will likely result in their complete failure, with a resultant loss of capacity of the flood control channel and inundation by ocean waters.

Future development in this challenging environment must be undertaken to assure safety given inevitable flooding both from surface runoff and tidal surges and/or tsunamis.

Background

The January 1997 Flood Insurance Rate Map (FIRM), issued by the Federal Emergency Management Agency (FEMA) designated the project site as an A99 zone. This designation applies to parts of the 100-year flood plain that are protected by a Federal flood protection system (in this case, The East Garden Grove Wintersburg Flood Control Channel). Because the A99 zone was considered an "interim" zone pending completion of the Santa Ana River project, the local authority (the City of Huntington Beach) had the discretion to dictate minimum pad elevations for the project. At the time the draft EIR was prepared, the City of Huntington Beach required minimum pad elevations for the project site to be 1.00 foot (NAVD 88 datum).

Subsequent to completion of the Santa Ana River flood control improvements in 1999, FEMA required the Orange County Flood Control District to conduct a new analysis of the watershed. The Orange County Flood Control District commissioned WEST Consultants to do a detailed study. Instead, WEST, at the direction of the County, provided an "approximate" watershed analysis. Subsequently, in June 2000, new base flood elevation contours were "informally" produced by the County of Orange from the WEST study. These new informal, non-published or "unofficial" base flood elevation contours were made available to the City of Huntington Beach on an information basis to establish minimum pad elevations for new developments within the watershed study area. The City's interpretation of the base flood contours required pad elevations for the Parkside Estates site that ranged between 10.9 feet and 11.4 feet (NAVD 88). FEMA then issued a Letter of Map Revision (LOMR) which became effective June 14, 2000 along with a revised Flood Insurance Rate Map based on the City's interpretation of the WEST study.

However, Shea Homes objected to the use of an "approximate" study to establish Base Flood Elevations. They commissioned Exponent to conduct a "new focused detailed flood insurance study" to determine the Base Flood Elevation for the Parkside Estates site (summarized in reference 9). The Exponent analysis yielded a Base Flood Elevation of 4.5 feet (NAVD 88). The minimum pad elevations are required by the City to be one foot above the minimum Base Flood Elevation, or 5.5 feet (NAVD 88).

In February 2001, Shea Homes submitted a request for a Conditional Letter of Map Revision (CLOMR) application to FEMA for approval of the lower elevations. FEMA granted the CLMOR on 6 June 2002.

Mark Bixby and others have objected to this CLOMR on the basis of: 1) The East Garden Grove Wintersburg Flood Control Channel does not have the capacity to carry the 100-year flood, and the County would require throttling back of pumps that would be draining Parkside; accordingly Base Flood Elevations calculated assuming those pumps running at full capacity are in error, and 2) documented siltation and vegetation growing in the East Garden Grove Wintersburg Flood Control Channel decreases its capacity relative to the assumptions in the hydrological studies.

I have pursued these issues with Neil Jordan of Exponent and Steve Barnhart of Hunsakers and Associates, together with representatives of the City of Huntington Beach. It has been demonstrated to my satisfaction (references 9 and 16) that the detailed flood insurance study conducted by Exponent made use of many diverse hydrologic models that included complete

failure of the East Garden Grove Wintersburg Flood Control Channel levees, failure of the pumps, and variations in timing of the failures of both levees and pumps. The Base Flood Elevation determined in this study is the worst case ponding elevations of all of these models. Accordingly, I feel that the 100-year Base Flood Elevations for the Parkside Estate site determined in reference (9) are consistent with FEMA policies and assure the safety of the site during a 100-year flood event.

As for the siltation and vegetation in the East Garden Grove Wintersburg Flood Control Channel that Mark Bixby documents, I concur that these materials lower the carrying capacity of these channels. Although these materials would lower the capacity of the channels to carry small or moderate-level flows, in the high flows (~4000 cubic feet per second) corresponding to bank-full discharge, these materials would be flushed from the channel.

Elevating the site above Base Flood Elevation

In order to concur with City and FEMA requirements, final building pad elevations must be one foot above the Base Flood Elevation. The proposed grading plan has final pad elevations ranging from 5.5 feet to 11.4 feet above sea level. Given that the existing site lies between 1 and 2 feet below sea level, these elevations are achieved by adding approximately 260,000 cubic yards of fill to the site. Actually, as described above, overexcavation to depths as great as 17 feet below sea level is necessary to mitigate the liquefaction hazard. Accordingly, development of the site requires approximately 400,000 cubic yards of cut and 660,000 cubic yards of fill, representing significant landform alteration.

In general, use of fill to elevate a building site above expected flood levels is poor planning practice. The volume of fill added to the site represents the volume of floodwater that will be displaced into neighboring areas. The Parkside Estates site, at 1 to 2 feet below sea level, is at a higher elevation than the lowest portions of the surrounding neighborhoods, where streets are at elevations as low as 5 feet below sea level. Building pads in these neighborhoods generally are higher than streets, at elevations of from one foot below sea level to 4 feet above sea level. If no mitigation were undertaken, flooding of these neighborhoods would be exacerbated by the addition of fill at the Parkside Estates site.

Tidal Flooding

The area to the southwest of the Parkside Estates site, north of the East Garden Grove Wintersburg Flood Control Channel and south of the Bolsa Chica mesa, is a lowland that is susceptible to tidal flooding. This susceptibility will be increased with the construction of a future tidal inlet as part of the Bolsa Chica wetlands restoration. In fact, according to reference (9), some 170 acres of the watershed, much of which is developed, would be threatened by tidal flooding by the restoration. This area would be protected only by low berms supporting oil field roads at elevations of less than 4 feet above sea level.

Improvements to area drainage systems

Shea Homes has proposed to make several improvements to the area drainage system. These include: 1) improving the capacity and stability of the East Garden Grove Wintersburg Flood Control Channel, probably by widening it and by installing a sheet pile wall for levee support; 2) Making changes to storm drains under Kenilworth Drive and Graham Streets, improving their capacity; 3) Upgrading the Slater Pump Station by installing two more pumps, and 4) constructing a "Vegetated Flood Protection Feature" (essentially a vegetated berm) at an elevation of 11 feet above sea level between the bluff and the north levee of the East Garden Grove Wintersburg Flood Control Channel to prevent tidal flooding of the Parkside Estates site as well as 170 acres of the surrounding neighborhoods. Together, these improvements more than mitigate for the lost flood water storage caused by the addition of fill to the Parkside Estates site. According to references (9) (13) and (16), these improvements would remove 7000 homes from the functional flood plain, and would reduce flood elevations throughout the watershed. Still, overtopping of the East Garden Grove Wintersburg Flood Control Channel levees upstream of the Parkside Estates would occur in a 100-year event if these levees are not improved in a similar manner to that being done adjacent to Parkside Estates. These improvements are the responsibility of the County of Orange, and FEMA has directed the County to make these improvements. Even without these improvements, however, the proposed improvements at the Parkside Estates site would ensure that the Parkside Estates building pads would lie above the 100-year Base Flood Elevation, as required by FEMA.

Tsunamis

The Huntington Beach lowlands are quite vulnerable to a major tsunami. A tsunami that overtopped the low berms associated with the Pacific Coast Highway and the oil field roads in the Bolsa Chica wetlands could inundate a large area of the lowlands, much of which lies below sea level. The proposed "vegetated flood protection feature" and the improvements to the north levee of the East Garden Grove Wintersburg Flood Control Channel, together with the increased pad elevation, will lower the vulnerability of the Parkside Estates site. Although the placement of fill on the site would displace flood waters into the surrounding neighborhood during a major tsunami, the "vegetated flood protection feature" does lower the susceptibility of this area to smaller tsunamis.

Conclusions

In summary, the Parkside Estates is not suitable for residential development without fairly extensive mitigation measures, especially for the liquefaction and flood hazards. Shea Homes' planned method of remediation involves extensive landform alteration in the form of adding fill to raise the site above Base Flood Elevation. Although this is not a generally recommended method of mitigating a flooding hazard due to the effects it can have on adjacent areas, the planned drainage system improvements more than mitigate for these effects. The necessary excavations and dewatering operations have the capacity to induce subsidence or other instability in adjacent sites, but these effects will be mitigated by doing the excavation in stages and by

careful monitoring. The site will experience strong ground shaking during a major earthquake. Early reports that an active fault crosses the site cannot, however, be supported by the data currently available.

I hope that this review is helpful. Please contact me if you have additional questions

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Johnsson", with a long horizontal flourish extending to the right.

Mark Johnsson, Ph.D., CEG, CHG
Staff Geologist



County of Orange

Public Facilities & Resources Department

John W. Sibley, Director

January 8, 1998

Mr. Jim Barnes
City of Huntington Beach
2000 Main Street
Huntington Beach, CA 92648

SUBJECT: Proposed Class I bikeway along the Wintersburg Channel

Dear Mr. Barnes:

This is in response to your verbal request for information on regional bikeway planning in the vicinity of the proposed Shea Homes project, on the north side of the East Garden Grove-Wintersburg Channel. The Commuter Bikeways Strategic Plan (CBSP) for Orange County depicts a proposed regional Class I (paved off-road) bikeway along the Slater Storm Channel, that continues along the Wintersburg Channel and connects to the off-road bikeway along the west side of Pacific Coast Highway (PCH). Currently a portion of this route exists along the Slater Storm Channel.

Although the CBSP depicts the bikeway along the entire length of the Wintersburg Channel through the Bolsa Chica area, land use planning for the wetlands requires the removal of the westerly portion of the levees berming the channel, and the relocation of the proposed Class I bikeway route to the northern perimeter of Bolsa Chica, as depicted in the enclosed exhibit from the Land Use Plan. The green highlighted segment in this exhibit identifies an error. Per Ron Tippets of the County's Planning and Development Services Department, this segment should have been identified as part of the regional Class I bikeway route.

Regarding the City's proposal to continue the Class I bikeway northerly along the Wintersburg Channel to Graham Street: the County supports this. It would provide an excellent bikeway connection between the City's road system and the off-road wetlands perimeter route. (We suggest referring to this entire route---between Graham Street and PCH---as the "Bolsa Chica Bikeway".)

I hope this has helped to answer your questions. Should you need additional information, please call Sherri Miller of my staff at 834-3137.

Sincerely,

Jeff Dickman
Chief, HBP/Trail Planning & Implementation

SM:sm

Exhibit
1-10

Huntington Beach LCP Amendment 1-06 (Parkside)
Page 91

Sent by: HBP PROGRAM MGMT

714 8346612;

06/17/03 9:14; JetFax #106; Page 3

WINTERSBURG Bikeway



County of Orange

MEMO

DATE: May 6, 1998
TO: Wayne Johnson, HBP/Facilities Development
FROM:  Jeff Dickman, Chief, HBP/Trail Planning & Implementation
SUBJECT: Shea Homes/Parkside Estates Subdivision Draft EIR

We have reviewed the subject draft EIR and offer the following comments:

Exhibits 6b and 6c-1, Section "A"- "A": The label "Proposed Trail" should be changed to "Proposed Class I Bikeway". Also, the standard width for a Class I bikeway is 14 feet. This includes 10 feet of bikeway surface and at least 2 feet of clearance on each side.

Page 3-14, Park/Open Space Uses: We suggest linking the proposed park to a Class I (paved off-road) bikeway along the Wintersburg Channel, via a Class I connector bikeway.

Page 3-30, Project Objectives (Applicant): We suggest adding the following: "Provide a Class I bikeway connecting the project site to Graham Street, the proposed local park, and the future Bolsa Chica open space trails/bikeways system".

Exhibit 25: We suggest including an additional exhibit depicting the subject project's Class I bikeway network (see our comments above).

Class I bikeways help to mitigate traffic congestion, noise, and air pollution by promoting alternative modes of transportation and recreation.

If you have any questions, please call Sherri Miller at X3137.

SM:sm

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Huntington Beach LCP Amendment 1-06 (Parkside)
Page 92

Sent by: HBP PROGRAM MGMT

714 8346612;

06/17/03 9:13; JotFax_#106;Page 2



County of Orange

Public Facilities & Resources Department

John W. Sibley, Director

FEB 13 1998

Robert Eichblatt, City Engineer
City of Huntington Beach
Public Works Department
P.O. Box 190
Huntington Beach, CA 92648

Subject: East Garden Grove-Wintersburg Channel - Tentative Tract No. 15377 - Shea Parcel

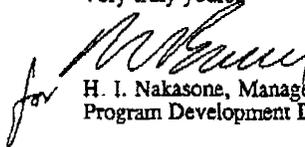
Dear Mr. Eichblatt:

In response to your request we provide the following comments on subject TT15377.

1. The City and County comments on the EIR for this tract requires the developer to reconstruct the northerly levee of East Garden Grove-Wintersburg Channel (C05) consistent with the project report recommended channel section to convey the approved 100-year design discharge. Section A-A shown on the map submitted is inconsistent with the project report recommendations.
2. It is important to note that reconstructing the northerly levee alone might be insufficient to remove the subject tract from a FEMA flood plain. The Santa Ana River flood plain is anticipated to be removed only around year 2000. A residual flood plain study being conducted currently by the County might conclude that flood plain from C05 and local drainage might continue to remain at the site of the tract. Consequently, FEMA flood insurance regulations will apply if the area is not completely out of a floodplain.
3. Certification of the reconstructed levee by FEMA in accordance with 44 CFR 65.10(e) may also not be possible if the levee does not provide the required flood protection by removing the subject tract from the floodplain.
4. The developer's engineer stated at a meeting held regarding this matter that a conveyance structure significantly larger than the proposed 78-inch RCP will be located beneath the flood control channel to drain the tract. The size of the structure shown on the submitted map could therefore be different from that which is being proposed.
5. Work within Orange County Flood Control District (OCFCD) right of way will require a permit from our Real Property Division.
6. A bicycle trail along the C05 north levee maintenance road will be required. Conceptual approval for such a trail, subject to permitting details, has been provided by Ms. Sherri Miller of Harbors Beaches & Parks. Ms. Miller may be reached at 714-834-3137 to discuss trail issues.

If you have questions regarding this letter, please contact Neil Jordan at 714-834-3843.

Very truly yours,


for H. I. Nakasone, Manager
Program Development Division

NJ:RSB:cd
cc: Sherri Miller, OC Harbors, Beaches and Parks
Ron Tippetts, PDSD/EPSP/Public Projects

Pff175/98012.wd/cd010898

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CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400



M E M O R A N D U M

FROM: John Dixon, Ph.D.
Ecologist / Wetland Coordinator

TO: Meg Vaughn

SUBJECT: Wetlands at Shea Homes Parkside

DATE: July 27, 2006

Documents reviewed:

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Introduction

Any useful wetland analysis of the Shea Homes property (Figure 1) in Huntington Beach must attempt to answer the question, “Are any portions of the property wet enough long enough and frequently enough to promote the formation of hydric soils or to support the growth of a preponderance¹ of wetland plant species?” If the answer is “yes,” then such areas meet the definition² of “wetland” under the Coastal Act and the Commission’s Regulations. Unfortunately, wetland delineation at the Shea Homes site is difficult because (1) the site has been farmed for many years and both native and exotic non-crop plants are routinely removed; therefore, the absence of wetland vegetation is not informative, (2) although historically saltmarsh with hydric soils, the site is now dependent on rainfall for hydrology and the soil is repeatedly disturbed by plowing; therefore, neither the presence nor the absence of the usual physical indicators of wetland soils is easily interpretable, and (3) there are no long-term records of inundation or saturation. There is no entirely satisfactory solution to these problems. However, the hydrological character of the site can be inferred from photographs and rainfall records and the general type of vegetation (wetland or upland) that would develop in the absence of farming can be inferred from the character of a nearby site that is topographically and hydrologically similar, but generally not farmed.

Historical Background

The Bolsa Chica lowland was created by the down-cutting of the Santa Ana River prior to its change in course in the late 1800s. The wetlands once encompassed over 2000 acres, including the current Shea Homes property. Remnants of sinuous channels from the historical saltmarsh are still present in the portions of the lowland that are presently undergoing restoration and the ghosts of such channels can be seen on aerial photographs of the Shea Homes property as dark outlines that probably reflect residual differences in soil texture and moisture retention. As late as 1873, much of the area was still a tidal lagoon. However, significant anthropogenic impacts began toward the end of the 19th century. Since that time, the ocean inlet was closed, much of the wetlands was diked and filled for oil field construction, the East Garden Grove-Wintersburg Flood Control Channel was constructed, and residential neighborhoods replaced portions of the historical wetlands that are adjacent to the Shea Homes property. The Shea Homes property is the most constrained of the still-extant portions of the historical Bolsa Chica wetlands. It is bounded on the north by residential development, the final portion of which was completed around 1985. It is bounded on the east by Graham Street, on the south by the flood control channel, and on the west by the Bolsa Chica mesa and an elevated area that prevents runoff from most of the site from draining to wetlands farther to the west. The topography of the site has been altered in partially documented ways by agricultural operations. The area has long

¹ “Preponderance” is defined as more than 50 % of the dominant species present (1987 Army Corps of Engineers Wetland Delineation Manual).

² For an area to meet the definition of “wetland” recognized by the Army Corps of Engineers and the U.S. Environmental Protection Agency, there must be field evidence of a preponderance of wetland plants, of hydric soils, and of wetland hydrology. The California Department of Fish and Game and the California Coastal Commission employ the same field methods as do the federal agencies, but require evidence of only one of the three wetland parameters for an area to be identified as a “wetland.”

been cutoff from tidal waters. Today, the only source of water is direct rainfall and runoff from the higher to the lower portions of the site.

Wetland Delineations

Extensive wetland delineation work was conducted at Bolsa Chica during the 1980s³ by both the U. S. Environmental Protection Agency (EPA) and Signal Bolsa Corporation. In 1987, Dr. Terry Huffman, working for the EPA, identified 1,270 acres of wetlands and “other waters of the United States” within his approximately 1,400-ac study area, which did not include the Shea Homes property (Huffman 1987, Figure 3). Although not part of his study area, Huffman (1987, p.47 & Figure 15) noted that he found wetlands on the current Shea Homes property during an examination of upslope drainage patterns and refers to the area as “seasonally flooded agricultural lands.” However, he did not depict the wetlands on a map. Also in 1987, Dr. Dana Sanders, working for Signal Bolsa Corporation, identified 826 acres of wetlands and “other waters of the United States” within a study area of about 1,654 acres, which did include the current Shea Homes property where he mapped about 8 acres of wetlands, based largely on Bilhorn’s (1987) wetland study (Figure 2).

After reviewing all the available evidence, EPA identified 927 acres of wetlands and other waters of the United States, including about 8 acres on the current Shea Homes property as identified by Bilhorn (1987) and Sanders (1987). Bilhorn (1987) based his conclusions on (1) a field examination (including test pits and borings) on April 15, 1987, (2) nearby rainfall records, (3) a 1980 topographic map, (4) approximately monthly low altitude, oblique aerial photographs covering the period 1981 - 1987, (5) historical aerial photos dating to 1927, and (6) the documented history of land alterations affecting the area. His wetland map was based on the wetted area shown on a 1982 aerial photograph (selected to represent a normal rainfall year) and the 1980 elevations. Referring to the agricultural portion of what is now the Shea Homes Property, Sanders (1987) found that [emphasis added]:

“Surface elevations of much of the subunit are below sea level. Based on application of the multiparameter approach, the entire subunit (43.8 acres) is presently uplands. This is due to the absence of wetlands hydrology in most of the subunit and hydrophytic vegetation throughout. However, **it was determined that a portion of the subunit would probably be sufficiently wet to support hydrophytic vegetation if the farming activities were to cease. Soils in a major portion of the root zone during years of near-normal rainfall would not be saturated by rise of water from the water table due to capillary action. The**

³ During this period, the Army Corps of Engineers was developing the methods that became codified in the 1987 Corps of Engineers Wetlands Delineation Manual and three of the four principal authors of that manual actually did field work at Bolsa Chica as paid consultants for either the EPA or for the major property owner, Signal Bolsa Corporation. At that time, the parcel now owned by Shea Homes was the property of the Metropolitan Water District of Southern California and the City parcel (Figure 1) had been farmed since the mid-1930s. The EPA, Region IX contracted with Dr. Terry Huffman, the co-author of the 1987 Manual who had developed the three-parameter approach to wetland delineation, to conduct a delineation of wetlands and other waters of the United States at Bolsa Chica. Other members of the EPA Technical advisory team included W. Blake Parker, who had developed hydric soil concepts while on loan to the Army Corps of Engineers from the Soil Conservation Service and who also co-authored the 1987 Manual, and William Sipple, the author of the 1988 EPA Wetland Identification and Delineation Manual. Dr. Dana Sanders, another co-author and the Technical Editor of the 1987 Corps Manual, was hired by Signal Bolsa Corporation to conduct an independent delineation.

only source of sufficient water to saturate the soils in a major portion of the root zone in this subunit is from surface water runoff following significant rainfall events. Only depressional areas would be saturated sufficiently to support the growth of hydrophytic vegetation.”

EPA (1989) concluded that, “...portions of the agricultural fields would be inundated or saturated at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation in the absence of 404(f)-exempted farming activities (see Bilhorn 1987) and are, therefore, wetlands subject to Section 404 regulation.” These various conclusions were all based on the assumption that there was no wetland hydrology resulting from a seasonally high water table, but rather that direct rainfall and local runoff into depressions was sufficient to provide wetland conditions. There have been no significant alterations to the overall hydrology at the site since 1987.

In the 1988 National Food Security Act Manual, the Soil Conservation Service defined “prior converted croplands” as wetlands that, prior to December 23, 1985, were both cropped and manipulated to remove excess water to the extent that they no longer exhibit important wetland values. Specifically, such areas are inundated for less than 15 consecutive days during the growing season (all year in coastal California). In a Regulatory Guidance Letter (RGL 90-07) dated September 26, 1990, the Army Corps of Engineers declared that if an area meets the definition of “prior converted croplands,” the alterations are generally permanent and constitute “normal circumstances,” which makes the altered conditions relevant to the areas’ wetland status under federal law, as the Army Corps’ definition of wetlands (see 33 C.F.R. § 328.3(b)) relies on their function under “normal circumstances.” Therefore, because such agricultural areas lack a “prevalence of hydrophytic vegetation” as a result of the farming activities, they would not be subject to regulation under Section 404 of the Clean Water Act. The following year, at the request of counsel, Dr. Sanders re-assessed the current Shea Homes property and concluded that it was “prior converted cropland” and not regulated under the Clean Water Act. Dr. Sanders made the following false assertions⁴ (compare to bold text in above citation) in his 1991 letter to Beveridge and Diamond [emphasis added]:

“According to my 1987 wetland delineation of the MWD property, **the source of wetlands hydrology for the 8.1 acres qualifying as wetlands is a water table that rises to nearer than 18 inches of the soil surface during years of normal rainfall (Sanders, 1987). The area was not delineated as wetlands on the basis of indicators that the area is periodically inundated. In fact, the area would not have been considered as wetlands except for the high water table expected during years of normal rainfall (Bilhorn, 1987). All available data indicate that the area is not inundated for long periods following rainfall events.**”⁵

⁴ Section 5c of the Corps’ RGL 90-07 states that, “The definition of ‘normal circumstances’...is based upon the premise that...the basic soil and hydrological characteristics remain to the extent that hydrophytic vegetation would return if the cropping ceased. This assumption is valid for ‘farmed wetlands’ and as such these areas are subject to regulation under section 404.” If Dr. Sanders had accurately represented his 1987 findings, wherein he said “it was determined that a portion of the subunit would probably be sufficiently wet to support hydrophytic vegetation if the farming activities were to cease,” the area might not have been considered “prior converted cropland.”

⁵ Bilhorn (1987) actually wrote that: “Lithologic examinations show the surface to a 14- to 20-inch depth to be a silty clay.” and “...the water table would lie 8 to 13 inches below the silty clay material and thus could not saturate this material by capillary processes.” The affect of Sanders’ later (1991) claim to the contrary - that the wetland

The conclusion that the wetland hydrology resulted from groundwater rather than surface inundation brought the area within the definition of “prior converted cropland” and rendered it outside of Section 404 regulation.]

In fact, no quantitative data regarding inundation of the MWD parcel was presented in any of the documents. The nearest thing to data was a statement by Sanders (1991) that during 1987-1988 he saw no indications of inundation and a statement by Bilhorn (1987) that, “Analysis of the monthly aerial photographs confirms that the surface layer remains dry from groundwater during the water table seasonal high. The appearance and disappearance of moist soils in this area are brief (days) and correlate to rainfall events and not water table fluctuations which are of shorter duration.” On the other hand, in the same document Bilhorn states that the area he delineated, “...was indicated by aerial photographs to receive surface water repeatedly from adjacent areas during the winter rainy season.” Although these observations are somewhat ambiguous, it was the professional judgment of both the Signal Bolsa Corporation scientists and the EPA scientists that portions of the current Shea Homes property were inundated for a frequency and duration that would promote the growth of hydrophytes in the absence of farming.

Homrighausen (2005) dismisses Sanders’s contradictory observations as merely “background information” and suggests that the finding of “prior converted cropland” was only based on Sanders’s (1991) conclusions that the previously identified wetlands would not pond water for more than 14 days because of a high evapotranspiration rate, low average rainfall, a small watershed, and no runoff from surrounding areas (none of which had changed since 1987). Even if one accepts this generous interpretation, one must still conclude that although the delineated area may not be sufficiently wet to be considered jurisdictional by the Army Corps of Engineers, it was, nevertheless, judged wet enough long enough to support a prevalence of hydrophytes in the absence of farming (Sanders 1987); therefore, as Sanders (1991) later put it, “technically qualifying as wetlands”. Therefore, in 1991 the area met the definition of “wetlands” under the Coastal Act and the Commission’s Regulations.

Apparently based on information from MWD and Dr. Sanders, the Corps of Engineers concluded in 1992 that the MWD property was not jurisdictional because it “...meets the criteria for prior converted cropland as presented in RGL 90-07, and the lack of information to the contrary...”⁶ In 1998, the Natural Resources Conservation Service concurred with the Corps’s conclusion based on a review of the record. Neither of these jurisdictional determinations were based on new data.

Sanders’s (1991) misrepresentation of his and Bilhorn’s 1987 reports has been perpetuated and, indeed, embellished by later commentators, further muddying the record. Kegarice (1997), after accurately quoting from Sanders (1987), then presented assertions from Sanders’s contradictory 1991 letter without noting the obvious discrepancies, and gratuitously added the following, which was not in Sanders’s letter: “Sanders later found out the hydrologic data observing a saturated condition and high ground water was taken in 1983. 1983 recorded the second highest rainfall ever, and

was supported only by shallow groundwater and was not *inundated* - was to bring the area within the definition of “prior converted cropland” and outside of Section 404 regulation.

⁶ Basing an affirmative conclusion on a “lack of information to the contrary” is, at the least, a questionable procedure.

did not represent the average year. Therefore, in 1991 Sanders revisited the site and modified his report based upon this additional information.” In fact, there was no “additional information.” Bilhorn’s (1987) report was based on [emphasis added] a “...comparison of water table elevation differences throughout the Bolsa Chica Lowland piezometer network between the current 1986-1987 season **and the normal rainfall year of 1981-1982....**”⁷ Like Kegarice, Young and Bomkamp (2004) incorrectly assert that, “In his 1991 evaluation, Dr. Sanders noted that his earlier finding of wetland hydrology in the 8.3-acre area was based entirely on the 1983 groundwater data collected by Bilhorn.” Young and Bomkamp (2004) also grossly mischaracterize Bilhorn’s (1987) report: “Bilhorn recorded groundwater at a sufficiently shallow depth during the spring of 1983 to cause saturation to the surface, assuming strong capillary action.”

Although these egregious errors raise doubts about the general accuracy of the documents that contain them, I consider the technical issue moot because none of the original reports claimed or presented data to the effect that there were wetlands in the agricultural area of the current Shea Homes property whose hydrology was based on a seasonally shallow water table. Ground water isopleths become deeper inland along a steep gradient (Bilhorn 1986, as cited in EPA 1989; Bilhorn 1995). Ground water in the lower portions of the agricultural area probably varies seasonally from about –3.0 to –8.0 feet below the surface during most years. This was apparently verified by Pacific Soils (1998) in a study that was characterized by Kegarice (1997) as finding groundwater from –3 to –9.5 feet during the winter, and by Young and Bomkamp (2004) as showing that groundwater occurs at about –6.0 feet in the agricultural area. I think it is clear that any wetlands that may be present in the agricultural portion of the Shea Homes site result primarily from surface hydrology, and this was the conclusion of Bilhorn (1987), Sanders (1987) and EPA (1989) nearly twenty years ago.

In 1991, Feldmeth surveyed the property for the Koll Company, apparently because of a report of a ponded area with cattails. The latter turned out to be the result of water from an irrigation pipe. However, Feldmeth also noted that a 3.3-acre area adjacent to the East Wintersburg-Garden Grove Flood Control Channel (now designated WP) was dominated by the facultative (FAC⁸) wetland plant *Bassia hyssopifolia*, which is currently common on the County parcel⁹.

⁷ Sanders’s only reference to 1983 was in an assertion that there was no evidence that the area was periodically inundated, except “...during the 1983 rainfall year, for which the return frequency exceeded 100 years.” However, Bilhorn (1987) had observed that the delineated area was, “...indicated by aerial photographs to receive surface water repeatedly from adjacent areas during the winter rainy season.”

⁸ Wetland plant species are categorized according to the frequency with which they are thought to occur in wetlands: “Obligate Wetland (OBL) – > 99% of occurrences in wetlands under natural conditions; Facultative Wetland (FACW) – 67-99% of occurrences in wetlands; Facultative (FAC) – 34-66% of occurrences in wetlands; Facultative Upland – 1-33% of occurrences in wetlands; Obligate Upland (UPL) - > 99% of occurrences in uplands under natural conditions within the region, but occurs in wetlands elsewhere. A positive sign indicates a frequency toward the higher end of the category (more frequently found in wetlands), and a negative sign indicates a frequency toward the lower end of the category (less frequently found in wetlands). An asterisk (*) following a regional Indicator identifies tentative assignments based on limited information. From Reed, P.B. Jr. 1988. National list of plant species that occur in wetlands: California (Region 0). U.S. Fish and Wildlife Service Biological Report 88 (26.10). 135 pages.

⁹ The “County Parcel” was annexed by the City on October 1, 2003.

Apparently, the next wetland assessment that included the Shea Homes property was that which was conducted by Tom Dodson and Associates (Kegarice, 1997). This assessment was based largely on a literature review and a site visit on November 20, 1997 to verify the earlier reports. Soil pits were dug but no data sheets were included with the report and no quantitative samples of vegetation were reported. It was stated that, "The soils on the site are not frequently flooded for long durations." However, no evidence was provided for that assertion. It was also asserted that the land did not support a predominance of hydrophytes based on the qualitative observation that the dominant cover was provided by non-wetland species. One would not expect a predominance of hydrophytes, even in wetlands, shortly after agricultural disturbance (see below). In addition to the errors noted above, Kegarice asserts that both Bilhorn and Sanders concluded that the site was not wet enough to support hydrophytes. Neither of them made that claim. In fact, Sanders (1987) found the opposite. Kegarice was accompanied on the site visit by Frank Hovore.

Biologists from Hovore and Associates visited the site in November and December 1996 and January and June 1997 in addition to the November 1997 visit with Kegarice. Hovore (1997) states that on several survey dates the surface soils were saturated by recent rains and there was standing water in depressions. The report also includes this apparent *non sequitur*, "There are no seasonal pools or channels on the site, but aerial photos frequently show a shallow accumulation of surface water in the northwestern corner of the City property, approximately where the 8.3 acre area was delineated." I speculate that Mr. Hovore may have meant that the observed inundation was relatively brief. However, he does not specify how long an area must be inundated for it to qualify as a "seasonal pool" by his reckoning. The Hovore report provides additional useful detail concerning the vegetation. The agricultural area had been left fallow for about 5 months prior to the November 1997 site assessment. Most portions of the fallow fields were dominated by a relatively homogeneous cover of Bermuda grass (FAC) and cheeseweed (Upland) with scattered patches of both upland and wetland indicator species. Less-disturbed areas were characterized by alkali heath (*Frankenia salina*, FACW), Salt bush (*Atriplex triangularis*; not listed as an indicator but a characteristic salt marsh species in California), sand spurrey (*Spergularia marina*, OBL), alkali mallow (*Malvella leprosa*, FAC*), and alkali weed (*Cressa truxillensis*, FACW). Hovore qualifies this observation by writing that, "...nowhere did they form natural stands or create native habitat." The meaning of this caveat is not clear, but it probably is an indication that these species occurred patchily and at low densities.

In response to a request from Coastal Commission staff for an updated wetland delineation confirmed by the California Department of Fish and Game, the City of Huntington Beach sent Kegarice's (1997) report to the Department with a request for comment. Based entirely on Kegarice's report, the Department concurred that the agricultural portion of the Shea Homes property did not meet wetland criteria (Rempel 1998). Due to the flawed nature of the consultant's report upon which it was based, the Department's concurrence adds nothing substantive to the record.

Kegarice's observations that much of the agricultural area supported upland plants in the fall of 1997 has been presented as strong evidence that the site can no longer support the growth of hydrophytes. Bomkamp and Young (2005) emphasized that the "delineation" conducted by Kegarice (1997) was done at the end of a wet cycle when the site was not in agricultural production. They argue as follows:

“TDA/Kegarice did not detect a predominance of hydrophytes and also did not note in her list of dominant plants, the presence of opportunistic weedy species such as salt-marsh sand spurry (*Spergularia marina*, OBL), alkali weed (*Cressa truxillensis*, FACW), alkali heliotrope (*Heliotropum curassivicum*, OBL), and brass buttons (*Cotula coronopifolia*, FACW+).

These species currently occur on the site but are not predominant, suggesting that their current distribution is in large measure associated with irrigation that was begun with re-initiation of farming after the TDA/Kegarice delineation. This is particularly noteworthy, since between 1999 and the current rainy season, southern California has been in a drought or dry cycle. It is unreasonable that the opportunistic species noted above would not be predominant on a site (if it were a wetland) during a wet cycle with no disturbance (i.e., agriculture) only to appear during a dry cycle with disturbance, without the additional factor, i.e., irrigation.”

Based as it is on false premises (absence of hydrophytes and absence of agriculture), this syllogism is not convincing. First, the authors do not cite Hovore (1997), whose description of the site in November 1997 documented the presence of wetland species, including the sand spurry and alkali weed that were not noted by Kegarice (1997). Second, according to Hovore (1997), the entire site was disked shortly before June 7, 1997 and had only been fallow during that year’s dry season. In southern California, it is not only common, it is characteristic of seasonal wetlands to be invaded by upland plants during the dry season. In this case, the site had been disked after the wet season, and it is quite reasonable that opportunistic wetland species would not be predominant at the end of the summer drought. The 1997 observations by Kegarice and Hovore provide absolutely no evidence that the depressions in the agricultural field cannot support hydrophytes. The 1997 observations also demonstrate that the presence of hydrophytes is not necessarily an artifact of irrigation practices.

Wetland scientists from Glenn Lukos Associates (Young & Bomkamp 2004) conducted field work for a wetland delineation within the agricultural area on January 23, March 31, May 24, and May 30, 2003. They concluded that there were “...no areas within the City parcel at the Parkside Estates site that meet the criteria used to define wetlands by any agency.” Their conclusion was based primarily on the lack of indicators of wetland hydrology and the lack of recently formed hydric soil features.

Delineation within this parcel requires special techniques because it is a “problem area”¹⁰ and an “atypical situation.”¹¹ It is a problem area because the soils formed under hydric conditions associated with tidal inundation that is no longer present and it is an atypical situation because continuing agriculture prevents the establishment of wetland plants and disrupts the soil column. These factors make wetland delineation difficult for many reasons, including: 1. Vegetation indicators cannot be expected, 2. Hydric soil indicators may be artifacts of prior conditions, 3. The soil surface is frequently disturbed, which removes indicators of recent inundation, 4. Plowing may drastically alter the soil profile, 5. Irrigation might confound the interpretation of the

¹⁰ A “problem area” exists where normal conditions make the use of standard field indicators of wetland parameters difficult. At the Shea Homes site, the lack of tidal hydrology is the “new normal” condition (i.e., it is essentially permanent).

¹¹ An “atypical situation” exists where recent human activities (e.g., plowing) or natural events (e.g., fire) have resulted in the lack of positive indicators of one or more wetland parameters.

presence of recruiting wetland plants and the presence of indicators of recent hydric conditions.

Young and Bomkamp (2004) found no evidence that they thought indicative of wetland hydrology during their investigations. However, most of their samples were taken at times when one would not expect there to have been recent inundation or saturation. During the 32 days prior to their January sample there was essentially no rainfall (0.08") and the two May samples were taken too late in the season to be informative. The lack of indicators at the end of March is more interesting. January had no rainfall; February was wet with about 2.5 inches of rain from 2/11 to 2/13 and another 1.7 inches from 2/25 to 2/28; March was relatively dry (0.3 inches on 3/4) except for an extraordinary storm that dropped 3.8 inches on 3/16 & 3/17. Despite this deluge, there was no standing water or saturated soil at their sample points 14 days later on March 31. Young and Bomkamp take this as evidence that the site can not support wetland hydrology. However, since several portions of the site have been observed repeatedly to pond for longer than two weeks following similar amounts of rainfall, a reasonable alternative hypothesis is that inundation was relatively ephemeral because the storm occurred late in the rainy season when the land was covered with a dense crop of barley and the rate of evapotranspiration was relatively high. This storm caused extensive inundation of the County parcel that appears from photographs to have lasted between one and two weeks.

Under ordinary circumstances, when ponds form and then infiltrate and evaporate, surface indicators are left behind. However, in an area subject to agricultural practices, these indicators are likely to be destroyed. This is very limiting, since a lack of indicators is not necessarily indicative of a lack of inundation. Therefore, direct observations of ponding and saturation are particularly important. On March 31, Young and Bomkamp observed standing water in a 5 ft x 15 ft area at the base of the western slope, but this may have been partially due to dripping irrigation lines. On the same day, they also found evidence of recent ponding in a 2 ft x 20 ft "roadside collection area" next to the flood control channel. These ponding episodes were probably the result of the March 16-17 storm, although the dripping irrigation line is a confounding factor in the western area. They also observed sediment deposits ("light surface crust") that they noted indicated "past short-duration ponding"¹² in two locations (one with a preponderance of wetland indicator species) but concluded there was no wetland hydrology and that the points were not in a wetland.

Young and Bomkamp also analyzed several aerial photographs and the rainfall record for the period preceding the photograph to assess inundation. I will discuss their aerial photographic evidence along with the photographic analysis done by LSA in a separate section below.

It is well-documented with photographs (Bixby 2005) that the soil on the Shea Homes property has the capability of ponding water for a week to months given the right patterns and amounts of rainfall (e.g., Figures 3 and 6). Young and Bomkamp's observations provide a mechanism. At the base of the Bolsa Chica mesa at the western edge of the Shea Homes property, they found a clay-rich subsoil at a depth of about 20 inches. This is the general area delineated by the EPA (which includes the

¹² Actually, such evidence does not enable one to estimate the duration of ponding - only that it occurred.

area referred to as “AP” in later reports by Glenn Lukos Associates). The clay-rich layer apparently acts as a confining layer, perching water above it. In the depression near the flood control channel (referred to as “WP” in the later reports by Glenn Lukos Associates), a clay loam subsoil was found at a depth of about 22 inches. Bomkamp (2005a), described the area in somewhat different terms with clay-loam in the upper 9-20 inches and coarser material below. The clay-loam also acts as a confining layer.

Young and Bomkamp also noted shallow redoximorphic features in several areas. Most of their sample points in the areas delineated as a wetland by EPA and others had low chroma soil near the surface and mottles¹³ between 13 and 30 inches below the surface. On the data sheets, these points were first noted to have hydric soils; later this was crossed out and the soils were noted as not hydric with the remark that the features were relicts due to hydrologic alterations of the site. It is likely that some of these features did form during the period when the site was a tidal salt marsh. However, the fact that they did not observe field indicators of hydrology in 2003 is scant evidence that the site has been so hydrologically altered as to preclude frequent soil saturation for a duration sufficient to promote hydric soils. The fact of the matter is that any inferences drawn from the existing soil features that they have described will necessarily be equivocal due to the history of the site and the continuing disturbance from farming.

In their discussion, Young and Bomkamp make the point that since redoximorphic features were identified “...within the tillage zone, in an irrigation-induced perched water table..., it is apparent that such features could form elsewhere on the property if reducing conditions had occurred for sufficient duration...” This was not observed. Although this is an appropriate type of comparison, it should not be considered in a vacuum. Areas where oxidized root channels¹⁴ were not observed in 2003 had been inundated for over a month during the winter of 2000 - 2001 (Figure 3) and during other periods in the past. Under most circumstances, oxidized root channels and other redoximorphic features would tend to form under prolonged reducing conditions, and should still have been visible two years later, but were not found. Unfortunately for the delineator, there are many reasons why such features might not form despite the presence of anaerobic conditions (e.g, low iron concentration), and if they did form, soil disturbance due to repeated plowing and disking might make them difficult to observe.

Young and Bomkamp argue that the observation that upland species were predominant on November 20, 1997 “in the absence of farming and with above average precipitation” is evidence that upland vegetation would establish in the absence of farming and that the presence of scattered wetland plants in 2003 must have been a result of irrigation. I have already pointed out that there actually was not a substantial absence of farming in 1997, since the area had been disked in the late spring, and that wetland species were, in fact, present. With regard to the “above-average” precipitation, there had been no rainfall from February 14 to November 11, 1997. From the 11th to the 14th of November

¹³ During periods of soil saturation, iron may be leached from the soils producing a dark coloration or “Low chroma”; soils that are subject to alternating periods of saturation and drying develop iron concentrations or “mottles.”

¹⁴ Under prolonged saturated soil conditions, a toxic environment is created. Some plants have the ability to release oxygen through their roots creating a safe microenvironment. This results in iron oxidation (i.e., rust) on the walls of the root channel or “rhizosphere.” Hence, if a live root is present, “an oxidized root channel” is considered evidence of recent soil saturation.

a storm brought about an inch of rain. One would hardly expect this event to affect the character of the vegetation viewed six days later.

In summary, Young and Bomkamp (2004) found no evidence of wetland conditions on the city portion of the Shea Homes property during the course of their investigations. They based their delineation on an assessment of soil features that are subject to various interpretations and on an assessment of hydrology based on very few data. In my opinion, the available evidence did not justify their strongly worded conclusion that no areas meet the wetland definition of any agency.

Coastal Commission Staff Analysis

Hydrology

Photographic Evidence of Inundation

There are additional analyses that one could do with the photographic record available on Bixby's (2005) website and, because many of the descriptions on the website are somewhat hyperbolic, I believed that an independent assessment was necessary. I asked the applicant to analyze these photographs. Unfortunately, I did not find their consultant's analysis (Bomkamp and Young 2005) useful for several reasons. First, portions of the record were rejected in a blanket fashion because the photographs were taken during a year of unusually high rainfall or during a period that included unusually high monthly rainfall totals. I think this approach is much too crude. Even during a wet year there may be periods that are not unusual and drying patterns may also be informative. For example, heavy rainfall in November or December may be many times greater than normal for those months, but well within the bounds of normal variation in January or February, and so quite informative, especially since the ground would generally not be charged from earlier storms. Second, the significance of photos of the AP area was denigrated because that area is "along the outer edge of the field where heavy farm traffic occurs," and "ponding is caused by artificial compaction at this location." Although presented as fact, the latter is really an *ad hoc* hypothesis. Since inundation often extended well into the plowed area, I am not convinced of the truth of their hypothesis. Third, the description of the photographs by the Glenn Lukos biologists did not always correspond to my perceptions. For example, they described the inundation shown in Figure 6 as follows: "The first measurable ponding started on 02/26 and persisted over very small areas (i.e., a few square feet until March 11) for 14 days of ponding over a very limited area." "Conclusion: ...this area does not support a positive finding for wetland hydrology with (sic) possible exception of an area covering a few square feet; however, soil compaction and alteration of the soil structure indicate that this is (sic) not support a finding of wetland hydrology." It appears to me that the photographs show 8 days of inundation over a large area and 14 days of probable soil saturation over a slightly smaller area in a tilled depression and not just on the compacted road. The alteration of the soil structure is due to the atypical situation associated with farming and not germane unless it permanently drained the soil, which it obviously has not done. I believe that this series of photographs does, in fact, support a finding of wetland hydrology. Finally, Bomkamp and Young (2005) focused their report on a critique of the assertions of Mr. Bixby that accompany the photographs on his web site. Mr. Bixby is a citizen activist and not a wetland scientist. His important

contribution has been his acquisition and presentation of the photographs, not his layman's analysis of them. In short, the Glenn Lukos report was not the independent, objective analysis of the available photographs that I had hoped for. Therefore, I have attempted such an analysis myself.

I analyzed the photographic record to investigate three related questions: 1. What patterns and amounts of rainfall result in inundation for long duration¹⁵? 2. For the 20-year period since 1985 (by which time all hydrological modifications had taken place), is there evidence of frequent (> 50% of all years) long-duration inundation? 3. What is the probable frequency distribution of ponding of various durations (<7 d, 7-14 d, 15-30 d, >30d). I chose seven days as the significant inundation event because the Army Corps of Engineers and the National Resource Conservation Service recognize seven days of inundation as the minimum period that could result in reducing conditions for a sufficient duration to promote the formation of hydric soils. Similarly, the EPA (1989) found that, "...inundation or saturation must meet or exceed a duration of 7 continuous days during the growing season in order to support hydrophytic vegetation and to exclude upland plant species (Sipple 1988)."

Not surprisingly, there are problems with this informal photographic record. Ground-level photographs are challenging to interpret because: 1. Photographs were obtained in an *ad hoc* or haphazard fashion, so they do not uniformly sample the rainy season each year, nor do they uniformly sample the site spatially. 2. They are not taken from the same vantage points nor is the focal length of the lens the same in each instance. As a result, one photograph may capture a large area and the next photograph in a temporal sequence may include only a portion of that area. Therefore, apparent changes over time may be difficult to generalize over space. 3. Because the field is plowed, the angle of the line-of-sight relative to the furrows determines what can be seen. Standing water between furrows is hidden when looking across the plow line. 4. When crops are mature they provide 100% cover in the agricultural area and prevent the after-the-fact assessment of inundation from photographs. Aerial photographs may also be difficult to interpret. In some cases, standing water shows as a reflective surface, which is usually distinctive. However, standing water is generally dark in photographs and sometimes difficult to distinguish from wet soil or shiny dry surface crusts. In several instances, LSA interpreted aerial photographs as showing standing water following a period when there was little or no rainfall and characterized these interpretations as "false positives." There may also be some cases of false negatives where inundation was not identified.

Despite these shortcomings, the existing photographic record (Bixby 2005 and aerial photos obtained by the applicant's consultants) contains a great deal of useful information and provides the only data in addition to the rainfall record that can be used to estimate the frequency and duration of ponding on the Shea Homes property.

¹⁵ "Long duration" is defined as continuous inundation for 7 days to one month. "Very long duration" is defined as continuous inundation for greater than 30 days.

Pattern of Rainfall Necessary to Result in At Least 7 Days of Inundation

Although the pattern and amount of rainfall that occurs at Bolsa Chica is central to this discussion, it is important to understand that, as for most locations, site-specific information is not available. However, rainfall is recorded at several nearby locations. Average annual rainfall at coastal stations within about 15 miles ranges from about 10 inches to about 13 inches. Bilhorn (1987, 1995) used the data from the Lake Street Fire Station in Huntington Beach, which is about 2 miles from the site. For the period 1929 - 1994 the median annual rainfall was 10.27 inches. Record keeping at this station ended in 2001. I have used rainfall data from the Los Alamitos Station (LSA 2005), which is about 5 miles from the site. For the period 1958 - 2005, median rainfall at Los Alamitos was 9.04 inches and the average rainfall was 9.99 inches. Data from either of these stations provides a reasonable index of the rainfall at Bolsa Chica (i.e., the days of rainfall will be nearly identical and the amounts of rainfall will be well-correlated).

I have analyzed the ground-level photographs posted on the web and submitted to the Coastal Commission by Mr. Mark Bixby in order to try to characterize the pattern of rainfall necessary to result in inundation for at least seven consecutive days. This is possible because, during several years, there are multiple ground-level photographs separated by days or weeks. Some of these photographs were taken during years of greater than normal rainfall. However, for those years, I have only used those photographs that were taken during a period when the pattern of precipitation was similar to what is commonly observed in January and February¹⁶, and not following prior heavy rainfall.

The results are presented in Tables A2, A3, A5 and A8 in Appendix A. The shaded portions of the rainfall columns (lighter shading where two shades are used) are periods that represent patterns that would not be unusual for January or February and where rainfall earlier in the season was not so extreme as to bias the analysis. The shaded portions of the columns that contain descriptions of inundation for areas WP, AP, and the County wetlands indicate periods that demonstrate long duration ponding. Several of the descriptions contain rough estimates of the size of the ponds. These estimates were made by scaling off distinctive features in the photographs. Plowed furrows were assumed to be 2 feet from center to center (probably an underestimate), the distance between fence posts along the flood control channel was assumed to be 6 feet, and the distance between parallel tire tracks was assumed to be 5 feet. In addition, the distance between some topographical features was scaled off the Hunsaker (2004) map. These estimates were done quickly and are subject to many sources of error. They are probably generally underestimates, but at least give some rough idea of the relative size of the ponds that formed following rainfall events.

¹⁶ In Tables A2, A3, A5 & A8 and in discussions with the applicant's consultants I have referred to such a pattern as "near normal." This determination is subjective and based on an examination of the existing record and an assessment of both the amount and timing of particular rainfall events. LSA (Homrighausen 2005) commissioned Exponent to conduct a statistical analysis of the rainfall record to assess my determinations. Exponent found that the rainfall in October 2004, which I had treated as "near normal," was unusual by their criteria. I disagreed based on the rainfall data from the Costa Mesa Station, which was all that was available until recently. However, based on the higher rainfall recorded at the Los Alamitos Station, I have not treated the early 2004 rainfall as "near normal." Exponent's analysis was not provided for critique and Homrighausen did not comment on the four tables used in my current analysis.

Area WP was inundated for long duration during each of the five years for which there are data. In general, area AP seemed to pond less readily and dry somewhat more quickly, but was, nevertheless, inundated for long duration during two of the three years for which there are data. The County wetland was also inundated for long duration for two of the three years for which there are data, but not the same years as AP. These data demonstrate that all three areas are capable of long duration ponding during periods of near normal rainfall. In general, long duration ponding appears to require a storm that drops two or more inches of rainfall after the ground has previously been partially charged with water by earlier precipitation events. The observance of such a pattern or more extreme rainfall was the basis for inferring long duration ponding during periods for which there were no photographs available.

Estimation of the Frequency of Long Duration Ponding Since 1958

The standard for wetland hydrology that I have applied is frequent inundation for at least seven consecutive days. The Corps defines “frequent” as occurring more than half the time (i.e., at least 51 out of 100 years, on average). All available data must be used to assess the record under this standard. Throwing out extreme years or extreme rainfall events would bias the result downward. If long duration ponding occurs during all years that have the median rainfall or greater, then this standard is met by definition. The years with greater than median rainfall will include mostly near normal rainfall, but will also include many extreme periods such as El Nino years. The point is that for judging frequency, the entire record must be used.

I used all the available aerial and ground-level photographs in conjunction with the rainfall record¹⁷ for the period 1985 through 2005. I only included areas WP and AP in this analysis. I did not analyze photographs taken of the road adjacent to the residential development to the north, the former stable area, the bare staging area at the western edge of the fields, or the road along the toe of the flood control channel, when it existed. These areas have all been subject to compaction and all but the former stable area are essentially roads. I only used photographs taken after 1985, because the hydrological modifications associated with the construction of the Cabo del Mar condominium complex were completed by that time and, to my knowledge, there have been no additional significant off-site modifications that would affect the hydrology of the Shea Homes property.

There is at least one photograph available for each of the 20 rain years (October through March for this analysis) since 1985. For each rain year for which there was an aerial photograph I tabulated the rainfall data (Appendix A: Tables A1-A20) and assessed whether the rainfall data provided strong evidence of periods when ponding was likely. I analyzed the ground-level and oblique aerial photographs myself. I used the results of the analyses conducted by LSA and Glenn Lukos Associates for the vertical aerial photographs. For the period and area of interest, the results were the same for the subset of photographs that both groups analyzed. I have summarized the results of my analysis in Table 1.

¹⁷ All rainfall data (LSA 2005) for the period 1958 - 2005 come from the Los Alamitos station (Orange County Environmental Management Agency Station 170).

LSA (Homrighausen 2005) believes that the entire available record should be used for this determination. They have obtained aerial photographs and rainfall data for the period 1958 through 1985 and conducted an analysis similar to that described above (Appendix B: Tables B1-B27)¹⁸. However, the hydrology criterion they recommend applying is inundation for at least 14 days. Although aerial photographs were occasionally useful, most of their inferences regarding inundation were based on the observed pattern and amount of rainfall using criteria that were not discussed. In general, I am in agreement with their estimates of when inundation occurred. In most cases, they did not explicitly estimate the duration of inundation during each year. I have annotated their tables with my estimate of the duration of inundation for each year and have summarized the results of my analysis for this period in Table 2.

Rainfall and Probable Inundation During the Period 1958 - 2005

During the 20-year period from winter 1985 through spring 2005, the available evidence suggests that WP was inundated for long duration in each of 12 years and area AP was inundated for long duration in each of 11 years (Table 1). The pattern and abundance of rainfall suggests that WP was inundated for 7-14 days during 4 years, for 15-30 days during 3 years, and for more than 30 days during 5 years.

LSA concluded from their analysis of aerial photographs that during the 27-year period from winter 1958 through spring 1985, area AP ponded following significant rainfall but area WP generally did not until after about 1973. Based on their examination of historical aerial photographs, LSA did not find evidence that a topographical depression existed in the area of WP in the early years of the record. Based partly on photographic evidence, but mainly on the pattern and abundance of rainfall, LSA concluded that ponding occurred at area AP during 13 years and at area WP during 5 years of the 27-year record¹⁹ for unspecified durations. Based on the pattern and abundance of rainfall, I conclude that during that period, area AP and any other significant topographical depressions that may have existed were inundated for 7-14 days during 9 years, for 15 - 30 days during 5 years, and for greater than 30 days during 4 years, for a total of 18 years during which there was continuous inundation for long duration (Table 2).

In general, years during which there was no long duration ponding received less than the median rainfall (Table 3). There was only one instance when the rainfall pattern suggested a lack of significant inundation even though the amount of rainfall was greater than the median. The reverse is not true, however. Continuous ponding for seven days or more probably occurred during seven of the years that received less than median rainfall. Both these observations demonstrate that the distribution of rainfall is more important than the annual total in determining whether long duration ponding

¹⁸ Exponent (Jordan 2006a) took the analysis a step further and extrapolated rainfall back to 1770. They then fit the data to a probability density function and estimated the proportion of years that would have rainfall of various amounts. Although an enjoyable read, I don't think the analysis adds anything to the discussion. The actual available data are more germane.

¹⁹ Actually in Appendix B, Table B28, the figures are 12 years and 4 years, respectively. However, this appears to be a mistake because Table B23 clearly indicates that both areas appeared inundated in photographs 15 days after the beginning of a rainy period, and the text reads, "Likely at least AP area was ponded for 15 days or more in March."

occurs, especially for the middle 50 percent of rain years (6.5" -12.3"). The lower and upper 25 percent of rain years are, respectively, seldom or always inundated for long duration. This pattern is also apparent when one compares the estimated duration of ponding during years of differing rainfall (Table 4). During very dry years, inundation is generally ephemeral and during very wet years, there is generally extensive ponding for very long duration (>30 d). The estimated duration of ponding is more variable during years of intermediate rainfall.

The 1987 Army Corps of Engineers Wetland Delineation Manual defines wetland hydrology as inundation or saturation for at least 5% of the growing season (18.5 days in coastal California). However, this standard is not applied in routine delineations, which only require field evidence of inundation or saturation at the time of the site visit. The Coastal Commission does not have a quantitative standard for hydrology. Rather, the requirement is relative. Wetlands are those areas that are inundated or saturated at a frequency and duration sufficient to promote the formation of hydric soils or to support a predominance of hydrophytes. The evidence reported above indicates that the two areas in question (referred to as WP and AP herein) were inundated or saturated at a frequency and duration sufficient to promote the formation of hydric soils and to support a predominance of hydrophytes based on a 7-day standard for inundation. However, that does not necessarily mean that hydric soil conditions actually developed or that hydrophytes would predominate in the absence of farming. The following analysis addresses those questions.

Wetland Soils

The National Resource Conservation Service has formed the National Technical Committee for Hydric Soils to develop criteria for identifying and mapping hydric soils throughout the United States. The accepted definition of a hydric soil is "a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (59 Fed. Reg. 35680 07/13/94). An accepted field indicator of hydric soils is frequent ponding for long duration. Based on this indicator, areas AP and WP are estimated to be ponded long enough and often enough to promote the formation of hydric soils.

The actual duration of ponding or saturation that results in anaerobic conditions is variable and dependent upon many factors, but four general conditions are required²⁰: 1. Inundation or saturation that excludes atmospheric oxygen, 2. Organic tissues, 3. An active microbial population that is oxidizing organic tissues, and 4. Stagnant or near stagnant water (moving water tends to carry oxygen). The applicant's technical consultants have questioned whether 7 days of ponding is sufficient to result in anaerobic conditions in the upper 12 inches of the soil at AP and WP. To test this hypothesis, they applied a chemical test to saturated soils to directly assay for anaerobic conditions. The sampling stations and monitoring wells referred to in the text are shown in Figures 9 - 11.

²⁰ Vepraskas, M.J. and S.P. Faulkner. 2001. Redox chemistry of hydric soils. Pages 85-105 in J.L. Richardson and M.J. Vepraskas, editors. Wetland Soils. Genesis, Hydrology, Landscapes and Classification. Lewis Publishers, NY.

Although there was relatively little precipitation during the 2005-2006 rain year, ground water was anomalously high throughout Huntington Beach due to the lagged effects of extremely high rainfall during 2004-2005²¹. Data from test wells demonstrate that groundwater at Parkside rose from about -6 feet (Mean Sea Level) in September 2005 to about +0.5 feet (MSL) by December and remained at that level through at least March 2006 (Castle 2006).²² Although the observed shallow groundwater has little relevance to the pattern of inundation and shallow soil saturation during most years, it did provide an opportunity to directly assess reducing conditions in saturated soils in the County parcel and in area AP. The shallow soil at WP was never saturated by high groundwater.

Glenn Lukos Associates began soil testing on January 12, 2006 using the chemical alpha, alpha'-dipyridyl, which develops a reddish-purple color in reaction with ferrous (reduced) iron. On January 12, the soil at the sample site at the County parcel was already saturated by ground water at 12-15 inches below the surface and the presence of ferrous iron demonstrated anaerobic, reducing conditions. The soil above 12 inches was not saturated (moist-wet) and was oxygenated. This pattern persisted through March 15, except that from February 15 through at least February 24, the soil was saturated and reduced up to 6 inches below the surface. Since on February 10, the soil at 6 inches was only moist to wet and still oxygenated, this indicates that the soil became saturated and then anaerobic and reduced to the point of iron reduction in fewer than 5 days²³.

The six sample sites at AP showed a more complicated pattern of soil saturation. These sites were first visited on January 12 (AP4,5 & 6) or January 20 (AP1,2 & 3). At that time, the soil from 12-15 inches below the surface was saturated, but did not show iron reduction. The soil at several stations was saturated above 12 inches and several stations also had surface ponding and shallow saturation separated from the deeper saturation by a band of merely moist to wet soil. A plausible explanation is that ground water rising under pressure would generally be confined by the shallow clay layer, but in scattered areas where coarser material was present, water would reach the surface and then spread horizontally above the clay layer (T. Bomkamp, personal communication 06/02/06). There was essentially no evidence of iron reduction at the AP stations during the period January through March. At four of the sample sites, the soil remained saturated until February 8. Saturation was observed for a week or two longer at the other two sample sites (AP1 & AP3). In general, there was no evidence of iron reduction within this depth stratum in the AP area. Although occasional soil samples tested positive for reduced iron, the soil from nearby pits tested negative. In summary, after a period of soil saturation ranging from at least 19 days to at least 35 days, there was no evidence of iron reduction at a depth of 12 to 15 inches at 6 locations in area AP, whereas soil at the same depth at a single site in the County parcel was continuously reduced. Large portions of area AP were also inundated and the shallow soil saturated for long periods. The soil at sample site AP1 appears to have been saturated in the upper 6 inches from about January 20 until about March 6 with no evidence of iron reduction. The soil was moist-wet and presumably oxygenated for 2 to

²¹ Highest rainfall on record (23.39 inches) with an estimated return period of 48 years (Jordan, 2006b).

²² Pacific Soils' wells MW-3, MW-17, and MW-19.

²³ This is very fast and may contain significant sampling error (as could any of these estimates). Since samples were not taken from the exact same location on each date, small scale spatial variability is necessarily confounded with temporal changes. Small scale spatial variability was not formally estimated.

5 days in early March and then became saturated again. Reduced iron was present 6 to 9 days later and was considered the predominant condition after about 2 weeks.

A partial explanation for the differences observed at the two sample sites may be that the pressurized ground water that caused soil saturation and ponding at AP was oxygenated and did not remain stagnant long enough to result in anaerobic conditions. However, by late February the ground water was receding and ponded surface water should have been stagnant. Nonetheless, after about 2 to 4 weeks of soil saturation no ferrous iron was detected other than at AP1.

About an inch of rainfall on April 1 resulted in extensive ponding both at the County parcel and at AP. This provided another opportunity for examining the time required for iron reduction to occur. Sampling took place on April 21 and on May 2 (AP) or May 5 (County). At the County parcel, the upper 4 to 8 inches of the soil column at most stations showed evidence of reduced iron after 17 days, whereas only 1 of 3 replicates at 1 of 5 stations at AP tested positive for ferrous iron. After 28 days, most stations in both the AP and County areas showed evidence of iron reduction in the upper part of the soil column.

In summary, it apparently requires between 5 and 17 days of soil saturation or inundation for the onset of iron reduction in the near-surface soil in the County parcel. The analogous figures for area AP are 14 and 28 days. No explanation has been proffered for the striking difference in the duration of saturation necessary to result in the reduction of iron between the County parcel and the nearby AP area.

Understanding the mechanisms producing the observed differences at the two sites is important because the definition of hydric soils is not based on iron reduction, but rather on anaerobiosis.²⁴ Anaerobic conditions are necessary for iron reduction, but the lack of iron reduction is not evidence that soil is aerobic²⁵. There are two concerns. First, there is a lag of unknown duration between the time the soil becomes anaerobic and the initiation of iron reduction. I have not been able to find a discussion of this time course in the literature, but plots of the changes in redox (oxidation-reduction) potential²⁶ with time in Vepraskas and Faulkner²⁷ suggest that (at pH 5) it could be at least a few days to 2 weeks from the onset of anaerobic conditions to the initiation of iron reduction. Under favorable conditions,²⁸ Vepraskas (personal communication 07/26/06) estimates that the lag may be as short as 1 to 5 days. The second concern is that iron reduction may not be apparent despite a low redox potential. This could occur if iron concentrations were low. The soil concentration of iron is much higher at the County

²⁴Fontaine (2006) made this point. Josselyn (2006b) responded that the National Committee on Hydric Soils Technical Note 11 requires anaerobic conditions to be demonstrated by documenting iron reduction. However, Technical Note 11 provides Technical Standards for the development of field indicators of hydric soils (which are generally based on iron reduction) and is not intended to modify the definition. Josselyn also seems to confound aquatic conditions (which require iron reduction) with hydric soils (which only require anaerobic conditions).

²⁵ Vepraskas, M.J. and S.W. Sprecher. 1997. Overview of aquatic conditions and hydric soils. Pages 1-22 in M.J. Vepraskas and S.W. Sprecher. Aquatic conditions and hydric soils: The problem soils. Soil Science Society of America, Madison, Wisconsin

²⁶ Redox potential (E_h) is a measure of the tendency of chemical substances to be reduced (i.e., to acquire electrons) and is measured in mV. A low E_h indicates a reducing environment, whereas a high E_h is characteristic of an environment that favors oxidation.

²⁷ Vepraskas and Faulkner, op.cit. 2001.

²⁸ Carbon levels above 3%, continuous soil saturation, soil pH <7, and low concentrations of nitrate or Mn oxides.

parcel (787 ppm) than at AP (225 ppm) or WP (31 ppm). Although alpha, alpha'-dipyridyl appears to be sensitive to extremely low concentrations (<1 ppm) of iron salts in water²⁹, I have not been able to find literature that quantitatively relates the concentration of iron in the soil to the alpha, alpha'-dipyridyl test. It may be that any of these concentrations are sufficient to produce a positive test under reducing conditions or, given these low concentrations of iron, it may require a longer time to produce a positive chemical test.

Dr. Michael Vepraskas, a wetland soil scientist at the North Carolina State University, studies oxidation-reduction reactions in saturated soils. His work on soils³⁰ that are always above 5° C (as are California coastal soils) has shown that the time required for a saturated soil to become anaerobic is strongly related to the amount of organic carbon that is present (personal communication, 07-19-06). Where total organic carbon (TOC) is 3% or greater, it generally requires 1-4 days for the soil to become anaerobic. Where TOC is less than 3%, the time required increases rapidly with a decrease in TOC and may range from 3 - 50 days. The time to iron reduction is no doubt also inversely correlated with the amount of organic carbon present.

The percent dry weight organics in Table 8 was estimated by the soil laboratory by multiplying TOC³¹ by a conversion factor.³² I used this factor (1.8) to convert back to TOC (Table 8). Differences in TOC probably explain much of the variability observed in the chemical testing for reduced iron. There also are significant differences among sites. Estimated TOC³³ ranged from 0.8% to 7.1% at the County area and from 1.6% to 5.4% at AP, but was about 1% or less at all the rest of the sample locations, including WP (Table 8). At AP the mean and median were both about 3%. At the northeastern portion of the reference area at the County parcel where surface inundation was observed, TOC varied from 0.8% to 1.2%.

Differences in soil pH may also contribute significantly to the observed variability in iron reduction because soils with higher pH become reducing at a lower redox potential (and therefore after a longer time) than soils with a lower pH. The average soil pH (Table 8) was about 5.7 in the County parcel (range: 4.1 - 7.0), 7.0 at AP (range: 6.1 - 7.5), and 7.5 at WP (range: 7.3 - 7.6). The other wetland areas averaged 6.4 to 7.1. At the northeastern portion of the reference area at the County parcel where surface inundation was observed, pH varied from 6.4 to 6.8.

Although there remains considerable uncertainty in the estimates of the time required for the development of anaerobic conditions, the available evidence suggests that it likely requires more than 7 days of saturation or inundation for anaerobic conditions to develop at AP and WP, probably due to the relatively low organic content of the soil at WP and the relatively high pH at both locations.. Therefore, I conclude that it is more likely than not that during most years areas WP and AP are not ponded for the duration

²⁹ Moss, M.L. and M.G. Mellon. 1942. Colorimetric determination of iron with 2,2'-Bipyridyl and with 2,2,'2''-Terpyridyl. *Industrial and Engineering Chemistry* 14:862-865.

³⁰ The pH in the soils that were studied varied from about 4.0 to about 5.5 (personal communication, 07-26-06).

³¹ Obtained by wet extraction and titration using the Walkely-Black method.

³² Telephone conversation with Jim West (Soil and Plant Laboratory, Inc.) on July 19, 2006.

³³ As percent oxidizable organic carbon (Hess, P.R. 1971. *A Textbook of Soil Chemical Analysis*. John Murray, London as referenced in Beaudoin, A. 2003. A comparison of two methods for estimating the organic content of sediments. *Journal of Paleolimnology* 29:387-390.).

needed to promote the formation of hydric soils at those locations, given the nature of the soils present.

Wetland Vegetation (Atypical Situation)

The agricultural operations on the Shea Homes Parkside property make wetland delineation difficult because they remove all natural vegetation, repeatedly disturb the soil, and supplement rainfall with irrigation during dry periods. Therefore, the standard indicators of wetlands contained in the Corps of Engineers 1987 Manual may be missing or masked and, because of irrigation, the periodic appearance of hydrophytes may sometimes be difficult to interpret. With regard to vegetation, the Corps suggests examining nearby unaltered areas that otherwise appear similar.

I believe such comparisons are appropriate for atypical situations and, at least from a state perspective, the agricultural portion of the Shea Homes property is an atypical situation.³⁴ At my request, Glenn Lukos Associates (Bomkamp et al. 2005; Bomkamp 2005a) examined the vegetation and soils in nearby areas that were similar in elevation to two depressional areas in the agricultural field. Glenn Lukos Associates compared the depression adjacent to the flood control channel (Wintersburg Pond or WP), the western depression (Agricultural Pond or AP³⁵) and two areas in the County parcel roughly matched by elevation³⁶. The sampling stations and monitoring wells referred to in the text are shown in Figures 9 - 11.

Vegetation was examined along two wetland transects in the County parcel, and visually assessed in the areas that tend to pond water at AP and WP.³⁷ At the County parcel, the seven sample plots (C1-C7) that were matched with the depression at WP each had a predominance of hydrophytes and were dominated by some combination of pickleweed (OBL), saltgrass (FACW), alkali heath (FACW+) and little seed canary grass (UPL). Similarly, the seven sample plots (D1-D7) matched with area AP were either bare or had a predominance of hydrophytes, including some combination of saltgrass, alkali heath, pickleweed, and Torrey's seablite (FAC+). Although acknowledging that these results suggest that the depressions in the agricultural area could potentially support a predominance of hydrophytes, Bomkamp et al. (2005) then argue that atypical

³⁴ From a federal perspective, once an agricultural area is designated as "prior converted cropland," the lack of wetland vegetation is automatically treated as the "normal situation" and thus renders the area not subject to Corps regulation. However, the Corps considers this designation provisional since RGL 90-07 states that if prior converted cropland is abandoned and wetland conditions return, the area is again jurisdictional. In other words, the process of designating an area as prior converted cropland is subject to error.

³⁵ "WP" and "AP" are simply short-hand designations coined by Glenn Lukos Associates for two general locations for which there is empirical evidence of ponding after rain storms. "AP" is variously used to refer to the general area of the EPA delineation at the western side of the site or to the current depression at the base of the western hillside and does not refer to a pond created for agricultural purposes..

³⁶ In fact, the low areas that pond water at AP and WP were not quantitatively sampled for vegetation. Transects A and B were west of WP and much higher. Transect E began in the area that ponds water and extended northeast over higher ground. However, the areas sampled at the County parcel for reference were at roughly similar elevations to those areas at AP and WP that pond water.

³⁷ The three dominant species (brass buttons, FACW+; salt marsh sand spurry, OBL; and rabbitsfoot grass, FACW+) in the WP were all wetland indicators. On April 6, the AP was still inundated and had no emergent vegetation. Later, a few individuals of brass buttons and bristly ox-tongue (FAC) had appeared. However, as pointed out by Bomkamp et al. (2005) observations of wetland plants on the City parcel are difficult to interpret due to the extreme rainfall of 2005.

methodology should not be applied because the area is a “prior converted cropland,” a jurisdictional appeal that is only germane under federal law. They also argue that such a comparison is deceptive because they believe that wetland hydrology has been eliminated from the agricultural portion of the Shea Homes property as a result of construction of levees, land-leveling, and diversion of water from upstream areas due to residential development. However, the areas on the County parcel that were delineated as wetlands (Sanders 1987, 1994; Huffman 1987; EPA 1989)³⁸ appear to have suffered similarly severe alterations to hydrology as the City parcel. They have also suffered similar types of soil disturbance, although for many fewer years. Hovore (1997) reported that nearly the entire area was disked in 1997, completely removing all traces of the surface vegetation except in a few small areas. He also characterized the County parcel as “partially filled and entirely graded-over.” Photographs taken by Coastal Commission staff in fall 1998 show that the County parcel from the tree line to the toe of the berm for the flood control channel and from the elevated oil pipeline east to the City parcel had been disked, roughly leveled, and 100% of the vegetation removed (Figure 4). By October the area was plowed and from December 1998 through at least April 1999, fill was deposited on the field adjacent to the Eucalyptus trees and a palm tree. Despite these extreme environmental insults, by September 2000, some portions of the site once again supported a predominance of hydrophytes (Harrison 2000) and the site had further developed wetland characteristics by April 2002 (LSA 2002). Although wetlands are no longer found where they were delineated in the 1980s, in the absence of soil disturbance they are developing and expanding into existing depressions (Fontaine 2005b) and water tends to pond in depressions (e.g., Figure 5).

I tested the hypothesis that the City parcel has suffered greater hydrological alterations than has the County parcel (and hence that the latter provides a poor comparison for the former). If this hypothesis is true, then the agricultural depressions should be inundated and saturated less frequently and for shorter durations than the County parcel wetlands. I conducted this test by comparing the patterns of inundation and drying in the three areas using photographs from the Bixby (2005) website. There are several series of photographs of the three areas that were taken at about the same time and that allow direct comparisons of actual inundation and drying under identical rainfall conditions. At the County parcel, the area within the photographs is south and west of a palm tree (Figures 4 & 5) that provides a spatial referent and appears to include portions of polygons characterized as “pickleweed/sea-blite scrub” in 2002 (LSA, 2002) and to be adjacent to sample points C1 and C2, which were dominated by pickleweed in 2005 (Bomkamp et al. 2005). I only used photographic series within which the palm tree and a particular pattern of tire ruts was visible (e.g, Figure 5). The results of this analysis are shown in Tables A1-A3 and A8 in Appendix A.

It appears that when the depression near the palm tree in the County parcel is inundated, so are portions or all of the depressions within the agricultural area that are designated AP and WP. Ponding within the depression at the reference area appears to wax and wane with rainfall and drying conditions roughly in the same pattern as at AP. WP seems generally to stay wetter longer. However, in winter 2002-2003, the reference area held water longer than either agricultural area. Some of this year-to-year

³⁸ Referring to EPA (1989), LSA (2002) incorrectly asserts that “...none of the County parcel was included in the wetland determination.” Both Sanders (1987; Figure 3) and EPA (1989; Figure 9) map wetlands on the County parcel and Huffman (1987; Figure 6) includes the County parcel as an area “...exhibiting wetland hydrology, soil and vegetation conditions.”

variability may be related to changes in drainage patterns resulting from agricultural practices. The available data suggest that the wetlands in the County parcel and the potential wetlands in the agricultural area are at approximately the same elevations, are depressions relative to the surrounding topography, have a shallow clay-rich confining layer, and have similar surface hydrology. The available data falsify the hypothesis that the County parcel is a poor reference site because it is significantly wetter than the City parcel due to surface inundation.

A second argument is that the hydrology of the County parcel is qualitatively different from that of WP or AP. LSA (2002) installed 16 monitoring wells in the County parcel in December 1999 and recorded the depth to standing water between December 1999 and May 2000 and between December 2001 and March 2002. Three wells (10, 13, & 14) close to the flood control channel were examined 3 times at 3-hour intervals on a single day and fluctuations in water height suggested some tidal influence. LSA concluded that the hydrological regime within the study area is primarily a function of surface water following rainfall that causes rapid, though generally brief, rises in groundwater. Only wells 10 and 13 had groundwater within one foot of the surface for long duration. However, groundwater also rose to within a foot of the surface immediately following rainfall on one or two occasions at LSA wells 9, 14, 15, and 16, which are all within the County parcel. In general, the depth to groundwater increases with distance from the flood control channel (Table 5).

In order to examine further the degree to which hydrology in the County area is a function of recent rainfall, I correlated the change in the depth of groundwater from the previous (roughly weekly to biweekly) observation with cumulative rainfall during the previous 7 or 30 days (Table 6). There were no significant correlations with 30-day cumulative rainfall. However, change in the depth to groundwater was significantly correlated with 7-day cumulative rainfall for all but 2 wells (6 & 8). However, the proportion of the variability in water depth that is explained by the variability in recent rainfall (r^2) was small for wells 10, 12, and 13. As suggested by LSA, it is likely that the area represented by these wells is affected by water in the flood control channel and that this affect is most pronounced close to the channel berm. It is also clear that ground water is closer to the surface near the channel, as represented by LSA wells 10 and 13 (Table 5). For these reasons, I agree that the wetland area mapped by LSA (2002) and sampled by Bomkamp et al. (2005; Transect D) does not provide a good reference area for vegetation.

However, the area between LSA wells 8 and 9 that supports pickleweed and seablight scrub (LSA 2002; Bomkamp et al. 2005) does not appear to be dependent on high groundwater for hydrology. In fact, although there are few common dates, the depth to water at LSA well 9 appears roughly comparable to or greater than the depth to water at the Pacific Soils well 8 adjacent to area WP (Tables 5 & 6). This portion of the County parcel is the same area that I used to compare to areas AP and WP for timing and duration of inundation. Therefore, I think it is reasonable to conclude that, like this portion of the County parcel, areas AP and WP are inundated or saturated at a frequency and duration sufficient to support the growth of hydrophytes; and, in the absence of farming, would support the growth of hydrophytes.

The applicant's consultants have objected to this conclusion based on differences in soil chemistry (Table 8). They interpret these differences as evidence that the County

parcel has been structured by wetland processes, and that AP and WP have seldom been subject to saturated soil conditions. Most of these arguments are presented by Josselyn (2006a) and are based largely on theoretical considerations. For example, Josselyn explains the high soil salinity in the County parcel relative to AP and WP as due to groundwater derived salt being deposited in the soil via high evaporation. Although this mechanism certainly occurs in nature, I think a more parsimonious explanation is that the high salinity is an historical artifact of the period when the entire Parkside property was a tidal salt marsh. Diked salt marsh soils and dredge spoils placed in upland areas may retain their high salinity for many decades and the salinity in the upland soil on the County parcel is also very high. The lower (but still high) salinities in the agricultural field are probably a result of long-term agricultural manipulations. Next, Josselyn points out that the high rates of production and low rates of decomposition due to anaerobic conditions that are characteristic of wetlands result in an accumulation of organic matter. Although acknowledging that soil organics at AP and WP are similar to various reference wetlands, he suggests that the higher concentrations of organics on the County parcel are due to anaerobic conditions. However, confidence in wetland hydrology being the causative mechanism for the high organics is eroded by the fact that soil organics are actually higher in the upland than in the wetland within the County parcel. The patterns in ammonium and nitrate are perhaps most interesting, albeit somewhat confusing. In aerated soils with a pH above 4, nitrate is the most prevalent nitrogen compound and ammonium is generally in low concentration³⁹. The ratio is usually reversed in waterlogged soils due to the reduction of nitrate as described by Josselyn. In this context, the ammonium to nitrate ratio in the County parcel wetland, Los Patos wetland, and Banning Ranch salt marsh is in the direction expected in saturated soils and the ratio in the County parcel upland, WP, AP, and the Fairview freshwater wetland are in the direction expected for aerobic soils. However, if one looks at the ammonium concentrations, they are similar at all the locations except the Fairview wetland and perhaps WP. The most striking differences among the sites are the high levels of nitrate at the County upland, AP, and WP. Although the elevated levels of nitrate at AP and WP could possibly be related to agriculture, the high level⁴⁰ at the County upland is puzzling. There is also considerable spatial variability within the County parcel. At sample sites 4-2 and 4-3, which bracket the area of interest between wells 8 and 9, the ammonium to nitrate ratios are 1.2 and 0.6, respectively. The corresponding figures for organic carbon are 1.2 and 0.8 and for pH are 6.4 and 6.8. In summary, the characteristics of the soil samples from AP and WP are similar to those of the hydrologically most appropriate reference area within the County parcel and are within the range of the other wetland sites sampled by Glenn Lukos.

Conclusions

The available data suggest that portions of the agricultural field at the Shea Homes Parkside site that have shown evidence of ponding in recent years are inundated or saturated at a frequency and duration sufficient to support a preponderance of wetland plant species, and that such a preponderance would exist if the current farming activity

³⁹ Brix, H., K. dyhr-Jensen, and B. Lorenzen. 2002. Root-zone acidity and nitrogen source affects *Typha latifolia* L. growth and uptake kinetics of ammonium and nitrate. *Journal of Experimental Botany* 53:2442-2450.

⁴⁰ One of the 3 samples is an outlier (145 ppm); the other 2 have 21 & 24 ppm nitrate with ammonium to nitrate ratios of 0.5.

ceased. Such areas meet the definition of wetlands under the Coastal Act and the Commission's Regulations.

This conclusion is based on two lines of evidence: (1) an examination of the vegetation at a nearby location that is similar in history, physical characteristics, and hydrology to the depressions in the agricultural field, and (2) an estimate of the frequency of continuous inundation for long duration (≥ 7 days). Areas WP and AP were matched with a wetland area on the County parcel that was similar (or higher) in elevation and topography. Inundation in the agricultural areas and at the reference wetland was similar in pattern and the vegetation in neither area appears to be supported by groundwater, further suggesting that the latter area is a good proxy for the former. Therefore, since the dominant vegetation at the reference areas is mostly comprised of wetland species, it is reasonable to expect that the agricultural areas WP and AP could also support a predominance of hydrophytes in the absence of farming. Whether the mix of wetland species that would eventually develop in the agricultural field would be similar to that observed on the County parcel is uncertain. Initially, the vegetation would probably be quite different, consisting mostly of annual species that are good colonizers, since the seed bank for perennial species has probably been destroyed due to the many years of farming. Over a period of decades, I would expect the vegetation in the two areas to become increasingly similar, although the lower salinity at WP and especially AP might result in a different mix of species. However, the actual community trajectory and the rate of convergence in wetland cover would depend on many factors, especially whether rainfall during the first several years following the cessation of farming was heavy or light, initially favoring the establishment of wetland or upland species, respectively.

The hydrology of the Shea Homes property has been significantly altered over the years. It was cut off from tidal influence long ago, but the freshwater surface hydrology has also been altered over the years by a reduction in the size of the watershed. Nevertheless, portions of the site probably have been continuously inundated for long duration at least once a year during about 60 percent of the last 47 years. Prior to about 1990, it appears from aerial photographs (Homrighausen 2005) that significant inundation was generally confined to the area delineated by the EPA (1989). Based on his analysis of aerial photographs dating from 1958 to 1985, Homrighausen (2005) concludes that inundation in that area tended to have a different footprint in different years and, based on this observation, he argues that no particular area should be identified as a wetland. However, all his estimated wetland polygons in the western portion of the agricultural field appear to fall within the area delineated by the EPA. In the absence of wetland vegetation, the drawing of wetland boundaries is an approximate exercise based on a small and haphazard collection of aerial photographs or ground observations and estimates of topography. Given the approximate nature of such delineations, I think Homrighausen's (2005) results are actually additional evidence that the EPA delineation was both reasonable and accurate at the time it was made.

From 1958 - 1985, inundation in the depression adjacent to the flood control channel apparently occurred less frequently than in the depression mapped by EPA. None of the investigators in the late 1980s delineated wetlands along the flood control channel, and Homrighausen (2005) found little evidence of ponding at WP prior to the 1980s. Yet, in recent years, there is ample evidence that WP is inundated for long duration

following significant rainfall. In addition, ground photographs suggest that the area delineated by the EPA no longer ponds as frequently or as extensively as in earlier years. There appears to have been a state change in the hydrology of the site some time in the last 20 years or so. This change must be due to alterations in drainage patterns resulting from grading, plowing and disking by the agricultural tenants on the site.

One could argue that the EPA delineation should stand because there has been no change in the overall hydrology of the site (i.e., total input and outflow of water) since 1989 and the recent photographic evidence is meager. Despite the paucity of data, I think the most defensible approach is to base the wetland delineation on current conditions as inferred from recent (2003)⁴¹ topography and the available photographs of recent inundation. I estimated the minimum boundary of wetlands in areas AP and WP based on 2003 topography and on the approximate area that each was inundated following a period of modest rainfall in a year of less than median rainfall. The wetland polygon in both area WP and area AP was based on the pattern of inundation during the period February 26 to March 6, 2004, which followed a storm that dropped 1.88 inches of rain during a relatively dry year (5.8" total rainfall). A large area at WP was continuously inundated (Figure 6). The wetland polygon at AP was based on the area inundated on February 26 (Figure 7). By March 6, the area was probably smaller, but the available photograph shows only a small portion of the area shown in the February photograph. Unfortunately, there are few photographs of the AP area, except during periods of exceptionally heavy rainfall (e.g., Figure 3). The actual boundary of the wetland polygons (Figure 8) was obtained by following the contour that seemed to approximate the area that was observed to pond following rainfall. For AP this was the 0-foot contour⁴²; for WP this was about the 1.2-foot contour. Given the small amount of rainfall during this period, I think the area delineated is reasonable and possibly conservative. The areas of ponding resulting from high groundwater in 2006 all appear to have been within the delineated AP area.

Although the areas delineated in Figure 8 represent the minimum areas that are likely to support wetland vegetation in the absence of farming, even these small areas would probably lose their wetland character if the amount of water from rainfall and local runoff were to be reduced. Therefore, if they are to persist in the absence of farming, either their watershed must be maintained or supplemental water must be provided.

⁴¹ More recently a box plow was used to fill area WP, which is apparent in the 2006 topographic maps.

⁴² Relative to NAVD88 vertical datum.

Figure 1. Shea Homes property at Bolsa Chica in Huntington Beach. Portions of the property were previously within the unincorporated area of the County of Orange. In the text there is reference to the "City Parcel" and the "County Parcel," although the latter was annexed by the City in 2003.



Figure 2. Wetland area delineated by Bilhorn (1987). The wetland polygon shown in Bilhorn's map was scanned and then positioned on the recent aerial photograph using ArcView. The size, shape and position of the polygon is approximate. The wetland area calculated from the mapped polygon is 7.6 acres, which is the same area estimated by Bilhorn (1987).



Figure 3. Large portions of the Shea Homes property were continuously inundated for over 30 days during the unusually wet winter of 2000 - 2001. Area AP is in the foreground; area WP is in the background adjacent to the flood control channel. Photographs from Bixby (2005).



Figure 4. Former County parcel after wetlands had been disturbed by agricultural activities and fill in 1997 and 1998 (staff photographs). Upper photograph - 10/22/98; lower photograph - 12/05/98. Note palm tree that is also shown in Figure 5.



Figure 5. Former County parcel on 02/26/04 showing developing vegetation following the cessation of agricultural disturbance. Based on observations by Harrison (2000), LSA (2002), Bomkamp *et al.* (2005) and Fontaine (2005a), a variety of wetland species are becoming established and the area with a preponderance of hydrophytes is increasing. The area with standing water typically ponds following significant rainfall. The palm tree and tire ruts created by driving over wet ground provide references when analyzing inundation from a temporal series of photographs. Photograph from Bixby (2005).



Figure 6. Ponding in area WP during February and March, 2004. Photographs from Bixby (2005).



February 26, 2004



March 6, 2004



March 11, 2004

Figure 7. Ponding in area AP during February and March, 2004 following 1.88 inches of rain on February 26 and an additional 0.52 inches on March 2. The March photograph includes only a small portion of the area shown in the February photograph. Photographs from Bixby (2005).



February 26, 2004



March 6, 2004

Figure 8. Estimated size and location of wetland areas that currently would support a preponderance of wetland plant species in the absence of agriculture. A 100-foot wetland buffer is shown in black.



Figure 9. Map of the County parcel (CP) showing the location of monitoring wells and sampling plots for vegetation and soils.

Figure 10. Map of area AP along the western edge of the agricultural field showing the location of monitoring wells and sampling plots for vegetation and soils.

Figure 11. Map of area WP adjacent to the flood control channel within the agricultural field showing the location of monitoring wells and sampling plots for vegetation and soils.

Table 1. Summary of occurrences of long duration ponding at areas WP and AP as assessed from aerial and ground-level photographs and from rainfall data during the period 1985 – 2005. Y = Yes; N=No.

Rainfall Year	Evidence of Ponding From Photographs		Inferred From Rainfall	Estimated Duration of Ponding at WP
	WP	AP		
2004 - 2005	Y	Y	Y	> 30 days
2003 - 2004	Y	N	Y*	7 - 14 days
2002 - 2003	Y	N	Y	7 - 14 days
2001 - 2002	N	N	N	< 7 days
2000 - 2001	Y	Y	Y	> 30 days
1999 - 2000	N	N	N	< 7 days
1998 - 1999	N	N	N	< 7 days
1997 - 1998	Y	Y	Y	> 30 days
1996 - 1997	Y	Y	Y	15 - 30 days
1995 - 1996	N	N	Y	7 - 14 days
1994 - 1995	Y	Y	Y	> 30 days
1993 - 1994	N	N	N	< 7 days
1992 - 1993	Y	Y	Y	> 30 days
1991 - 1992	Y	N	Y	15 - 30 days
1990 - 1991	N	N	Y	7 - 14 days
1989 - 1990	N	N	N	< 7 days
1988 - 1989	N	N	N	< 7 days
1987 - 1988	N	N	N	< 7 days
1986 - 1987	N	N	N	< 7 days
1985 - 1986	Y	Y	Y	15 - 30days

* WP only

Table 2. Summary of occurrences of long duration ponding at areas WP and AP as assessed from aerial photographs and from rainfall data during the period 1958 – 1985. Where the photographic analysis suggested inundation but LSA considered it a “false positive,” I entered “N” in columns 3 and 4. An asterisk in column 4 indicates that LSA concluded that ponding was less than 14 days. Y = Yes; N = No. LSA estimated that ponding for more than 14 days occurred at AP during 13 years and at WP during 5 years over the 27-year period of record (Appendix B, Table B28#).

Rainfall Year	Evidence of Ponding From Photographs		Ponding Inferred From Rainfall	Estimated Duration of Ponding at AP
	WP	AP		
1984 - 1985	N	N	Y*	15 - 30 days
1983 - 1984	N	N	N	< 7 days
1982 - 1983	N	N	Y	> 30 days
1981 - 1982	N	N	N	< 7 days
1980 - 1981 [#]	Y	Y	Y	15 - 30 days
1979 - 1980	N	Y	Y	> 30 days
1978 - 1979	N	N	Y	15 - 30 days
1977 - 1978	-	-	Y	> 30 days
1976 - 1977	N	N	N	< 7 days
1975 - 1976	N	N	N	< 7 days
1974 - 1975	Y	Y	Y*	7 - 14 days
1973 - 1974	N	N	Y	7 - 14 days
1972 - 1973	N	N	Y*	7 - 14 days
1971 - 1972	N	N	Y*	7 - 14 days
1970 - 1971	N	N	Y	7 - 14 days
1969 - 1970	N	N	N	< 7 days
1968 - 1969	-	-	Y	> 30 days
1967 - 1968	-	-	N	< 7 days
1966 - 1967	-	-	Y	7 - 14 days
1965 - 1966	-	-	Y	15 - 30 days
1964 - 1965	N	Y	Y	7 - 14 days
1963 - 1964	-	-	N	< 7 days
1962 - 1963	N	Y	Y	7 - 14 days
1961 - 1962	N	Y	Y	15 - 30 days
1960 - 1961	-	-	N	< 7 days
1959 - 1960	N	N	Y*	7 - 14 days
1958 - 1959	N	N	N	< 7 days

[#] Data for 1980-1981 correspond to Appendix B, Table B23; entry in Table B28 is apparently wrong.

Table 3. Number of years during which there was continuous ponding for long duration relative to the total amount of rainfall during the rain year (July - June). Y = ≥ 7 days continuous ponding; N = 0-6 days continuous ponding. Median annual rainfall for the 47-year period from 1958 through 2005 was 9.0 inches (Quartile⁴³ 1 = 6.5"; Quartile 3 = 12.3"). The shaded area delineates rain years with median rainfall or less. During 1958 - 1985, ponding figures are for area AP; during 1985 - 2005, ponding figures are for area WP. The depression at area WP may not have been present during much of the earlier period. After around 1985, area AP probably generally ponded at the same time as area WP

Total Amount of Rainfall (in)	1958 - 1985		1985 - 2005		1958 - 2005	
	Y	N	Y	N	Y	N
0-2	0	0	0	0	0	0
2-4	0	1	0	1	0	2
4-6	1	3	1	3	2	6
6-8	3	4	1	3	4	7
8-9.0	0	0	1	1	1	1
9.1-10	5	1	0	0	5	1
10-12	2	0	3	0	5	0
12-14	3	0	2	0	5	0
14-16	0	0	0	0	0	0
16-18	3	0	0	0	3	0
18-20	0	0	2	0	2	0
20-22	1	0	1	0	2	0
22-24	0	0	1	0	1	0
Total:	18	9	12	8	30	17

⁴³ Quartile 1 is the upper bound of the lowest 25% of observations and Quartile 3 is the lower bound of the highest 25% of observations.

Table 4. Relationship between the duration of ponding and the total amount of rainfall during the rain year (July - June). Entries are number of years within each category during the period 1958 - 2005. Median annual rainfall for the 47-year period from 1958 through 2005 was 9.0 inches (Quartile 1 = 6.5"; Quartile 3 = 12.3"). The shaded area delineates rain years with median rainfall or less. During 1958 - 1985, ponding figures are for area AP; during 1985 - 2005, ponding figures are for area WP. The depression at area WP may not have been present during much of the earlier period. After around 1985, area AP probably generally ponded at the same time as area WP.

Total Amount of Rainfall (in)	Estimated Duration of Continuous Ponding			
	0 - 6 days	7 - 14 days	15 - 30 days	> 30 days
0-2	0	0	0	0
2-4	2	0	0	0
4-6	6	2	0	0
6-8	7	3	1	0
8-9.0	1	1	0	0
9.1 - 10	1	4	1	0
10-12	0	1	4	0
12-14	0	2	2	1
14-16	0	0	0	0
16-18	0	0	0	3
18-20	0	0	0	2
20-22	0	0	0	2
22-24	0	0	0	1
Total:	17	13	8	9

Table 5. Water depth below the surface at the LSA monitoring wells in the former County parcel during winters 1999-2000 and 2001-2002. Where the water table is within the upper 1 foot of the soil column, the depth is indicated in bold type.

Station:	LSA 6	LSA 8	LSA 9	LSA 10	LSA 12	LSA 13	LSA 14	LSA 15	LSA 16	Cumulative Rainfall During Prior 7 Days	Cumulative Rainfall During Prior 30 Days
Station Elevation (MSL):	3.3 ft	1.3 ft	0.9 ft	1.3 ft	0.8 ft	1.0 ft	-0.1 ft	-0.4 ft	-0.2 ft		
12/17/1999			-3.95	-2.35	-4.90	-1.80	-3.05		-3.25	0.00	0.00
12/30/1999			-4.10	-2.45	-2.90	-1.90	-3.20		-3.35	0.00	0.00
1/5/2000			-4.05	-2.40	-4.00	-1.90	-3.05		-3.30	0.07	0.07
1/20/2000			-4.10	-2.45	-3.95	-2.00	-3.10		-3.30	0.00	0.07
1/26/2000			-3.85	-1.90	-3.75	-1.40	-2.55	-4.90	-2.90	0.51	0.58
2/1/2000			-3.90	-2.05	-3.70	-1.50	-2.70	-4.90	-2.80	0.41	0.62
2/18/2000			-3.15	-0.90	-3.00	-0.40	-1.95	-4.25	-2.10	0.85	1.87
2/25/2000		-4.95	0.00	-0.40	-1.35	0.00	-0.40	-1.20	-0.60	1.95	3.31
3/3/2000			-2.45	-1.00	-2.15	0.00	-1.20	-2.45	-1.35	0.06	3.26
3/10/2000		-4.35	-0.10	-0.80	-1.40	-0.25	-0.40	-1.00	-0.75	1.33	4.59
3/17/2000		-4.65	-2.40	-1.15	-2.10	-0.50	-1.20	-2.10	-1.30	0.00	3.62
3/24/2000		-4.90	-2.60	-1.55	-2.35	-0.95	-1.55	-2.60	-1.60	0.00	1.82
3/31/2000		-4.90	-2.60	-1.05	-2.35	-0.45	-1.55	-2.90	-1.65	0.00	1.33
4/7/2000			-2.85	-1.75	-2.65	-1.15	-1.90	-3.15	-1.95	0.00	0.05
4/20/2000		-4.85	-2.55	-1.30	-2.30	-0.60	-1.50	-2.85	-1.65	0.81	0.81
5/3/2000			-2.95	-1.65	-2.75	-1.10	-2.00	-3.50	-2.10	0.00	0.81
12/21/2001	-5.25	-5.45	-3.25	-0.70	-3.15	-0.30	-2.20	-4.70	-2.55	0.08	1.00
12/31/2001	-5.15	-5.25	-2.90	-0.65	-2.80	-0.25	-1.70	-4.60	-2.05	0.32	0.94
1/14/2002	-5.30	-5.45	-3.55	-1.40	-3.35	-0.70	-2.35	-4.75	-2.65	0.00	0.64
1/28/2002	-5.30	-5.50	-3.45	-1.10	-3.30	-0.55	-2.30	-4.80	-2.50	0.00	0.72
1/31/2002	-5.30	-5.55	-3.60	-1.50	-3.40	-1.10	-2.45	-4.85	-2.75	0.29	0.29
2/15/2002	-5.30		-3.70	-1.75	-3.50	-1.15	-2.60	-4.90	-2.60	0.00	0.29
2/18/2002	-5.20		-3.30	-1.40	-3.20	-0.80	-2.15	-4.80	-2.50	0.16	0.57
3/4/2002	-5.15		-3.60	-1.85	-3.35	-1.30	-2.55	-4.75	-2.70	0.00	0.28
3/11/2002	-5.15	-5.45	-3.40	-1.50	-3.25	-0.85	-2.34	-4.70	-2.60	0.04	0.32
3/19/2002	-5.15		-3.55	-1.80	-3.35	-1.15	-2.40	-4.75	-2.70	0.13	0.29
3/27/2002	-5.20		-3.50	-1.55	-3.30	-1.00	-2.40	-4.70	-2.55	0.05	0.22

Table 6. Correlation (r) between cumulative rainfall prior to the date of the observation and the change in the water depth below the surface (WDBS) since the previous observation. Observations were generally made on weekly or biweekly intervals. Statistically significant ($p \leq 0.05$) correlations in bold. The proportion of the variability in water depth explained by rainfall (r^2) in parentheses.

Station	WDBS vs 7-Day Cumulative Rainfall	WDBS vs 30-Day Cumulative Rainfall
LSA 6	0.508	0.221
LSA 8	0.174	-0.325
LSA 9	0.787 (.62)	0.156
LSA 10	0.510 (.26)	0.115
LSA 12	0.588 (.35)	0.120
LSA13	0.390 (.15)	0.097
LSA 14	0.822 (.68)	0.209
LSA 15	0.897 (.80)	0.282
LSA 16	0.823 (.68)	0.213

Table 7. Water depth below the surface at Pacific Soil's monitoring wells. Where the water table is within the upper 12 inches of the soil column, the depth is indicated in bold type. PS-7 and PS-8 are next to the flood control channel at each end of WP, PS-12 is next to the flood control channel at the County parcel (CP), and PS 16 is on the slope above AP. Data for the 2005-2006 rain year are anomalous due to the lagged effects of the extraordinarily high precipitation of the previous year and are not included.

Date	PS-7 (Elev=1.7 ft)	PS-8 (Elev=1.3 ft)	PS-12 (Elev=1.8 ft)	PS-16 (Elev=3.4 ft)
12/1/1999	4.61	7.10	4.51	10.50
12/2/1999	4.68	5.32	2.87	10.50
12/8/1999	4.68	5.35	2.88	10.50
12/22/1999	4.55	3.59	2.67	10.50
1/25/2000	4.43	3.26	2.56	10.50
3/3/2000	2.88	1.21	0.21	10.22
3/31/2000	3.72	1.86	1.06	10.20
5/26/2000	3.27	2.53	1.81	10.50
7/19/2000	3.94	2.77	2.48	10.50
8/21/2000	4.07	2.38	2.37	10.30
9/29/2000	4.00	2.19	1.91	10.50
10/16/2000	4.04	2.29	2.47	
11/27/2000	4.18	2.10	2.22	
12/31/2000	4.10	2.18	2.17	
1/30/2001	3.61	1.84	2.08	
3/16/2001	2.05	1.43	1.18	
5/11/2001	3.35	2.22	1.18	
2/8/2002	2.90	3.08	1.69	
10/18/2002		3.79	2.21	
1/24/2003		3.67	2.04	
3/11/2003		2.69		
3/14/2003		8.42		
4/4/2003		5.71	1.31	
5/23/2003		2.80	1.78	
7/25/2003		2.15	2.16	
10/31/2004			2.06	
2/20/2004			1.78	
6/11/2004			1.64	
8/9/2004			1.76	

Table 8. Soil characteristics at potential wetlands within the agricultural field (AP and WP) and at various reference wetlands. CP is the former County parcel. The Upland samples were taken a few feet outside the area of wetland vegetation.

Variate	Descriptive Statistic	CP Upland (n=3)	CP Wetland (n=25)	AP (n=9)	WP (n=9)	Los Patos Seasonal Freshwater Wetland (n=2)	Fairview Seasonal Freshwater Wetland (n=3)	Banning Ranch Salt Marsh (n=3)
Clay (%)	Mean	23.8	28.3	21.0	35.8	30.0	44.8	32.7
	SE	1.0	2.1	1.9	1.0	4.0	1.5	1.9
pH	Mean	5.4	5.7	7.0	7.5	7.1	6.4	7.1
	SE	0.2	0.2	0.1	0.0	0.2	0.1	0.1
NH4 (ppm)	Mean	11.3	14.9	12.8	4.4	11.0	0.9	8.3
	SE	0.3	2.8	3.3	1.0	3.0	0.1	0.3
NO3 (ppm)	Mean	63.3	7.1	41.8	24.7	4.0	10.3	5.7
	SE	40.1	0.8	25.6	4.2	2.0	1.3	1.8
NH4/NO3	Mean	0.4	2.1	0.7	0.3	3.2	0.9	1.8
	SE	0.1	0.2	0.2	0.1	0.8	0.1	0.5
Total Organics (% dry wt)	Mean	9.5	7.1	5.8	1.0	0.7	1.7	2.0
	SE	0.9	0.8	0.8	0.1	0.3	0.2	0.2
TOC (%)	Mean	5.4	4.0	3.2	0.5	0.4	1.0	1.1
	SE	0.5	0.4	0.4	0.2	0.1	0.1	0.1
SAR	Mean	20.4	38.7	30.4	13.6	5.3	2.8	35.1
	SE	0.0	2.9	2.9	0.5	1.2	0.1	7.7
ECe (dS/m)	Mean	24.9	40.6	4.4	11.4	1.9	0.7	29.0
	SE	2.6	3.5	0.4	1.0	0.1	0.0	6.1
SO4 (me/l)	Mean	50.2	76.0	30.4	38.0	5.3	2.3	50.0
	SE	4.9	3.6	2.9	3.0	0.2	0.4	2.6
Fe (ppm)	Mean	810	787	225	31	79	89	160
	SE	84	128	35	2	12	11	54

APPENDIX A.

Tables A1 – A20: Photographic evidence of ponding (=flooding), and rainfall data for the period 1985 – 2000. All rainfall data from Los Alamitos Station (Number 170). There was no rainfall on dates not tabulated during the period October - March of each year. “Long duration” is defined as, “A flooding class in which the period of inundation for a single event ranges from 7 days to 1 month.” “Very long duration” is defined as, “A duration class in which the length of a single inundation event is greater than 1 month.”⁴⁴

⁴⁴ Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Stations, Vicksburg, Mississippi.

Table A1. Rainfall and inundation during the 2004-2005 Season. Inundation data from ground-level photographs (Bixby 2005). Extensive areas of WP and AP were continuously ponded during most of the winter (shaded periods). Based on the photographs and on the rainfall pattern and amount, it is likely that both WP and AP were continuously inundated for more than 30 days during the shaded period.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
10/01/04 – 10/16/04	0.0	-	-	-
10/17/04	2.46	Modest Pond (c. 15' x 25')	Large pond in field (c. 40' x 120'; probably equal area to E out of photo)	Long linear pond in field (c. 25' x 200')
10/18/04	0.12	-	-	-
10/19/04	0.0	Standing water only in ruts	Large pond in field	Pond much reduced (c. 15' x 20')
10/20/04	1.88	-	-	-
10/21/04	0.31	Modest Pond	Large pond in field	Large linear pond in field (c. 25' x 200')
10/22/04	0.0	-	-	-
10/23/04	0.0	Modest Pond	Large pond in field	Large linear pond in field (c. 15' x 100')
10/24/04 – 10/25/06	0.0	-	-	-
10/26/04	0.0	Pond nearly gone	Large pond in field	Pond much reduced (c. 15' x 20')
10/27/04	1.77	Larger pond (c. 15' x 45')	Large pond in field	Large linear pond in field (c. 40' x 250')
10/28/04	0.20	-	-	-
10/29/04	0.0	-	-	-
10/30/04		Modest pond	Large pond in field	Large linear pond in field (c. 25' x 100')
10/31/04	0.0	-	-	-
11/01/04	0.0	-	-	-
11/02/04	0.0	No standing water	Large pond in field	Pond much reduced (c. 25' x 20')
11/03/04 – 11/30/04	0.43	-	-	-
DEC	2.52	-	-	-
JAN	5.21	Periodically ponded, sometimes extensively	Continuously extensively ponded	Continuously ponded, generally extensively
FEB	7.35			
MAR	0.51			

Table A2. Rainfall and inundation during the 2003-2004 season. Shaded rainfall considered “near normal” for January or February. Inundation data from ground-level photographs (Bixby 2005). Shaded period is evidence of long duration inundation during near normal rainfall. Based the photographs, it is likely that WP was continuously inundated for 7 - 14 days during the shaded period. AP may have been ponded for fewer than 7 days.

Date	Rainfall	Former County Parcel “Pickleweed/Sea Blite Scrub” Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0	-	-	-
NOV	0.68	-	-	-
12/01/03 – 12/25/03	0.32	-	-	-
12/26/03	0.42	Modest Pond	Ponded or wet on road; little or no ponding in field	Ponded in furrows near bend in road
12/28/03	0	Pond reduced to ruts	Ponded or wet on road; little or no ponding in field	Ponded in furrows near bend in road
12/30/03	0	Pond reduced to ruts		
12/31/03	0		Ponded or wet on road; little or no ponding in field	No standing water
01/01/04	0	No surface water	Ponded or wet on road; little or no ponding in field	No standing water
01/03/04	0.34	Modest pond	Ponded or wet on road; little or no ponding in field	Ponded in furrows near bend in road
01/10/04	0	No surface water	Ponded or wet on road; little or no ponding in field	No standing water
01/19/04	0.01	-	-	-
02/03/04	0.58	Modest pond	Ponded or wet on road; little or no ponding in field	Ponded in furrows near bend in road
02/07/04	0	No standing water	Ponded or wet on road; little or no ponding in field	Ponded in furrows near bend in road
02/08/04	0	Muddy and glistening at surface	Ponded or wet on road; little or no ponding in field	Less extensive ponding
02/09/04	0	No standing water; not glistening at surface	Ponded or wet on road; little or no ponding in field	Less extensive ponding
02/13/04	0	-	-	-
02/19/04	0.26	Ponded mostly in ruts	Ponded or wet on road; little or no ponding in field	Very shallow surface water
02/22/04	0.31	Modest pond	-	-
02/23/04	0.18	Pond reduced	Ponded or wet on road; little or no ponding in field	No standing water
02/26/04	1.88	Modest pond	Extensive ponding in furrows in field	Large pond
02/28/04	0	Pond reduced	Extensive ponding in furrows in field	Pond reduced in size
03/01/04	0	Ponded in ruts	Extensive ponding in furrows in field	Appears saturated to surface, but not inundated
03/02/04	0.52	Ponded in ruts and depressions	Extensive ponding in furrows in field	Ponded in furrows
03/04/04	0	Ponded in ruts	Extensive ponding in furrows in field	Ponded in furrows but less extensive
03/06/04	0	Ponded in ruts	Extensive ponding in furrows in field	Ponded in furrows but less extensive
03/11/04		-	Minor ponding in furrows in field	-
03/13/04	0	-	Field is muddy & glistening at surface	-

Table A3. Rainfall and inundation during the 2002-2003 season. Inundation data from ground-level photographs (Bixby 2005). Shaded period is evidence of long duration inundation during near normal rainfall. Based on the photographs, it is likely that both WP and AP were continuously inundated for 7 - 14 days during the shaded period..

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.11	-	-	-
11/08/02 - 11/10/02	1.07	-	--	-
11/30/02	0.54	-	-	-
12/17/02	1.03	Pond (c. 12' x 15')	Recently plowed. Poned on (plowed) road and adjacent furrows in area c. 15' x 30'.	Poned in field at bend (c. 20' x 50')
12/18/02	0.21			
12/19/02	0	Pond (c. 15' x 20')	Mostly wet on surface; standing water in furrows	
12/20/02	0.62	Pond (c. 20' x 30')	Large area (c. 60' x 120') poned in furrows within field	Poned in field at bend & toward Eucalyptus (c. 40' x 150')
12/21/02	0.06	Pond (c. 20' x 30')	Large area (c. 60' x 120') poned in furrows within field	Poned in field at bend & toward Eucalyptus (c. 40' x 150')
12/22/02	0	Pond (c. 15' x 20')	Large area (c. 60' x 120') poned in furrows within field	Poned in field at bend & toward Eucalyptus (c. 40' x 150'); shallow water or glistening at surface
12/23/02	0	-	Inundated area appears much reduced in poor photo	Shallow standing water or glistening at surface in small area (c. 15' x 20') at bend.
12/24/02	0	Pond (c. 12' x 15')	Inundated area appears much reduced in poor photo; muddy and glistening at the surface in some areas	-
12/27/02	0	Shallow standing water mostly in ruts	Wet at surface; little standing water	No standing water
12/28/02	0	Muddy & glistening at surface; water in ruts	Muddy and glistening at the surface; standing water in furrows	Muddy & glistening at surface
12/29/02	0.08	Pond (c. 12' x 15')	Small patch with standing water in furrows	Muddy & glistening at surface; standing water in furrows
JAN	0.00			
01/04/03	0	-	-	Muddy & glistening at surface; standing water in furrows
02/01/03 - 02/10/03	0.00			
02/11/03 - 01/14/03	2.62			
02/15/03 - 02/24/03	0.00			
02/25/03 - 02/28/03	1.16			
03/04/03	0.15	-	-	-
03/15/03 - 03/16/03	3.19	-	-	-
03/20/03	0	-	Road nearly dry	-

Table A4. Rainfall and inundation during the 2001-2002 season. Inundation data from vertical aerial photograph (Homrighausen 2005). Based on rainfall pattern and amount, it is unlikely that WP or AP were continuously inundated for long duration during this season.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.00	-	-	-
NOV	0.89	-	-	-
DEC	0.94	-	-	-
JAN	0.29	-	-	-
FEB	0.28	-	-	-
MAR	0.22	-	-	-
APR	0.20	-	-	-
05/01/02 – 05/22/02	0.05	-	-	-
05/23/02	0.00	No ponds visible	No ponds visible	No ponds visible

Table A5. Rainfall and inundation during the 2000-2001 season. Inundation data from ground-level photographs (Bixby 2005). Lightly shaded period is evidence of long duration inundation during near normal rainfall. Based on rainfall pattern and amount, it is likely that WP and AP were continuously inundated for more than 30 days during February and March (dark shaded period).

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	2.71	-	-	-
NOV	0.01	-	-	-
DEC	0	-	-	-
01/01/01 – 01/08/01	0.00	-	-	-
01/09/01 – 1/13/01	2.47	-	-	-
01/14/01 – 01/23/01	0	-	-	-
01/24/01	0.12	-	-	-
01/25/01	0.29	-	-	-
01/26/01	0.21	-	-	-
01/27/01	0.32	-	-	-
01/28/01 – 01/30/01	0	-	-	-
01/31/01	0	No photographs available.	Road and large portion (c. 150' x 200') of adjacent field ponded	No photographs available.
02/01/01 – 02/09/01	0.00	-	-	-
02/10/01 – 02/14/01	2.67	-	-	-
02/15/01 – 02/19/01	0	-	-	-
02/20/01 – 02/28/01	3.62	-	-	-
03/01/01	0.14	-	-	-
03/06/01	0.46	-	-	-
03/07/01	0.07	-	-	-
03/10/01	0.13	-	-	-
03/12/01	0	No photographs available.	Large portion of field ponded	Very large area (c. 200 x 700') ponded
03/14/01	0	No photographs available.	Large portion of field ponded	Very large area (c. 200 x 700') ponded
03/18/01	0	No photographs available.	No photographs available.	Very large area (c. 200 x 700') ponded
03/23/01	0	No photographs available.	No photographs available.	Very large area (c. 200 x 700') ponded
03/28/01	0	No photographs available.	No photographs available.	Previously ponded area appears to be mud with scattered ponds

Table A6. Rainfall and inundation during the 1999-2000 season. Inundation data from ground-level photographs (Bixby 2005). Based on rainfall pattern and amount, it is unlikely that WP or AP were continuously inundated for long duration during this season.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.00	-	-	-
NOV	0.18	-	-	-
DEC	0.00	-	-	-
JAN	0.69	-	-	-
02/01/00	0.00	-	-	-
02/02/00	0.00	No ponds visible	No ponds visible	No ponds visible
02/03/00 – 02/10/00	0.00	-	-	-
02/11/00	0.40			
02/12/00	0.35			
02/13/00	0.00			
02/14/00	0.16			
02/15/00	0.00			
02/16/00	0.06			
02/17/00	0.28			
02/18/00 – 02/19/00	0.00			
02/20/00	0.15			
02/21/00	0.79			
02/22/00	0.46	-	-	-
02/23/00	0.12	-	-	-
02/24/00	0.43			
02/25/00 – 02/27/00	0.00			
02/28/00	0.06			
03/01/00 – 03/03/00	0.00	-	-	-
03/04/00 – 03/09/00	1.33	-	-	-
03/09/00 – 03/31/00	0.00	-	-	-

Table A7. Rainfall and inundation during the 1998-1999 season. Inundation data from vertical aerial photograph (Homrighausen 2005). Based on rainfall pattern and amount, it is unlikely that WP or AP were continuously inundated for long duration during this season.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.15	-	-	-
NOV	0.77	-	-	-
DEC	0.78	-	-	-
01/01/99 – 01/04/99	0.00	-	-	-
01/05/99	0.00	No ponds visible	No ponds visible	No ponds visible
01/06/99 – 01/19/99	0.00	-	-	-
01/20/99 – 01/31/99	1.09	-	-	-
FEB	0.79	-	-	-
MAR	1.37	-	-	-

Table A8. Rainfall and inundation during the 1997 – 1998 season. Inundation data from ground-level photographs (Bixby 2005). Lightly shaded period is evidence of long duration inundation during near normal rainfall. Based on rainfall pattern and amount, it is likely that WP and AP were continuously inundated for more than 30 days during this winter season (light and dark shaded periods).

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0	-	-	-
11/11/97 – 11/14/97	0.97	-	-	-
11/15/97 – 11/26/97	0	-	-	-
11/27/97	0.62	-	-	-
12/01/97	0.37	-	-	-
12/06/97	1.88	-	-	-
12/07/97	0.23	Large ponded area. Too distant in photograph to estimate size.	Road and large area (c. 150' x 250') in field ponded	No photographs available for this year
12/09/97	0.08	-	-	-
12/13/97	0	-	Ponding much reduced but still extensive areas of standing water within muddy field	-
12/18/97	0	-	Ponding much reduced but still extensive areas of standing water within muddy field	-
12/19/97	1.14	-	-	-
12/20/97	0	Large ponded area	-	-
12/21/97	0.28	-	-	-
12/22/97	0	-	Large ponds among furrows	-
01/05/98	0.11	-	-	-
01/06/98	0	-	Many scattered large ponds	-
01/09/98 – 01/11/98	0.85	-	-	-
01/12/98	0	Large ponded area	Large portions of field ponded within larger muddy area	-
01/13/98	0.09	-	-	-
01/14/98	0	-	Large portions of field ponded within larger muddy area	-
01/15/98	0	Pond present	-	-
01/17/98	0	Pond present	-	-
01/18/98	0	-	Large portions of field ponded within larger muddy area	-
01/19/98	0.14	Pond present	-	-
01/21/98	0	Scattered areas of standing water in muddy area	Large portions of field ponded within larger muddy area	-
1/30/98 – 1/31/98	0.51	-	-	-
FEB	8.56	Large pond on Feb 7; whole parcel appears inundated on Feb 12, 16, 19, & 26	Very large pond on Feb 1,5,10,16,19 & 26	-
MAR	2.51	-	Large pond on Mar 29	-

Table A9. Rainfall and inundation during the 1996 – 1997 season. Inundation data from oblique aerial photograph (Bixby 2005) and vertical aerial photograph (Homrighausen 2005). Based on the photographs and on rainfall pattern and amount, it is likely that WP and AP were continuously inundated for 15 - 30 days during the shaded period in January.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.77	-	-	-
11/01/96 – 11/20/96	0.00	-	-	-
11/21/96 – 11/22/96	2.00	-	-	-
11/23/96 – 11/30/96	0.00	-	-	-
12/01/96 – 12/09/96	0.16	-	-	-
12/10/96 – 12/12/96	2.22	-	-	-
12/13/96 – 12/22/96	0.00	-	-	-
12/23/96	0.16	-	-	-
12/24/96 – 12/27/96	0.00	-	-	-
12/28/81	0.42	-	-	-
12/29/96 – 12/31/96	0.00	-	-	-
01/01/97 – 01/03/97	0.43	-	-	-
01/04/97 – 01/05/97	0.00	-	-	-
01/06/97	0.12	-	-	-
01/07/97 – 01/12/97	0.00	-	-	-
01/13/97	1.65	-	-	-
01/14/97 – 01/15/97	0.00	-	-	-
01/16/97	0.85	-	-	-
01/22/97	0.51	-	-	-
01/23/97	0.38	-	-	-
01/24/97 – 01/25/97	0.00	-	-	-
01/26/97	0.81	-	-	-
01/27/97 – 01/28/79	0.00	-	-	-
01/29/97	0.00	Large pond in oblique aerial photograph in vicinity of palm tree	Entire WP area inundated	Not visible in photograph
02/01/97 – 02/13/97	0.12	-	-	-
02/14/97	0.00	-	Ponded	Not Ponded
02/15/97 – 02/28/97	0.00	-	-	-
MAR	0.00	-	-	-

Table A10. Rainfall and inundation during the 1995-1996 season. Inundation data from vertical aerial photograph (Homrighausen 2005). Based on rainfall pattern and amount, it is likely that WP and perhaps AP were continuously inundated for 7 - 14 days during the shaded period in February.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.00	-	-	-
NOV	0.04	-	-	-
12/01/95 – 12/14/95	0.69	-	-	-
12/15/95 – 12/22/95	0.00	-	-	-
12/23/95 – 12/24/95	0.59			
12/25/95 – 12/31/95	0.00	-	-	-
01/01/96 – 01/10/96	0.00	-	-	-
01/11/96	0.00	No ponds visible	No ponds visible	No ponds visible
01/12/96 - 01/16/96	0.0			
01/17/96 - 01/22/96	0.82			
01/28/96 - 01/31/96	0.48			
02/01/96 – 02/04/96	0.54	-	-	-
02/05/96 – 02/19/96	0.00	-	-	-
02/20/96 – 02/22/96	2.09	-	-	-
02/23/96 – 02/24/96	0.00	-	-	-
02/25/96 – 02/28/96	0.61	-	-	-
02/29/96	0.00	-	-	-
03/01/96 – 03/04/96	0.00	-	-	-
03/05/96	0.71	-	-	-
03/06/96 – 03/12/96	0.00	-	-	-
03/13/96	0.27	-	-	-
03/14/96 – 03/31/96	0.00	-	-	-

Table A11. Rainfall and inundation during the 1994-1995 season. Inundation data from a vertical aerial photograph (Homrighausen 2005). Based on the photographs and on rainfall pattern and amount, it is likely that WP and AP were continuously inundated for more than 30 days during the shaded period in January and in early February.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.11	-	-	-
NOV	0.47	-	-	-
DEC	0.85	-	-	-
01/01/95 – 01/02/95	0.00	-	-	-
01/03/95 – 01/05/95	5.32	-	-	-
01/06/95	0.00	-	-	-
01/07/95 – 01/12/95	4.01	-	-	-
01/13/95 – 01/15/95	0.00	-	-	-
01/16/95	0.11	-	-	-
01/17/95 – 01/20/95	0.00	-	-	-
01/21/95	0.30	-	-	-
01/22/95 – 01/23/95	0.00	-	-	-
01/24/95 – 01/26/95	1.99	-	-	-
01/27/95	0.00	-	-	-
01/28/95	0.00	Not Analyzed*	Ponded	Ponded
01/29/95 – 01/31/95	0.00	-	-	-
FEB	0.45	-	-	-
03/01/95 – 03/05/95	0.00	-	-	-
03/06/95	1.40	-	-	-
03/07/95 – 03/10/95	0.00	-	-	-
03/11/95 – 03/12/95	1.72	-	-	-
03/13/95 – 03/20/95	0.00	-	-	-
03/21/95 – 03/22/95	0.78	-	-	-
03/23/95 – 03/26/95	0.00	-	-	-
03/27/95	0.00	Not Analyzed*	Ponded	Ponded
03/28/95 – 03/31/95	0.00	-	-	-
		-	-	-

* LSA did not analyse this portion of the photograph; M.Bixby (2005) interpreted the photographs to show ponding in the County area.

Table A12. Rainfall and inundation during the 1993-1994 season. Inundation data from a vertical aerial photograph (Homrighausen 2005). Based on rainfall pattern and amount, it is unlikely that WP or AP were continuously inundated for long duration during this season.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.04	-	-	-
NOV	0.51	-	-	-
DEC	0.67	-	-	-
01/01/94 – 01/02/94	0.00	-	-	-
01/03/94	0.00	No ponds visible	No ponds visible	No ponds visible
01/04/94 – 01/27/94	0.00	-	-	-
01/28/94	0.28			
01/29/94 – 01/31/94	0.00			
02/01/94 – 02/03/94	0.00	-	-	-
02/04/94 – 02/05/94	0.56	-	-	-
02/06/94	0.00			
02/07/94 – 02/08/94	1.14			
02/09/94 – 02/16/94	0.00	-	-	-
02/17/94	0.47	-	-	-
02/18/94	1.01			
02/19/94	0.10			
02/20/94	0.97			
02/21/94	0.28	-	-	-
02/22/94 – 02/28/94	0.00			
MAR	0.00	-	-	-

Table A13. Rainfall and inundation during the 1992-1993 season. Inundation data from oblique aerial photograph (Bixby 2005). Based on the photographs and on rainfall pattern and amount, it is likely that WP and AP were continuously inundated for more than 30 days during the shaded period.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.37	-	-	-
NOV	0	-	-	-
12/01/92 - 12/06/92	0.0			
12/07/92 - 12/08/92	4.33			
12/11/92	0.12			
12/18/92	0.11			
12/28/92 - 12/31/92	0.92			
01/01/93 - 01/02/93	0.34			
01/06/93 - 01/08/93	3.30			
01/11/93 - 01/19/93	4.06			
01/31/93	0.39			
02/01/93 – 02/09/93	1.21	-	-	-
02/10/93	-	Large pond in oblique aerial photograph in vicinity of palm tree	Very large area at WP inundated	Large ponds visible but much less obvious than at WP
02/11/93 – 02/18/93	0.00	-	-	-
02/19/93 – 02/28/93	1.93	-	-	-
03/01/93 - 03/25/93	0.0			
03/26/93 - 03/31/93	1.61			

Table 14. Rainfall and inundation during the 1991-1992 season. Inundation data from an oblique aerial photograph (Bixby 2005). Based on rainfall pattern and amount, WP and probably AP were continuously inundated for 15 - 30 days during the shaded period in February and in early March.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.00	-	-	-
NOV	0.06	-	-	-
DEC	1.59	-	-	-
01/01/92 - 01/02/92	0.00			
01/03/92 - 01/08/92	1.52			
01/09/92 - 01/31/92	0.00			
02/01/92 - 02/06/92	0.00	-	-	-
02/07/92	1.03	-	-	-
02/08/92 - 02/09/92	0.00	-	-	-
02/10/92 - 02/16/92	3.43	-	-	-
02/17/92 - 02/29/92	0.00	-	-	-
03/01/92	0.00	-	-	-
03/02/92 - 03/03/92	0.51	-	-	-
03/04/92	0.00	Not clear in oblique aerial photograph	Ponding apparent along flood control channel	Not clear in oblique aerial photograph
03/05/92	0.00			
03/06/92	0.18			
03/07/92 - 03/19/92	0.00			
03/20/92 - 03/23/92	1.65			
03/24/92 - 03/26/92	0.00			
03/27/92	1.01			
03/28/92 - 03/31/92	0.00			

Table A15. Rainfall and inundation during the 1990-1991 season. Inundation data from a vertical aerial photograph (Homrighausen 2005). Based on rainfall pattern and amount, it is likely that WP and AP were continuously inundated for 7 - 14 days during March (shaded period).

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.00	-	-	-
NOV	0.32	-	-	-
DEC	0.08	-	-	-
01/01/91 – 01/02/91	0.00	-	-	-
01/03/91 – 01/05/91	1.04	-	-	-
01/06/91 – 01/09/91	0.00	-	-	-
01/10/91	0.35	-	-	-
01/11/91 – 01/13/91	0.00	-	-	-
01/14/91	0.00	No ponds visible	No ponds visible	No ponds visible
01/15/91 – 01/31/91	0.00	-	-	-
02/01/91 – 02/27/91	0.00	-	-	-
02/28/91	1.38	-	-	-
03/01/91 – 03/02/91	1.48	-	-	-
03/03/91 – 03/13/91	0.18	-	-	-
03/14/91	0.32	-	-	-
03/15/91 – 03/18/91	0.00	-	-	-
03/19/91 – 03/21/91	1.35	-	-	-
03/22/91 – 03/24/91	0.00	-	-	-
03/25/91 – 03/28/91	1.71	-	-	-
03/29/91 – 03/31/91	0.00	-	-	-

Table A16. Rainfall and inundation during the 1989-1990 season. Inundation data from a vertical aerial photograph (Homrighausen 2005). Based on rainfall pattern and amount, it is unlikely that WP or AP were continuously inundated for long duration during this season.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.51	-	-	-
NOV	0.11	-	-	-
DEC	0.00	-	-	-
JAN	1.51	-	-	-
02/01/90 – 02/04/90	0.00	-	-	-
02/05/90	0.33	-	-	-
02/06/90 – 02/16/90	0.00	-	-	-
02/17/90 – 02/18/90	1.39	-	-	-
02/19/90 – 02/28/90	0.00	-	-	-
03/01/90 – 03/03/90	0.00	-	-	-
03/04/90 – 03/05/90	0.04	-	-	-
03/06/90 – 03/10/90	0.00	-	-	-
03/11/90 – 03/12/90	0.08	-	-	-
03/13/90 – 03/14/90	0.00	-	-	-
03/15/90	0.00	No ponds visible	No ponds visible	No ponds visible
03/16/90 – 03/31/90	0.00	-	-	-

Table A17. Rainfall and inundation during the 1988-1989 season. Inundation data from a vertical aerial photograph (Homrighausen 2005). Based on rainfall pattern and amount, it is unlikely that WP or AP were continuously inundated for long duration during this season.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.00	-	-	-
NOV	0.69	-	-	-
12/01/88 – 12/15/88	0.00	-	-	-
12/16/88 – 12/23/88	0.97	-	-	-
12/24/88	0.00	-	-	-
12/25/88	1.20	-	-	-
12/26/88 – 12/31/88	0.00	-	-	-
12/27/88 – 12/31/88	0.00	-	-	-
01/01/89 – 01/29/89	0.45	-	-	-
01/30/89	0.00	No ponds visible	No ponds visible	No ponds visible
01/31/89	0.00	-	-	-
FEB	0.76	-	-	-
MAR	0.62	-	-	-

Table A18. Rainfall and inundation during the 1987-1988 season. Inundation data from a vertical aerial photograph (Homrighausen 2005). Based on rainfall pattern and amount, it is unlikely that WP or AP were continuously inundated for long duration during this season.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.48	-	-	-
NOV	1.30	-	-	-
DEC	1.16	-	-	-
01/01/88 – 01/03/88	0.30	-	-	-
01/04/88 - 01/16/88	0.00	-	-	-
01/17/88 - 01/18/88	1.27	-	-	-
01/18/88 – 01/23/88	0.00	-	-	-
01/24/88	0.00	No ponds visible	No ponds visible	No ponds visible
01/25/87 – 01/31/87	0.00	-	-	-
FEB	0.67	-	-	-
MAR	0.27	-	-	-

Table A19. Rainfall and inundation during the 1986-1987 season. Inundation data from a vertical aerial photograph (Homrighausen 2005). Based on rainfall pattern and amount, it is unlikely that WP or AP were continuously inundated for long duration during this season.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.10	-	-	-
NOV	0.64	-	-	-
DEC	0.45	-	-	-
01/01/87 – 01/03/87	0.00	-	-	-
01/04/87 – 01/07/87	1.57	-	-	-
01/08/87	0.00	-	-	-
01/09/87	0.00	No ponds visible-	No ponds visible	No ponds visible
01/10/87 – 01/20/87	0.00	-	-	-
01/21/87	0.00	No ponds visible	No ponds visible	No ponds visible
01/22/87 – 01/31/87	0.04	-	-	-
FEB	0.79	-	-	-
MAR	0.50	-	-	-

Table A20. Rainfall and inundation during the 1985-1986 season. Inundation data from a vertical aerial photograph (Homrighausen 2005). Based on rainfall pattern and amount, it is likely that WP and AP were continuously inundated for 15 - 30 days during the shaded period of February and March.

Date	Rainfall	Former County Parcel "Pickleweed/Sea Blite Scrub" Wetland (LSA)	South-Central Depression at Channel Berm (WP)	Western Depression (AP)
OCT	0.03	-	-	-
11/01/85 – 11/10/85	0.00	-	-	-
11/11/85 – 11/12/85	0.79	-	-	-
11/13/85 – 11/24/85	0.00	-	-	-
11/25/85	0.83	-	-	-
11/26/85 – 11/28/85	0.00	-	-	-
11/29/85 – 11/30/85	1.47	-	-	-
DEC	0.34	-	-	-
01/01/86 - 01/07/86	0.43			
01/08/86 - 01/29/86	0.00			
01/30/86 - 01/31/86	0.70			
02/01/86	0.53	-	-	-
02/02/86 – 02/07/86	0.00	-	-	-
02/08/86	0.41	-	-	-
02/09/86 – 02/12/86	0.00	-	-	-
02/13/86 – 02/16/86	3.01	-	-	-
02/17/86 - 02/18/86	0.00			
02/19/86 - 02/20/86	0.07			
02/20/86 – 02/28/86	0.00	-	-	-
03/01/86 – 03/08/86	0.05	-	-	-
03/09/86 – 03/18/86	2.60			
03/19/86	0.00	Ponded	Large Pond	Large Pond
03/20/86 – 03/31/86	0.00			

APPENDIX B.

Tables B1 – B27: Photographic evidence of ponding, and rainfall data for the period 1958 – 1985 with LSA's narrative interpretation (from Homrighausen, 2005). Shading and comments added.

Table B1: Rainfall and Inundation during the 1958–1959 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 25	1.35		
Nov 12	0.02		
Dec	0.00		
Jan 6	0.71		
Jan 17	photo	Definitely no inundation in photo	Definitely no inundation in photo
Feb 7–12	0.61		
Feb 16–17	1.14		
Feb 19	0.06		
Feb 21–22	1.00		
Mar	0.00		
Mar 24	Photo	Obscured	Probable inundation observed in photo; does not match with rainfall data preceding date of photo
Apr 26	0.66		
Total	5.55		

The only large concentration of rain (2.2 inches) fell over a period of seven days, following a very dry fall and early winter. Photo evidence of inundation one month after this concentration is likely an indication of damp soil rather than inundation. Based on Dixon analysis of similar low rainfall years, inundation for more than 14 days is unlikely in both the WP and AP.

JDD Comment: Based on rainfall pattern and amount, it is unlikely that topographic depressions were continuously inundated for long duration this season.

Table B2: Rainfall and Inundation during the 1959–1960 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct	0.00		
Nov 2	0.05		
Dec 8–9	0.12		
Dec 21	0.36		
Dec 24–25	1.43		
Jan 10–12	0.92		
Jan 15	0.99		
Jan 26	0.13		
Feb 2	1.09		
Feb 8–9	0.45		
Feb 29	0.81		
Mar 2	0.02		
Mar 29	0.18		
Apr 24	0.10		
Apr 27	1.20		
May 4	00.04		
May 7	Photo	Definitely no inundation	Definitely no inundation
Total	7.89		

Concentrated rain events were relatively light and separated by at least two weeks in most cases. Photo provides evidence that there was no inundation 10 days after the last significant rain of the season. Therefore, inundation in both the WP and AP areas is unlikely.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for long duration during and after the shaded period in January. Following 1.79 inches of rainfall in the last 10 days of December, the 1.91 inches of rainfall from January 10-15 probably resulted in at least 7 days but less than 14 days of inundation.

Table B3: Rainfall and Inundation during the 1960–1961 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct	0.00		
Nov 4	0.21		
Nov 6–7	0.62		
Nov 13–14	0.26		
Nov 27	0.52		
Dec 2	0.09		
Jan 25–27	0.64		
Feb	0.00		
Mar 15	0.16		
Mar 25	0.18		
Mar 28	0.03		
Apr 23	0.02		
Total	2.73		

No photos were available for this season. The very low rainfall, spread throughout the season, likely did not result in inundation in either the WP or AP.

JDD Comment: Based on rainfall pattern and amount, it is unlikely that topographic depressions were continuously inundated for long duration this season.

Table B4: Rainfall and Inundation during the 1961–1962 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct	0.00		
Nov 14–15	0.23		
Nov 25–26	0.60		
Dec 2–3	0.95		
Dec 14–15	0.23		
Jan 13	0.25		
Jan 20–23	1.59		
Jan 25	Photo	Photo shows no inundation	Inundation likely
Feb 8–12	3.76		
Feb 14	0.05		
Feb 16	1.27		
Feb 19–22	1.84		
Mar 6	0.29		
Mar 19	0.59		
Mar 21	0.07		
Mar 23	0.06		
May 15–16	0.26		
May 27	0.08		
Total	12.52		

The early part of the season was characterized by low, well-distributed rainfall. One heavy concentration of rain in a 15-day period (6.92 inches) likely produced inundation in the AP area. However, the photo shows no inundation in the WP two days after a significant rain (1.59 inches), and other photos of this period show no inundation in the WP area at any time. Therefore, it is likely that no depression existed.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 15 - 30 days during the shaded period in February and March.

Table B5: Rainfall and Inundation during the 1962–1963 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct	0.00		
Nov	0.00		
Dec 17	0.01		
Jan	0.00		
Feb 1–2	0.23		
Feb 9–11	3.78		
Feb 13	0.14		
Mar 15	0.05		
Mar 17–18	0.85		
Mar 20	Photo	Photo indicates no inundation	Inundation likely
Mar 23	0.48		
Mar 28–29	0.90		
Apr 8	0.01		
Apr 15	0.08		
Apr 17	0.11		
Total	7.43		

Extremely low rainfall early in the season, with one large event in mid-February, followed by a month of no rain, and then a series of smaller storms. It is likely that the AP area was inundated for some period but also likely that the inundation dissipated fairly rapidly, based on the well-documented dissipation rate of inundation following a similar amount of rain from 10/17 to 10/21 in 2004. Thus, inundation probably occurred, but the area actually inundated for more than 14 days was likely small. There is evidence that there was no inundated depression in the WP area during this period.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 7 - 14 days during the shaded period in February and March.

Table B6: Rainfall and Inundation during the 1963–1964 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 16	0.28		
Oct 21	0.01		
Nov 7	0.43		
Nov 12	0.01		
Nov 16	0.39		
Nov 20	1.44		
Dec 9	0.01		
Jan 19	0.17		
Jan 21–22	0.51		
Feb	0.00		
Mar 2	0.09		
Mar 13	0.04		
Mar 23–24	0.79		
Apr 1	0.55		
Apr 19	0.02		
May 5	0.05		
Total	4.79		

No photos available, but very low rainfall throughout the season likely resulted in no inundation in either area.

JDD Comment: Based on rainfall pattern and amount, it is unlikely that topographic depressions were continuously inundated for long duration this season.

Table B7: Rainfall and Inundation during the 1964–1965 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 20	Photo	Photo shows No Inundation	Photo shows No Inundation
Oct 28–29	0.10		
Nov 9	0.43		
Nov 11–12	0.18		
Nov 17–18	0.60		
Dec 19–21	0.40		
Dec 23	0.02		
Dec 27–29	0.97		
Dec 31	0.02		
Jan 7–8	0.20		
Jan 24	0.24		
Feb 6–7	0.22		
Feb 10	Photo	Photo shows no inundation	Photo shows no inundation
Mar 7	0.28		
Mar 12–13	0.38		
Mar 15	0.58		
Mar 31	0.04		
Apr 1	1.29		
Apr 1	Photo	Photo shows no inundation	Photo clearly shows inundation probably as a result of rain on the same day the photo was taken
Apr 2	0.14		
Apr 3	1.00		
Apr 4	0.67		
Apr 8–10	1.47		
Apr 13	0.11		
Total	9.42		

Rainfall very low through fall and winter, with one concentrated period of 4.69 inches in the last day of March and the first 10 days of April. Due to the lack of previous saturation and the lateness in the season, it is likely that percolation and evaporation dissipated the inundation in the AP area in approximately two weeks. Furthermore, there is no evidence of any depression in the WP area, even during a significant rain event that resulted in clear inundation in the AP area.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 7 to 14 days during the shaded period in April.

Table B8: Rainfall and Inundation during the 1965–1966 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct	0.00		
Nov 15–18	2.82		
Nov 22–23	1.83		
Nov 25	0.40		
Dec 9–10	0.91		
Dec 12–16	0.90		
Dec 29–31	1.12		
Jan 30–31	0.94		
Feb 2	0.23		
Feb 6–7	0.93		
Mar 2	0.06		
Mar 25	0.25		
Apr	0.00		
May 9	0.07		
Total	10.46		

No photos available. Over 5 inches of rain fell in the last half of November, followed by 1.8 inches in early December and another inch at the end of December. Therefore, it is likely that some degree of inundation for two weeks took place in the AP area, at least in concentrated lower spots. The only other large storm occurred at the end of January. No depression in the WP area is visible in other photos from the decade, and inundation likely did not occur there.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 15 - 30 days during the shaded period in November and December.

Table B9: Rainfall and Inundation during the 1966–1967 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 3	0.02		
Nov 4	0.02		
Nov 7–8	1.02		
Nov 14	0.02		
Nov 21	0.02		
Dec 3–7	3.83		
Jan 16	0.02		
Jan 22–25	2.90		
Jan 31	0.05		
Feb	0.00		
Mar 4–5	0.16		
Mar 11	0.12		
Mar 13–14	0.44		
Mar 31– Apr2	0.85		
Apr 5	0.27		
Apr 11–12	0.40		
Apr 19–22	1.21		
Apr 24	0.32		
Apr 29	0.05		
Total	11.72		

No photos. Two events were likely to cause short-term inundation in the AP area: 3.8 inches over four days in early December and 2.9 inches over four days in late January. All other significant rain events occurred earlier or later in the season. Based on the documented dissipation of inundation following three inches of rain in four days in the February 2004, the AP area was likely inundated for approximately two weeks following the major events in December or January, since these were approximately 45 days apart. The WP area showed no evidence of ponding during this decade.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 7 to 14 days during and after the shaded periods in December and January.

Table B10: Rainfall and Inundation during the 1967–1968 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct	0.00		
Nov 19–22	1.99		
Nov 28–29	0.18		
Dec 1	0.25		
Dec 8	0.06		
Dec 19–20	0.83		
Jan 2	0.02		
Jan 11	0.10		
Jan 27–28	0.23		
Jan 31	0.11		
Feb 10	0.05		
Feb 13–14	0.22		
Feb 17	0.01		
Mar 8	1.97		
Mar 14	0.06		
Mar 17	0.07		
Apr 2	0.59		
May 12	0.02		
Total	6.76		

No photos. There were only two large events during the season; each was less than two inches and were separated by nearly four months. Inundation in either area is highly unlikely.

JDD Comment: Based on rainfall pattern and amount, it is unlikely that topographic depressions were continuously inundated for long duration this season.

Table B11: Rainfall and Inundation during the 1968–1969 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct	0.21		
Nov	0.35		
Dec	1.11		
Jan 19–22	4.82		
Jan 24–28	3.72		
Feb	5.04		
Mar	0.98		
Apr	0.34		
May	0.07		
Total	17.93		

No photos. Inundation is likely in many areas based on intense rainfall over a nine-day period in January. There is still no evidence of a depression in the WP area, but inundation is presumed.

JDD Comment: February rainfall was as follows: 2/5-7 0.66"; 2/16 0.17"; 2/18-20 0.66"; 2/22-26 3.55". Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for more than 30 days during the shaded period in January and February.

Table B12: Rainfall and Inundation during the 1969–1970 Rainfall Season

Date	Rainfall (inches)	WP	AP
Sep	0.00		
Oct	0.00		
Oct 4	Photo	Photo shows no inundation	Photo shows no inundation
Nov 7	1.58		
Nov 10	0.03		
Nov 16	0.03		
Dec 2	0.02		
Dec 9	0.04		
Jan 10	0.86		
Jan 12	0.41		
Jan 16–17	0.74		
Jan 24	0.02		
Jan 31	Photo	Photo indicates inundation unlikely	Photo indicates inundation likely
Feb 10–11	0.93		
Mar 1–2	0.87		
Mar 5	0.74		
Total	6.27		

Photos are available, but not definitive. Inundation for long periods is extremely unlikely based on the low amount and wide temporal distribution of rain. These data provide evidence that features identified in aerial photos as potential inundation are more likely darker soils, possibly indicative of somewhat higher soil moisture.

JDD Comment: Based on rainfall pattern and amount, it is unlikely that topographic depressions were continuously inundated for long duration this season.

Table B13: Rainfall and Inundation during the 1970–1971 Rainfall Season

Date	Rainfall (inches)	WP	AP
Sep	0.00		
Oct	0.00		
Nov 25–26	0.28		
Nov 29–30	2.73		
Dec 3	0.17		
Dec 9	0.23		
Dec 14	0.03		
Dec 17–23	3.45		
Jan 2	0.67		
Jan 13–14	0.17		
Feb 17	0.60		
Feb 20	0.01		
Feb 20	Photo	Photo shows evidence of no inundation	Photo obscured
Feb 20	Photo	Photo obscured	No consensus on photo interpretation
Mar 13	0.19		
Apr 5	Photo	Photo shows evidence of no inundation	Photo shows probability of no inundation
Apr 14–15	0.52		
May 7–8	0.29		
May 27–28	0.10		
Total	9.46		

Timing of photos after the largest events in November and December is not helpful. If inundation occurred, it was likely following the late December storm period, since some saturation occurred prior in late November. Although photos do not corroborate this, inundation is assumed in the AP area. Still no evidence of a depression in the WP area.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 7 to 14 days during the shaded period in December and January.

Table B14: Rainfall and Inundation during the 1971–1972 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 16	0.12		
Nov 12	0.14		
Dec 3–4	0.45		
Dec 13	0.27		
Dec 22–29	3.25		
Jan	0.00		
Feb 5	0.03		
Feb 29	0.01		
Mar 1	0.01		
Apr 14	Photo	Photo obscured	Photo obscured
Apr 20	0.08		
Apr 29	Photo	Indicates probable lack of inundation	Indicates probable lack of inundation
Apr 29	Photo	Indicates probable inundation	Indicates probable lack of inundation
May 20	0.01		
Total	4.37		

Timing of photos is not very helpful. Based on very low rainfall total, length of time between large rain events in December, and photos in April, it is very unlikely that inundation was present in April. A probable lack of inundation as indicated by photo interpretation could be considered more conclusive. Some inundation likely occurred in late December, but due to very low rainfall before and after that date it is unlikely that inundation for longer than two weeks occurred in either area. This is the first indication of a depression in the WP area.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 7 to 14 days during and after the shaded period in December.

Table B15: Rainfall and Inundation during the 1972–1973 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 4	0.01		
Oct 19–20	0.14		
Oct 25	0.01		
Nov 8	0.01		
Nov 11	0.35		
Nov 14–17	3.06		
Nov 24	Photo	Photo indicates no inundation	Photo indicates no inundation
Dec 4–5	0.65		
Dec 7–9	0.57		
Jan 6	Photo	Photo indicates no inundation	Photo indicates inundation unlikely
Jan 9–10	0.54		
Jan 17	1.12		
Jan 19	0.43		
Jan 31	0.57		
Feb 4–8	1.54		
Feb 11–13	1.85		
Feb 28	0.48		
Mar	0.00		
Apr 6–9	0.82		
Apr 11–12	0.24		
Apr 20	0.71		
Apr 22	0.21		
Apr 26	0.06		
Total	13.37		

Photo dates are very helpful in this season. Quite conclusive photo evidence that there was no inundation seven days after the end of a seven-day period in November that produced 3.41 inches of rain. The area was likely dry, and rain percolated quickly in the first part of the rainy season. Similar rainfall amounts occurred over a slightly longer period in the first half of February followed by under a half inch in late February and then a completely dry March. Based on this evidence, inundation for more than two weeks following rain events likely did not occur.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 7 to 14 days during the shaded period in January and February.

Table B16: Rainfall and Inundation during the 1973–1974 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 9	0.05		
Oct 17	0.01		
Oct 23	0.07		
Oct 26	Photo	Photo indicates no inundation	Photo indicates no inundation
Nov 17–18	0.95		
Nov 23	0.82		
Dec 2	0.07		
Dec 22	0.18		
Jan 1	0.09		
Jan 4–5	1.47		
Jan 7–10	2.6		
Jan 17	0.16		
Jan 21	0.11		
Jan 31	0.01		
Feb 20	0.01		
Mar 2–5	2.6		
Mar 8–9	1.49		
Mar 27	0.24		
Apr 2	0.22		
Total	9.47		

Timing of photos is not helpful. Rain fell throughout the year, but there were 2 one-week periods (in early January and early March) when just over four inches of rain fell. Inundation may have occurred in both the AP and WP areas, but a determination of the length of the ponding would be very speculative. The existence of a depression in WP area has not been conclusively demonstrated at this time.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 7 to 14 days during and after the shaded periods in January and March.

Table B17: Rainfall and Inundation during the 1974–1975 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 28–29	0.25		
Nov 22	0.01		
Dec 4–5	3.28		
Dec 9	Photo	Probable inundation	Probable inundation
Dec 28–29	0.80		
Jan 31	0.14		
Feb 3–4	0.99		
Feb 9–10	0.63		
Feb 17	Photo	No inundation	Probably no inundation
Mar 5–6	0.63		
Mar 8–11	0.97		
Mar 14	0.10		
Mar 17	0.07		
Mar 22	0.32		
Apr 1	0.02		
Apr 6–7	0.78		
Apr 15–16	0.24		
Apr 25	0.05		
Total	9.28		

Timing of photos is helpful in this season. December 9 photo shows inundation in both areas four days after a major storm event. However, based on a similar situation with strong photographic evidence in 1972–1973, inundation probably did not last for two weeks. The rest of the season likely did not produce sufficient, concentrated rain to cause long-term inundation.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 7 - 14 days during and after the shaded period in December.

Table B18: Rainfall and Inundation during the 1975–1976 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 7	0.07		
Oct 11–12	0.18		
Oct 31	0.05		
Nov 27–29	0.27		
Dec 13	0.04		
Dec 21	0.05		
Feb 4–8	1.26		
Feb 10–11	0.65		
Feb 21	Photo	No Inundation	No Inundation
Mar 1–3	0.58		
Mar 22	Photo	No Inundation	No Inundation
Apr 4–5	0.68		
Apr 12–13	0.34		
Apr 21	0.04		
Jun 4	Photo	No Inundation	No Inundation
Total	4.21		

February 21 photo was taken 10 days after the largest rainy period in the season (1.91 inches from February 4–11) confirming that no inundation occurred this year.

JDD Comment: Based on rainfall pattern and amount, it is unlikely that topographic depressions were continuously inundated for long duration this season.

Table B19: Rainfall and Inundation during the 1976–1977 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 4	0.03		
Nov 12	1.20		
Nov 19	0.02		
Dec 28	Photo	No Inundation	No Inundation
Dec 31–Jan 1	0.36		
Jan 3	0.62		
Jan 6–7	1.37		
Jan 21	0.27		
Jan 27	0.09		
Feb 24–25	0.37		
Mar 14	Photo	No Inundation	No Inundation
Mar 16–17	0.60		
Mar 25–26	0.46		
May 8–10	2.00		
May 12–13	0.02		
May 24	0.09		
Total	7.50		

Photos dates relative to rainfall are not very helpful here. Rainfall is relatively low this season with no large events except in May (2 inches), which would have dissipated fairly rapidly. Inundation is unlikely in either area.

JDD Comment: Based on rainfall pattern and amount, it is unlikely that topographic depressions were continuously inundated for long duration this season.

Table B20: Rainfall and Inundation during the 1977–1978 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct	0.00		
Nov	0.00		
Dec 18	0.26		
Dec 26–29	2.13		
Jan 4–7	2.07		
Jan 10–11	1.59		
Jan 15	1.22		
Jan 17	0.73		
Jan 19–20	0.64		
Jan 31	0.04		
Feb 5–10	4.36		
Feb 13–14	1.37		
Feb 27–28	0.18		
Mar 1–6	3.85		
Mar 10	0.2		
Mar 12	0.21		
Mar 23	0.23		
Mar 31–Apr 2	0.64		
Apr 5	0.14		
Apr 16	0.61		
Apr 25	0.01		
Total	20.48		

No photos. Very heavy rain in the early part of the season likely saturated soils, and large events in February and the first part of March likely resulted in long inundation in both the WP and AP areas.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for more than 30 days during the shaded winter period.

Table B21: Rainfall and Inundation during the 1978–1979 Rainfall Season

Date	Rainfall (inches)	WP	AP
Sept	0.00		
Oct 31	0.06		
Nov 12	0.17		
Nov 14	0.95		
Dec 14	Photo	No Inundation	Probable Inundation
Dec 17–19	0.99		
Jan 5–6	1.42		
Jan 10	0.26		
Jan 15–16	0.96		
Jan 19	0.15		
Jan 31–Feb 3	3.21		
Feb 14	0.72		
Feb 21–23	0.57		
Mar 1–2	0.08		
Mar 13	0.03		
Mar 11–17	0.25		
Mar 19–21	0.60		
Mar 27–29	1.75		
Total	12.17		

Given the relatively low amount of rainfall leading up to the photo date of December 14 and the length of time after the last rain, the indication of probable ponding in the AP is likely a “false positive” due to dark soils. The only large rainfall event at the end of January (3.21 inches) is well-separated from other major events, possibly allowing time for dissipation of any inundation that occurred, similar to the 1972–1973 season, when 3.06 inches dissipated within one week. However, in this case, there was considerably more rain prior to the 3.21 inches, which may have produced higher soil moisture and slowed percolation. Inundation in both areas may have occurred for more than two weeks but probably not significantly more.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 15 - 30 days during and after the shaded period in January and February.

Table B22: Rainfall and Inundation during the 1979–1980 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 20–21	0.20		
Nov 8	0.46		
Dec 21	0.09		
Dec 25	0.18		
Jan 7–14	4.17		
Jan 18	0.06		
Jan 28–30	2.17		
Feb 14–19	5.89		
Feb 21–22	0.85		
Feb 25	Photo	No Inundation	Probable Inundation
Mar 4	0.46		
Mar 6–7	0.91		
Mar 11	0.04		
Mar 27	0.46		
Apr 23	0.32		
Apr 29–30	0.12		
Total	16.38		

Photo of February 25 conclusively shows no inundation in the WP area and suggests that inundation occurred in the AP area for a considerable time, likely two weeks or more, due to the large amount of rain (over 13 inches) that fell in a little over a month leading up to the photo date.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for more than 30 days during the shaded period in January and February.

Table B23: Rainfall and Inundation during the 1980–1981 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct–Nov	0.00		
Dec 4–5	1.86		
Jan 11–12	0.21		
Jan 31	Photo	No Inundation	Probably No Inundation
Jan 23	0.16		
Jan 28–30	1.36		
Feb 9	0.77		
Feb 26	0.23		
Mar 1–2	1.62		
Mar 5–6	1.27		
March 15	Photo	Probable Inundation	Probable Inundation
Mar 20	0.27		
Apr 18–19	0.22		
May 27	0.01		
Total	7.98		

Inundation for two weeks unlikely due to low amount and relatively wide temporal distribution of rain. March 15 photo indication of probable inundation would be expected due to possible remnants of inundation after nine days and damp soil resulting from 2.9 inches of rain during the first week of the month. Likely at least AP area was ponded for 15 days or more in March.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 15 - 30 days during the shaded period in March.

Table B24: Rainfall and Inundation during the 1981–1982 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct 1–2	0.40		
Oct 8	0.08		
Oct 29	0.15		
Nov 4	0.19		
Nov 26–28	2.42		
Dec 21	0.07		
Dec 30–Jan 2	1.14		
Jan 6	0.07		
Jan 7	Photo	No Inundation	Probably No Inundation
Jan 20–22	0.49		
Jan 29	0.06		
Feb 7–8	0.09		
Feb 10–11	0.29		
Mar 2–3	0.16		
Mar 12	0.19		
Mar 14–15	0.16		
Mar 17–18	1.81		
Mar 26–27	0.30		
Mar 29–30	0.47		
Apr 1–2	0.57		
Apr 12	0.07		
May 5	0.07		
Total	9.64		

No very large rain concentration. Any inundation from the largest event in November (2.42 inches) likely dissipated rapidly in the absence of additional rain for nearly a month. Several storms in the last half of March and first two days of April (3.31 inches) likely percolated and evaporated relatively quickly due to lateness in the season.

JDD Comment: Based on rainfall pattern and amount, it is unlikely that topographic depressions were continuously inundated for long duration this season.

Table B25: Rainfall and Inundation during the 1982–1983 Rainfall Season

Date	Rainfall (inches)	WP	AP
Oct	0.21		
Nov	2.28		
Dec	0.84		
Jan	2.06		
Feb 3	0.57		
Feb 6–7	0.47		
Feb 13	0.06		
Feb 19	Photo	Probable Inundation	Probable Inundation
Feb 19	0.01		
Feb 24–28	1.61		
Mar 7	4.08		
Mar 14	0.18		
Mar 17–19	2.28		
Mar 21	0.24		
Mar 23–24	0.46		
Mar 28	0.10		
Apr 11	0.01		
Apr 14	Photo	Inundation Not Likely	Inundation Not Likely
Apr 15–30	1.79		
May 1	0.32		
May 11	Photo	No Inundation	Inundation Not Likely
Total	17.57		

February 19 photo may indicate actual inundation but more likely damp soil from moderate rains in November and January and lighter rain in first week of February. Extremely heavy rain in March (7.34 inches) likely produced extended inundation in both areas but seems to have dissipated by the middle of April.

JDD Comment: Rainfall in January was as follows: 1/19 0.03"; 1/22-23 0.76"; 1/25 0.14; 1/27-29 1.13". Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 7 - 14 days during the shaded period in January and February and for more than 30 days during the shaded period in February and March.

Table B26: Rainfall and Inundation during the 1983–1984 Rainfall Season

Date	Rainfall (inches)	WP	AP
Sept	0.00		
Oct 1	1.22		
Oct 5	0.35		
Oct 7	0.07		
Nov 2	0.54		
Nov 11–13	0.91		
Nov 20–21	0.30		
Nov 25	0.63		
Dec 2	0.06		
Dec 4	0.24		
Dec 10	0.14		
Dec 25–28	1.04		
Jan 11	0.01		
Jan 17	0.23		
Mar 6	0.06		
Apr 6	0.67		
Apr 19	0.16		
May 28	Photo	No Inundation	No Inundation
Total	6.63		

Photo date is not helpful for this season, but low rainfall, with only two events greater than one inch, likely produced no inundation in either area.

JDD Comment: Based on rainfall pattern and amount, it is unlikely that topographic depressions were continuously inundated for long duration this season.

Table B27: Rainfall and Inundation during the 1984–1985 Rainfall Season

Date	Rainfall (inches)	WP	AP
Sept	0.00		
Oct 12	0.03		
Oct 17	0.30		
Nov 8	0.14		
Nov 12	0.03		
Nov 17	0.07		
Nov 25	0.62		
Dec 3	0.09		
Dec 8–9	0.65		
Dec 11	0.71		
Dec 16	0.34		
Dec 18–20	1.86		
Dec 27–28	1.26		
Jan 7–8	0.75		
Jan 29	0.54		
Feb 2	0.40		
Feb 9	0.88		
Feb 21	0.01		
Mar 8	0.11		
Mar 19	0.17		
Mar 27	0.12		
Apr 3	Photo	No Inundation	No Inundation
Total	9.04		

Relatively low rainfall year with wide temporal distribution. Total of just over three inches in the last half of December may have produced short-term inundation but likely dissipated before January 7 rain, which was followed by 20 days without rain. Long-term inundation not likely in either area.

JDD Comment: Based on rainfall pattern and amount, it is likely that topographic depressions were continuously inundated for 15 - 30 days during and after the shaded period in December. The 1.70 inches of rain during December 8-16 probably saturated the soil, leading to long duration ponding as a result of the heavy rain in the last half of December.

Table B28: Summary of Inundation for Each Season

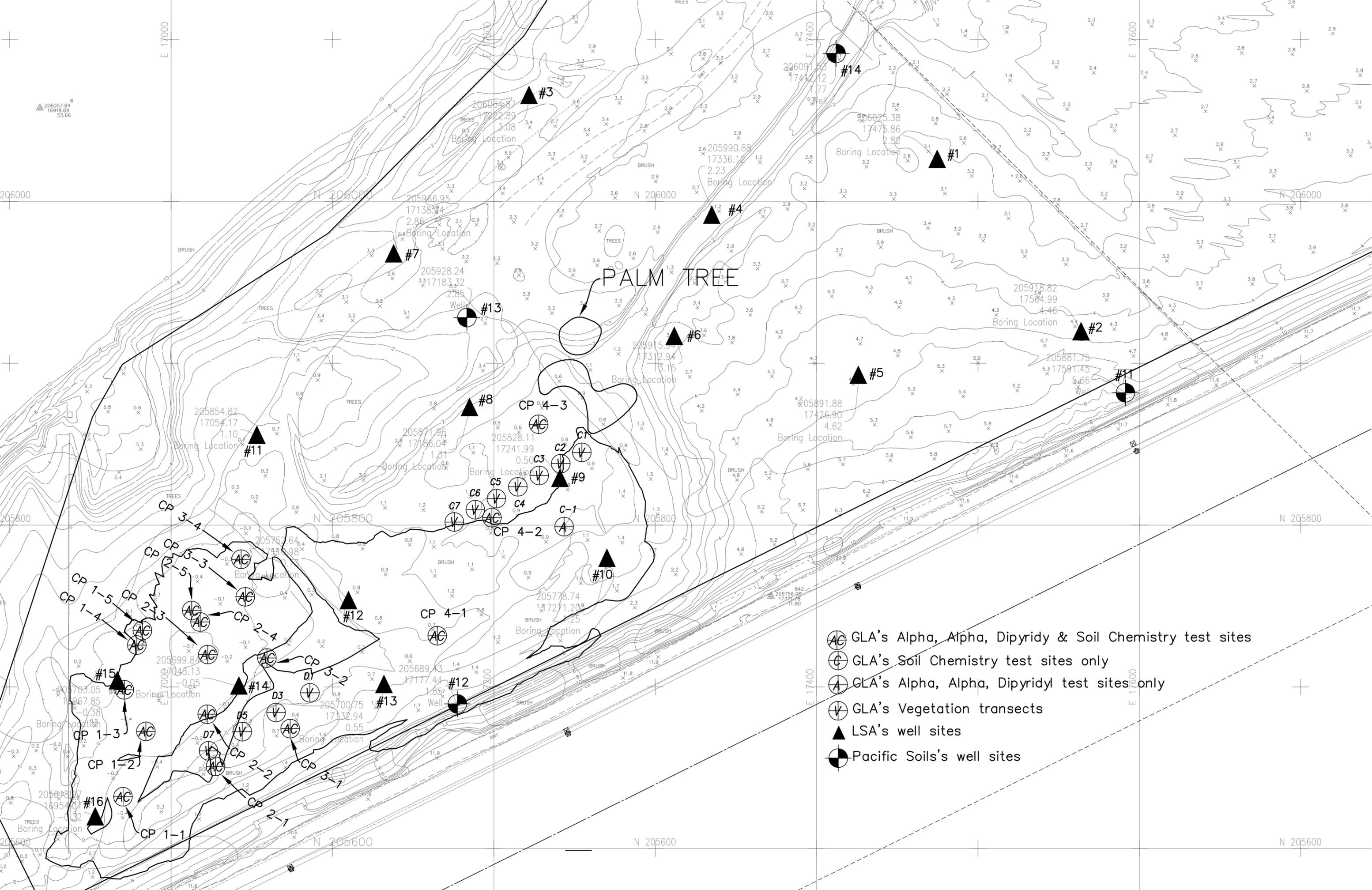
Season	Inundation Likely			
	WP		AP	
	Y	N	Y	N
58-59		x		x
59-60		x		x
60-61		x		x
61-62		x	x	
62-63		x	x*	
63-64		x		x
64-65		x	x*	
65-66		x	x	
66-67		x	x*	
67-68		x		x
68-69		x	x	
69-70		x		x
70-71		x	x	
71-72		x		x
72-73		x		x
73-74	x*		x*	
74-75		x		x
75-76		x		x
76-77		x		x
77-78	x		x	
78-79	x*		x*	
79-80		x	x	
80-81		x		x
81-82		x		x
82-83	x		x	
83-84		x		x
84-85		x		x
Subtotal	4	23	12	15
Summary From Dixon Analysis	11	10	11	10
Total	15	33	23	25

*Indicates that total length of likely inundation was approximately two weeks, which means that inundation remaining after two weeks was likely confined to small depressions.

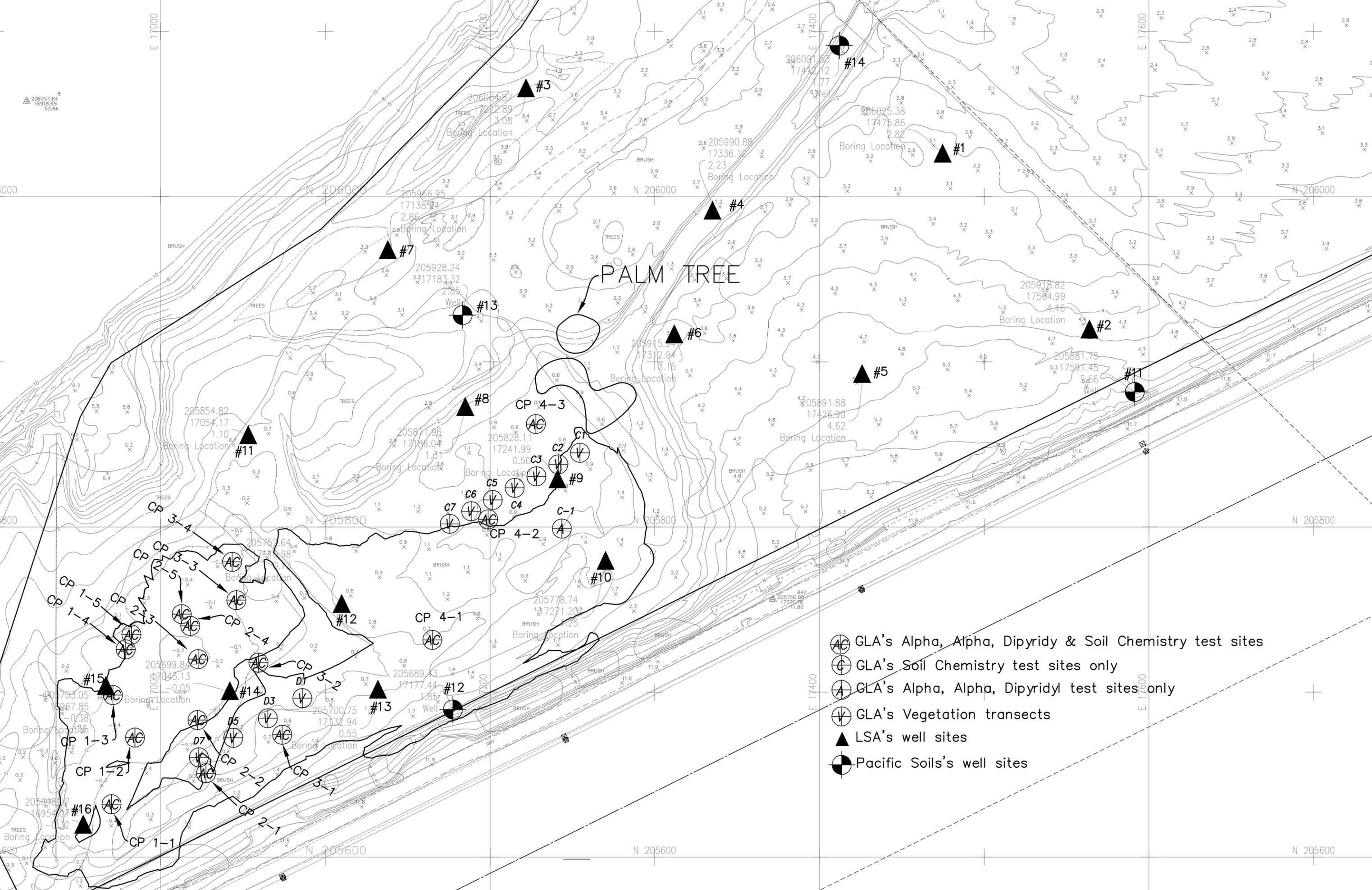
JDD Comment: Based on the data in Table B23 and the associated narrative, the "Yes" columns should have been checked for "80-81," resulting in more than 14 days of continuous inundation during 13 years at AP and during 5 years at WP, as estimated by LSA. For the period 1985 - 2005, my current estimate (Table 1, above) is that continuous inundation for at least 7 days occurred at AP during 11 years and at WP during 12 years.

. Dixon memorandum to M. Vaughn dated 07/27/06 re wetlands on Shea Homes Property

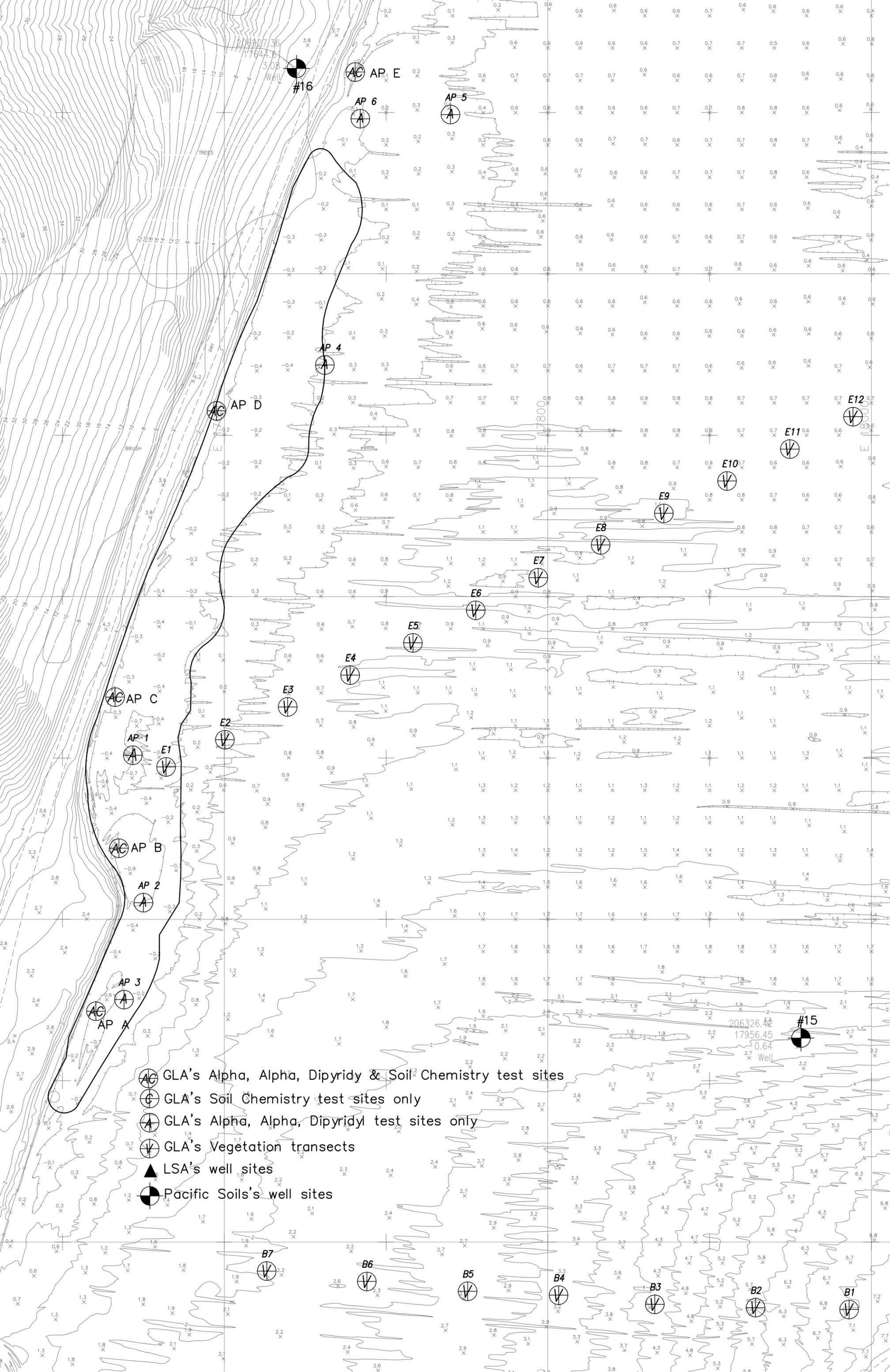
Figures 9, 10 and 11 follow



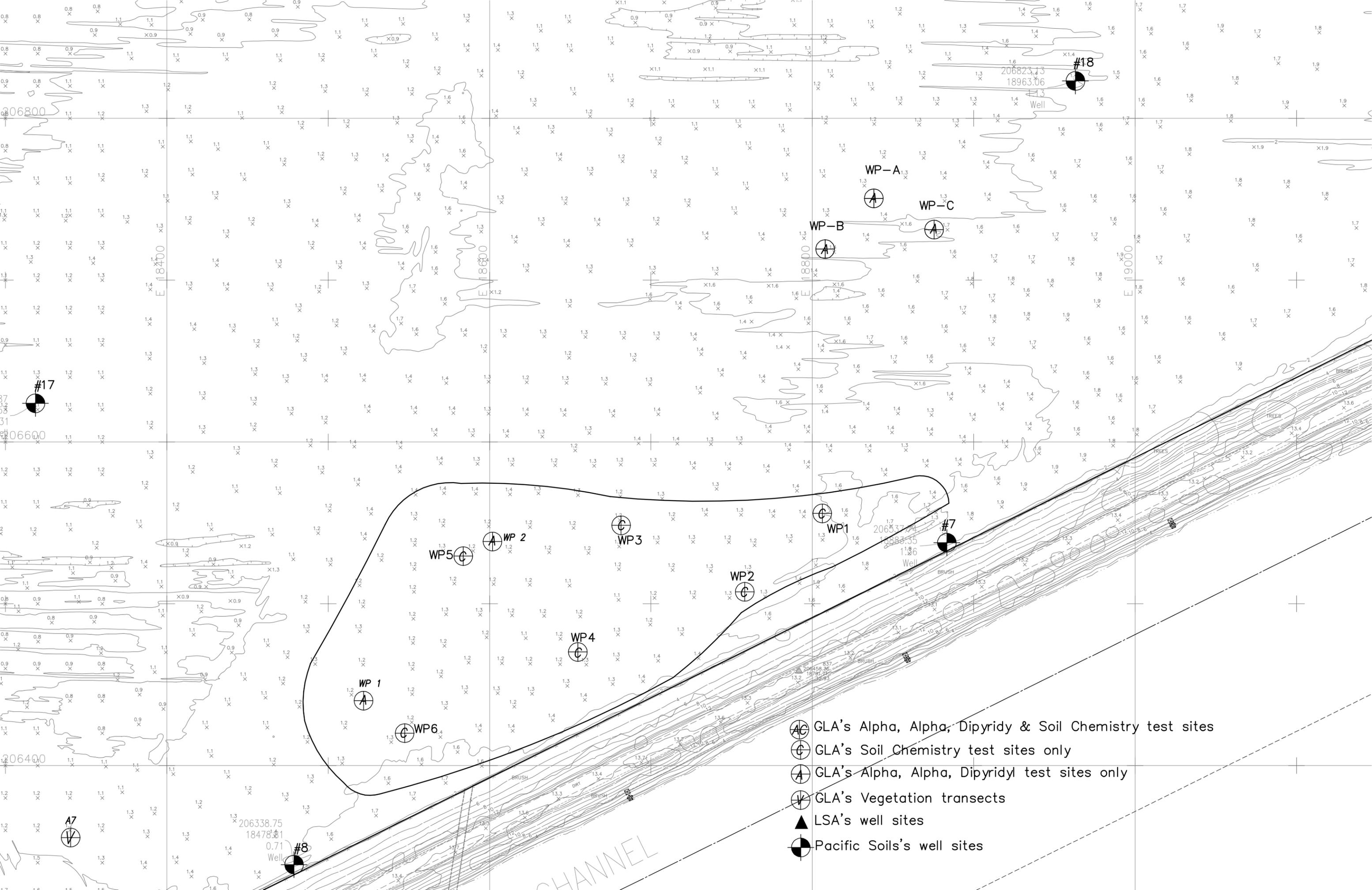
PALM TREE



- ⊗ AC GLA's Alpha, Alpha, Dipyriddy & Soil Chemistry test sites
- ⊕ GLA's Soil Chemistry test sites only
- ⊙ A GLA's Alpha, Alpha, Dipyriddy test sites only
- ⊕ V GLA's Vegetation transects
- ▲ LSA's well sites
- ⊗ Pacific Soils's well sites



- 
 GLA's Alpha, Alpha, Dipyridyl & Soil Chemistry test sites
- 
 GLA's Soil Chemistry test sites only
- 
 GLA's Alpha, Alpha, Dipyridyl test sites only
- 
 GLA's Vegetation transects
- 
 LSA's well sites
- 
 Pacific Soils's well sites



- ⊕ GLA's Alpha, Alpha, Dipyridyl & Soil Chemistry test sites
- ⊕ GLA's Soil Chemistry test sites only
- ⊕ GLA's Alpha, Alpha, Dipyridyl test sites only
- ⊕ GLA's Vegetation transects
- ▲ LSA's well sites
- Pacific Soils's well sites

CALIFORNIA COASTAL COMMISSION

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August 3, 2006

T 8c**ADDENDUM**

To: Commissioners & Interested Persons

From: South Coast District Staff

Re: Commission Meeting of Tuesday, August 8, 2006, Item T 8c, Huntington Beach LCP Amendment 1-06 (Parkside), Huntington Beach, Orange County.

Staff recommends the Commission adopt the following changes to the staff report:

Additions are shown in ***bold, italic, underline***

Deletions are shown ~~struck through~~

I. Suggested Modifications

The following changes to the suggested modifications should be made:

1. Make the following revisions and/or corrections in **Suggested Modification No. 5** (new subarea 4-K table):

Subarea	Characteristic	Standards and Principles
4-K	Permitted Uses	Categories: Residential Low Density (RL-7) Open Space Conservation (OS-C) Open Space Parks (OS-P) See Figure C-6a
	Density/Intensity	Low Density Residential Maximum of seven (7) dwelling units per acre.

Design and Development	See Figure C-6a	<p>A development plan for this area shall include, consistent with the land use designations and Coastal Element policies, the following features:</p> <ol style="list-style-type: none">1. A Public Access Plan, including, but not limited to the following features:<ul style="list-style-type: none">❖ Class I Bikeway (paved off-road bikeway; for use by bicyclists, walkers, joggers, roller skaters, and strollers) along the north levee of the flood control channel. If a wall between residential development and the Bikeway is allowed it shall include design features such as landscaped screening, non-linear footprint, decorative design elements and/or other features to soften the visual impact as viewed from the Bikeway.❖ Public <i>vista point</i> view park with views to the Bolsa Chica and ocean consistent with Coastal Element policies C 4.1.3, C 4.2.1, and C 4.2.3.❖ All streets shall be ungated, public streets available to the general public for parking, vehicular, pedestrian, and bicycle access.❖ Public access trails to the Class I Bikeway, public parks and to and within the subdivision, connecting with trails to the Bolsa Chica area and beach beyond.❖ Public access signage.❖ Provision of a public view park providing views to the Bolsa Chica area and ocean beyond.❖ When privacy walls associated with residential development are located adjacent to public areas, visual impacts created by the walls shall be minimized through measures such as landscaped screening, use of an undulating or off-set wall footprint, or decorative wall features (such as artistic imprints, etc.), or a combination of these measures2. Habitat Management Plan for all ESHA, wetland, and buffer areas <i><u>that provides for their perpetual conservation and management.</u></i>3. Archeological Research Design consistent with Policies C5.1.1, C5.1.2, C5.1.3, C5.1.4, and C5.1.5 of this Coastal Element.4. Water Quality Management Program consistent with the Water and Marine Resources policies of this Coastal Element. To the extent feasible, Natural Treatment Systems are preferred.
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5. Pest Management Plan that, at a minimum, prohibits the use of rodenticides, pesticides, and herbicides **throughout the development.**
6. Landscape Plan for non-habitat and non-buffer **areas** uses that ~~establishes only non-~~ **prohibits the planting, naturalization, or persistence of** invasive **plants, and encourages,** low-water use plants, **and plants** primarily native to coastal Orange County, shall be used.
7. Biological Assessment of the entire site.
8. Wetland delineation of the entire site.
9. Domestic animal control plan that details methods to be used to prevent pets from entering the ESHA, wetland, and buffers areas.
10. Hazard Mitigation and Flood Protection Plan, including but not limited to, the following features:
 - ❖ Demonstration that site hazards including flood and liquefaction hazards are mitigated;
 - ❖ Assurance of the continuance of the wetlands.

Residential:

Residential development, including appurtenant development such as roads and private open space, is not allowed within any wetland, ESHA, or required buffer areas.

All ~~on-site work~~ **development** shall assure the continuance of the wetlands.

Open Space Conservation:

A. Wetlands:

Only those uses described in Coastal Element Policy C 6.1.20 shall be allowed within wetlands.

All ~~on-site work~~ **development** shall assure the continuance of the wetlands.

Wetland Buffer Area:

A buffer area is required along the perimeter of the wetlands and is required

to be of sufficient size to ensure the biological integrity and preservation of the wetland the buffer is designed to protect.

A minimum buffer width of 100 feet shall be established.

Uses allowed within the wetland buffer are limited to:

- 1) those uses allowed within wetlands per Coastal Element Policy C 6.1.20; and,
- 2) ~~restored wetland area that does not require any regular maintenance or disturbance, in conjunction with a water quality Natural Treatment System serving the Parkside site. However, no portion of the Natural Treatment System that requires periodic disturbance or contains roadways shall be allowed within 100 feet of wetlands.~~
- 2) No active park uses (e.g. tot lots, playing fields, picnic tables, bike paths, etc.) shall be allowed within 100 feet of wetlands.

B. Environmentally Sensitive Habitat Areas:

Only uses dependent on the resource shall be allowed.

Environmentally Sensitive Habitat Areas (ESHA)

Buffers:

A buffer area is required along the perimeter of the ESHA and is required to be of sufficient size to ensure the biological integrity and preservation of the ESHA the buffer is designed to protect.

A minimum buffer width of 100 meters (**328 feet**) shall be established.

Uses allowed within the ESHA buffer are limited to:

- 1) uses dependent on the resource;
- 2) habitat restoration and management;
- 3) restored wetland area for use in conjunction with a water quality Natural Treatment System is allowed up to within ~~5~~ **100** feet of the ESHA;
- 4) water quality Natural Treatment System, except that any portion of the treatment wetlands that require periodic disturbance or contain roadways shall be limited to the outer third of the buffer area.
- 5) In addition to the 100 meter ESHA buffer, grading shall be prohibited within 500 feet of an occupied nest during the breeding season (considered to be from February 15 through August 31).

C. Habitat Management Plan shall be prepared for all areas designated

		<p>Open Space Conservation.</p> <p>D. <u>Protective Fencing</u>: Protective fencing or barriers shall be installed along any interface with developed areas, to deter human and pet entrance into all restored and preserved wetland and ESHA buffer areas.</p> <p><u>Open Space Parks:</u></p> <p>Uses permitted by the Open Space Parks land use category; except that, no uses other than those allowed in Coastal Element Policy C 6.1.20 and restored wetland area, shall be allowed within 100 feet of a wetland or within 100 meters of an environmentally sensitive habitat area.</p>
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2. Make the following changes to **Suggested Modification No. 7**

Replace the suggested modification language in the staff report with the following suggested modification language:

The northwestern side of the Bolsa Chica Ecological Reserve includes bluffs that rise to an upland area known as the Bolsa Chica Mesa. These bluffs are primarily under the County's jurisdiction (only a small part of the bluff lies in the City) but are within the City's Sphere of Influence for potential future annexation. The mesas constitute a significant scenic resource within the City's coastal Zone. **The 50 acre site (located west of and adjacent to Graham Street and north of and adjacent to the East Garden Grove Wintersburg Orange County Flood Control Channel) known as the "Parkside" site affords an excellent opportunity to provide a public vista point in the southwest corner. A public vista point in this location would provide excellent public views of the Bolsa Chica and ocean. Use of the public view park will be enhanced with construction of the Class I bike path along the flood control channel and public trails throughout the Parkside site.**

3. Make the following changes to **Suggested Modification No. 8** (the entire section is to be added, but only the changes are highlighted below):

Parkside Eucalyptus ESHA and Wetlands (See Figure C 6a)

Historically, this site was part of the extensive Bolsa Chica Wetlands system. As of 2006, three wetland areas were recognized at the Parkside site, a 0.45 acre

wetland on the “former County parcel” in the southwest corner of the site, an 0.614 acre wetland near the base of the bluff near the western property line, and an 0.9515 acre wetland near the mid point of the southern property line near the East Garden Grove Wintersburg Flood Control channel. These wetland areas as well as their buffer areas are designated Open Space Conservation, and uses allowed within this area are limited.

In addition, on the site’s southwestern boundary, generally within at the base of the bluff area, is a grove line of Eucalyptus trees that continues offsite to the west. trees known as the Eucalyptus Grove. These trees are used extensively by raptors for nesting, roosting, and as a base from which to forage. The trees within this “eucalyptus grove” within and adjacent to the subject site’s southwestern boundary constitutes an environmentally sensitive habitat area (ESHA) due to the important ecosystem functions ~~they~~ they provide to a suite of raptor species. The Eucalyptus trees along the southern edge of the mesa trees are used for perching, roosting, or nesting by at least 12 of the 17 species of raptors that are known to occur at Bolsa Chica. Although it is known as the “eucalyptus grove”, it is important to note that the grove also includes several palm trees and pine trees that are also used by raptors and herons. None of the trees is part of a native plant community. Nevertheless, this eucalyptus grove has been recognized as ESHA by multiple agencies since the late 1970’s (USFWS, 1979; CDFG 1982, 1985) not because it is part of a native ecosystem, or because the trees in and of themselves warrant protection, but because of the important ecosystem functions it provides. Some of the raptors known to use the grove include the white tailed kite, sharp-shinned hawk, Cooper’s hawk, and osprey. Many of these species are dependent on both the Bolsa Chica wetlands and the nearby upland areas for their food. These Eucalyptus trees were recognized as ESHA by the Coastal Commission prior to its 2006 certification of this section of this LCP, most recently in the context of the Coastal Commission’s approval of the adjacent Brightwater development (coastal development permit 5-05-020). The Eucalyptus ESHA in the northwest corner is known to have supported a nesting pair of white tailed kites in the spring of 2005. Both the white tailed kites and the Cooper’s hawk are California Species of Special Concern.

The Eucalyptus grove in the northwest corner of the site, although separated from the rest of the trees by a gap of about 500 feet, provides the same type of ecological services as do the rest of the trees bordering the mesa. At least ten species of raptors have been observed in this grove and Cooper’s hawks, a California Species of Special Concern, nested there in 2005 and 2006. Due to the important ecosystem functions of providing perching, roosting and nesting opportunities for a variety of raptors, these trees also constitute ESHA.

Both the wetlands and Eucalyptus ESHA areas, as well as their required buffer areas, are designated Open Space Conservation to assure they are adequately

protected.

4. Add the following language to **Suggested Modification No. 10**, new policy C 2.4.7 (although the entire policy is to be added, only the change is highlighted below).

C 2.4.7

The streets of new residential subdivisions ***between the sea and the first preexisting public road*** shall be constructed and maintained as open to the general public for vehicular, bicycle, and pedestrian access, ~~G~~ general public parking shall be provided on all streets throughout the entire subdivisions. Private entrance gates and private streets shall be prohibited.

5. Make the following change to the **Implementation Plan Suggested Modification:**

Sectional District Map 28-5-11 (DM 33Z) of the City's Implementation Program (Zoning and Subdivision Ordinance) shall be modified to reflect the change in the City's corporate boundary and to accurately reflect the correct areas of the certified zoning (Open Space Conservation, Open Space Park, Residential Low Density) for the subject area as reflected in exhibit XX L of this staff report).

II. Findings

The following changes to the staff report findings should be made:

1. Site Description and History

On page 18, under the heading B. Site Description and History, change the second paragraph as follows:

The majority of the site is flat with elevations ranging from ~~just above~~ ***about 0.5 foot below mean*** sea level to approximately 2 feet above ***mean*** sea level. The western portion of the site is a bluff that rises to approximately 47 feet above sea level. Also, generally near the mid-point of the southerly property line is a mound with a height of just under ten feet. The flood control channel levee at the southern border is approximately 12 feet above ***mean*** sea level.

And on page 20, under the same heading, change the fifth paragraph (after the heading) as follows:

In addition, on the site's western boundary, generally ~~within~~ **along the base of** the bluff area, is ~~are a two~~ groves of **Eucalyptus** trees known as the Eucalyptus Grove. ~~This grove includes other types of trees as well as eucalyptus such as pines and palms.~~ The trees are used extensively by raptors for nesting, roosting, and as a base from which to forage.

2. Wetland

On page 24, in the section entitled "Denial of the Land Use Plan Amendment as Submitted," subsection 1 Wetland, made the following changes:

As indicated above, the only real criterion for an area to constitute a wetland under the Coastal Act and implementing regulations is that **the soil be inundated or saturated at a frequency and duration** ~~the water table be at a certain minimum elevation for a certain minimum length of time.~~ ~~However, the minimum elevation and length of time are defined as that elevation and duration necessary~~ "to promote the formation of hydric soils or to support the growth of hydrophytes." Thus, the presence of hydric soils and hydrophytes serve as evidence that this one criterion is satisfied. As a result, in practice, there are three indicators that are used to determine whether or not a wetland exists: the presence of hydrophytic vegetation, the presence of hydric soils, and the presence of wetland hydrology. The Commission finds an area to be wetland if any one of the three indicators is present.

The first indicator, hydrophytic vegetation, can usually be directly observed to determine whether an area constitutes a wetland. The second indicator, hydric soils, is considered to exist if anaerobic conditions have developed in the upper part of the soil column due to the presence of water during the growing season. This can usually be inferred from color patterns or from soil tests showing reducing conditions, but it is often less obvious than observations of vegetation. Other than observing the soils, one can consider **other** accepted field indicators for whether hydric soils are present such as whether the area ponds for seven days. Usually, the presence or absence of hydrophytes or hydric soils is the most useful method of determining whether a wetland exists. The third wetland indicator is hydrology – whether a site ponds for a certain length of time. However, the necessary length of time is not usually known. In addition, if a site ponds long enough to be a wetland, one or both of the other indicators are usually present as well. For those two reasons, vegetation and soils are the most commonly used indicators in identifying wetlands. However, those two indicators are not necessary as they do not actually define a wetland. Rather, an area is defined as a wetland based on whether it is wet enough long enough that it would support either of those two indicators.

Therefore, the removal of vegetation by permitted activities does not change a wetland to upland.

On page 29 of the same section and subsection, in the last paragraph, make the following changes:

In sum, as submitted, the LUP amendment does not adequately protect wetland resources as required by Coastal Act Sections 30233 and 30250. It therefore does not meet the requirements of, and is not in conformity with, ~~that~~ **these policies** and therefore must be denied.

3. **ESHA**

On page 29, in the section entitled “Denial of the Land Use Plan Amendment as Submitted,” subsection 2 Eucalyptus ESHA, make the following changes:

Add the following at the very beginning of the subsection:

Section 30107.5 of the Coastal Act states:

“Environmentally sensitive area” means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

On page 30, under the same section and subsection, make the following changes:

The subject site contains environmentally sensitive habitat area (ESHA). The trees in the “eucalyptus grove” within and adjacent to the subject site’s **southwestern** boundary **are have been recognized as** ESHA due to the important ecosystem functions they provide to a suite of raptor species. The trees are used for perching, roosting, or nesting by at least 12 of the 17 species of raptors that are known to occur at Bolsa Chica. Although it is known as the “eucalyptus grove”, it is important to note that the grove also includes several palm trees and pine trees that are also used by raptors and herons. None of the trees are part of a native plant community. Nevertheless, this eucalyptus grove has been recognized as ESHA for over 25 years (USFWS, 1979; CDFG 1982, 1985) not because it is part of a native ecosystem, or because the trees in and of themselves warrant protection, but because of the important ecosystem functions it provides. Some of the raptors found to be using the grove included the white tailed kite, sharp-shinned hawk, Cooper’s hawk, and osprey.

And

It should be noted that the Eucalyptus grove ESHA mapped by DFG in 1982, stops

abruptly along the extension of Bolsa Chica Street. However, the grove continues east from there and wraps around the base of the bluff at the western edge of the subject property (see exhibit L). There is, however, no functional distinction between the area of the grove to the west of the Bolsa Chica Street extension and the rest of the grove. Raptors and other wildlife use and benefit from the entire grove. The abrupt truncation is not consistent with actual wildlife use and the habitat function of the entire grove. Thus, there is no justification for treating only the western end of the grove as ESHA and not the entire grove. For these reasons, in 2005 the Commission finds **found** that the **trees throughout the** entire Eucalyptus grove **along the southern edge of the mesa** constitutes ESHA that must be protected. **The Commission has not previously considered the status of the portion of the Eucalyptus grove at the base of the mesa in the northwest corner of the Parkside site that is separated from the rest of the trees by a gap of about 500 feet. The trees at the base of the mesa at the northern boundary of the Shea Parkside property provide the same type of ecological services as do the rest of the trees bordering the mesa. The following species have been observed in the north grove: white-tailed kite, merlin, red-shouldered hawk, turkey vulture, great horned owl, barn owl, peregrine falcon, Cooper's hawk, red-tailed hawk, and osprey. Of these, red-tailed hawk, Cooper's hawk, osprey, barn owl, and turkey vulture have been observed perching or roosting and Cooper's hawks, a California Species of Special Concern, were observed to nest there in 2005 and 2006. The presence of an old nest thought to have been built by great horned owls suggests that the grove has also supported nesting birds of prey in previous years. Like the rest of the Eucalyptus groves, these trees provide opportunities to raptors for perching, roosting and nesting and for hunting and safe movement corridors. In recognition of the important ecosystem functions provided by Eucalyptus trees in the north grove, and in conjunction with the fact that the trees could be easily disturbed, degraded, or entirely destroyed by development, the Commission finds that they meet the definition of ESHA under the Coastal Act.**

Section 30240 requires that ESHA be protected from significant disruption of habitat values and only uses dependent on those resources are allowed within ESHA. Development adjacent to ESHA must be sited and designed to prevent impacts which would significantly degrade those areas. Section 30240 further requires that development be compatible with the continuance of those habitat and recreation areas. This policy is carried over into the City's certified LUP in the policies cited above. Although the area of the Eucalyptus ESHA in the southwest corner of the site is appropriately proposed to be designated Open Space Conservation, the area of the Eucalyptus ESHA located in the northwest corner of the site is proposed to be land use designated Open Space Parks. The Eucalyptus ESHA in the northwest corner is known to have supported a nesting pair of **Cooper's hawks** ~~white-tailed kites~~ in the spring of 2005 **and 2006**. In addition to the nesting kites, this area of the Eucalyptus ESHA provides similar roosting and perching opportunities for the suite

of raptors ***species***. The Open Space Parks designation allows uses such as tot lots, playing fields and bike paths. Such uses are not resource dependant and, as such, allowing these uses within the ESHA is inconsistent with Section 30240 of the Coastal Act. In addition, these active uses within the ESHA would likely cause significant disruption, also inconsistent with Section 30240. Therefore, as proposed, the amendment is inconsistent with the resource protection policies of the Coastal Act, and therefore must be denied as submitted.

On page 31, under the same section and subsection, make the following changes:

For purposes of establishing protective buffers, the eucalyptus grove ESHA boundary should be considered to fall along the drip line of the outermost trees of the grove (see exhibit ***L***). The specific area of an appropriate buffer is more difficult to quantify.

On page 33, under same section and subsection, make the following changes:

Active ***Passive recreational*** park uses may be acceptable within the outer third of the buffer, but ***neither passive nor active recreation is*** are not compatible uses any closer to the ESHA. ***Formalization of an existing passive nature trail within the buffer area would be considered acceptable if there is no biologically superior alternative.*** Thus, the Open Space Park designation within the ESHA and within the inner two thirds of the buffer zone are also inconsistent with Section 30240. Therefore, the Commission finds that the proposed amendment is inconsistent with Section 30240 which requires that ESHA be protected and so must be denied.

4. Public Access and Recreation

Under Section E. Approval of the Land Use Plan Amendment if Modified, sub-heading 5. Public Access and Recreation, add the following new paragraph after the last (third) paragraph:

The Commission recognizes there may be changes to the final acreage figure for the area designated Open Space – Parks. The land use designation Open Space – Parks may be applied anywhere on site that is not land use designated Open Space – Conservation. If there are changes to the acreage amount of Open Space – Parks, that change will not require a separate amendment to the LCP, provided none of the area conflicts with the Conservation designation.

III. Correspondence Received

Staff has received 36 letters opposed to the proposed LCP amendment. In addition, staff has received 959 form letter postcards opposed to the proposed LCP amendment.

One letter supporting the drainage and flood protection improvements associated with the related coastal development permit application has been received.

Samples of the letters are attached to this addendum.

IV. Additional Exhibits

The following additional exhibits should be included as part of the staff report. Exhibits M and N are attached. Exhibit L will be distributed separately.

- L. Site Map Showing Wetland and ESHA areas and their buffers
- M. Raptor Memo
- N. ADC Maps from Commission's 1982 Huntington Beach LUP staff report

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
 SAN FRANCISCO, CA 94105-2219
 VOICE AND TDD (415) 904-5200
 FAX (415) 904-5400



MEMORANDUM

FROM: John Dixon, Ph.D.
 Ecologist / Wetland Coordinator

TO: Meg Vaughn

SUBJECT: Raptor Habitat at Parkside

DATE: July 28, 2006

Documents reviewed:

Bomkamp, T. (Glenn Lukos Associates). May 29, 2004. Raptor usage and nesting study of the Parkside Estates property, City of Huntington Beach, Orange County, California. An updated letter report to R. Metzler (Shea Homes). Original report was dated January 7, 2004.

Harrison, J. (LSA). March 31, 2006. Memorandum to J. Dixon and M. Vaughn (CCC) re: "Response to Mark Bixby's raptor update."

LSA. May 11, 2006. Analysis of raptor use of the eucalyptus groves adjacent to Shea Homes Parkside Estates.

Bloom, P. (consulting zoologist). June 8, 2006. Letter report to M. Stirdivant (Bolsa Chica Land Trust) concerning raptor use of eucalyptus trees along the edge of the Bolsa Chica mesa and of adjacent areas.

Moore, K. (raptor biologist). July 13, 2006. Letter to J. Dixon (CCC) detailing field observations that were summarized in Bloom (2006), above.

The palm trees and eucalyptus trees that border the Bolsa Chica mesa have been considered important habitat for raptors by the resource agencies since at least 1979¹. On the early maps, the eucalyptus ESHA was truncated by a straight line along the extension of Bolsa Chica Street. This did not correspond with any natural feature and there is no functional distinction between the more-or-less continuous line of trees to the west and east of that line. The Coastal Commission has recognized the eucalyptus

¹ U. S. Fish and Wildlife Service. May 1979. U.S. Fish and Wildlife Service special report: Bolsa Chica Area. Prepared by Ecological Services, Laguna Niguel, California; California Department of Fish and Game (CDFG). June 3, 1982. Environmentally sensitive areas at Bolsa Chica.

HNB LCPA 1-00
 Parkside

Exhibit M

1/2

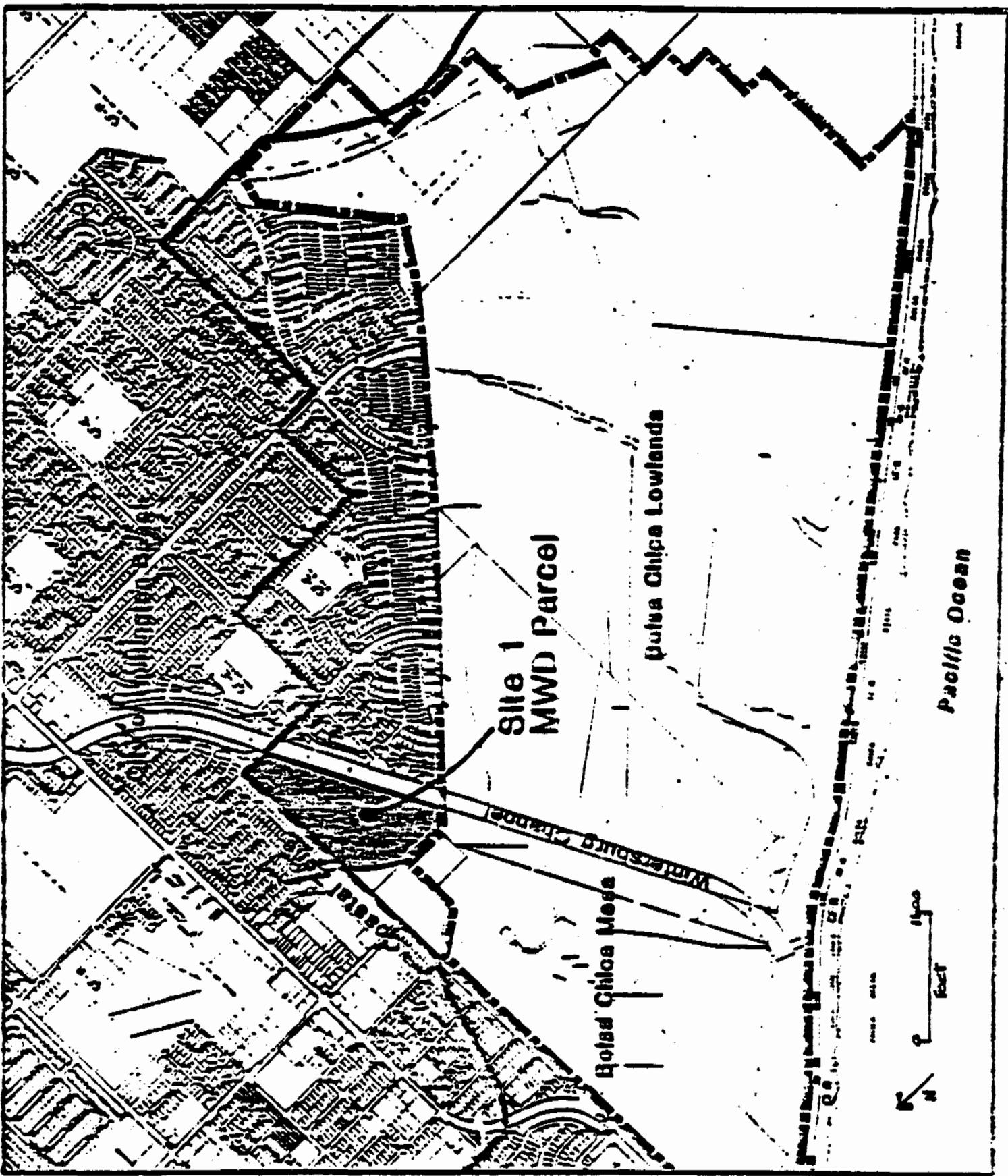
trees, including the line of trees that extends east of Bolsa Chica Street², as an Environmentally Sensitive Habitat Area (ESHA) because of the important ecological functions they provide to many species of raptors and other birds of prey who use the trees for perching, roosting and nesting and for hunting and safe movement corridors.

The grove of eucalyptus trees at the base of the mesa at the northern boundary of the Shea Parkside property provides the same type of ecological services as do the rest of the trees bordering the mesa. The following species have been observed in the north grove: white-tailed kite, merlin, red-shouldered hawk, turkey vulture, great horned owl, barn owl, peregrine falcon, Cooper's hawk, red-tailed hawk, and osprey. Of these, red-tailed hawk, Cooper's hawk, osprey, barn owl, and turkey vulture have been observed perching or roosting and Cooper's hawks were observed to nest there in 2005 and 2006. The presence of an old nest thought to have been built by great horned owls suggests that the grove has also supported nesting birds of prey in previous years. LSA (2006) calculates that 26% of the raptor observations made by local citizens were in the north grove. However, LSA suggests that this is a reason why the north grove should not be considered ESHA. Other reasons are: 1. "primary" use of the north grove is limited to red-tailed hawks (a common species) and Cooper's hawks (a species "adapted" to residential development); 2. several other species are adapted to urban settings; 3. the entire eucalyptus grove is not natural; 4. raptor predation of other sensitive bird species in the lowlands is a problem; 5. there is heavy human pedestrian traffic around the north grove. Most of these objections to eucalyptus ESHA were also raised by LSA relative to Hearthside Homes's Brightwater application and were implicitly rejected by the Commission in its adopted findings that recognized the eucalyptus trees as ESHA. The only new argument is that the northern grove is used somewhat less than the other areas and most heavily by two species. The important facts are that these trees provide the same services to raptors as do the rest of the trees bordering the mesa and that the raptor habitat at Bolsa Chica, of which these trees are a significant part, supports a remarkable diversity of birds of prey. The guild of avian predators interacts importantly with the rest of this ecosystem and should be protected. It is also noteworthy that a small cluster of monarch butterflies were observed roosting in the north grove during fall, 2005.

The northern grove of eucalyptus trees is especially valuable because of its role in the ecosystem of providing perching, roosting, and nesting opportunities, hunting areas, and safe movement corridors for a diverse assemblage of raptor species. Therefore, the northern grove meets the definition of ESHA in the Coastal Act. I recommend that this ESHA be provided with a 100-meter buffer. The inner two-thirds of the buffer should be restored to natural habitat that would provide foraging opportunities for raptors. The outer one-third of the buffer would be appropriate for passive recreation such as hiking trails, benches, picnic tables (with covered trash receptacles), etc. The landform within the buffer area should not be significantly altered as a result of adjacent development activities.

² The Commission adopted findings for Hearthside Homes Brightwater development on October 13, 2005 that included this section of trees as part of the ESHA. LSA (2006) is incorrect in asserting that this is an area that I am currently proposing as an "ESHA addition."

GEOGRAPHIC AREAS RECOMMENDED FOR

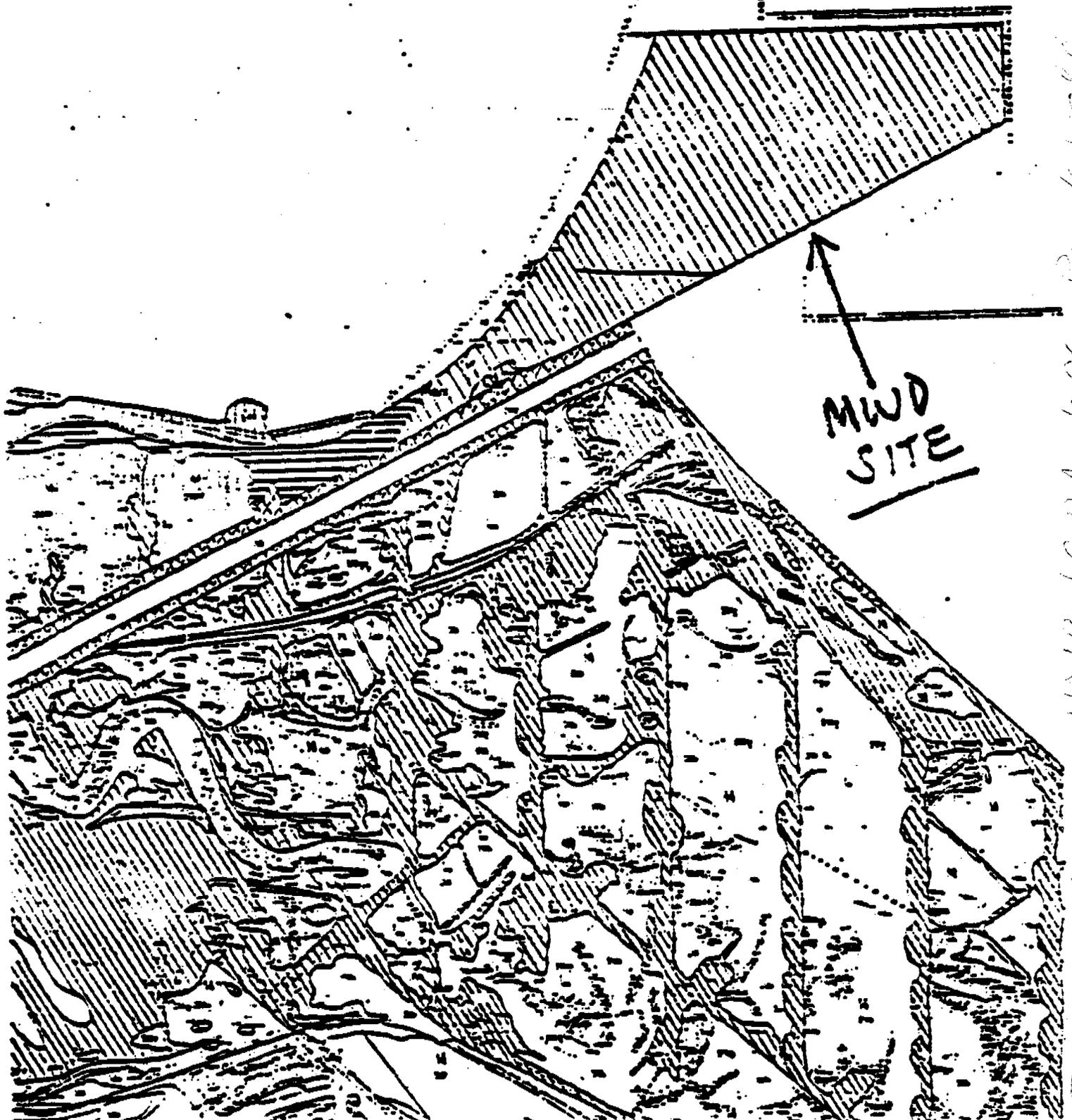


Parkside
HNBS LC PA. 1-06

Exhibit N 1/2

EXHIBIT 7

SOURCE: Dept. of Fish and Game



FINB LCPA 1-000 Parkville
Exhibit No. 7

**Letter supporting the drainage and
flood protection improvements
associated with the related coastal
development permit application has
been received**

9/3/05

California Coastal Commission
45 Fremont, Suite 20001
San Francisco, Ca 94105

RECEIVED

SEP 08 2005

CALIFORNIA
COASTAL COMMISSION

Re: Wintersburg Channel

Dear Gentlemen, Ladies

The current catastrophe in New Orleans caused me to revisit a Los Angeles Time article on 4/25/05(enclosed) and highlight the importance of quickly finding a reasonable balance between protecting the environment and the people living next to the Wintersburg Channel. It is imperative that the cost/benefit analysis indicating repair and upgrade of the Winterburg Channel now rather than waiting to pay the much greater cost after a disaster occurs be heeded.

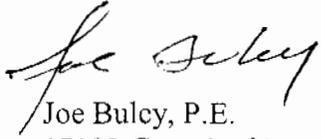
It pains me as a professional civil engineer to observe the failed dykes and levees around New Orleans because the elected officials and the people they represent did not have the will to spend the money in the past to provide adequate protection from the predicted damage that we are now witnessing from the level 4 and 5 hurricane. The real story to be told is not the human suffering that now is on TV but the history of the engineering studies that predicted this worst case scenario and the lack of will of our elected officials to act in a prudent and reasonable manner to construct adequate protections based on cost/benefit analysis.

As a resident next to the Wintersburg Channel (17192 Greenleaf Lane) since 1984, I appreciate the desire to keep the "bean field" pristine. However, as a civil engineer, I also understand the need to correct the serious drainage problems that currently exist in the area surrounding the Wintersburg Channel in conjunction with repairing and upgrading the Wintersburg channel. Shea Homes development for the "bean field" proposed a plan that includes a new storm sewer, additional pumps, sheet piling and reconfiguration of the Wintersburg channel. This benefit from the Shea Home development is a win/win situation for the City of Huntington Beach, the County and the Coastal Commission. The enclosed "Petition in Opposition" originated by the Bolsa Chica Land Trust ignored this benefit.

Whether or not you are for the Shea Home development, the upgrade of the drainage system and repair and upgrade of the Wintersburg Channel should be immediately funded to protect the Bolsa Chica Wetlands.

Sincerely,

Page 2



Joe Bulcy, P.E.
17192 Greenleaf Lane
Huntington Beach, CA 92649

gbuley@aol.com

cc: Jill Hardy, Mayor, Huntington Beach
Herb Nakasone, Director, County Flood Control
LAT

Attach: LAT article 4/25/05
Shea Home "Petition in Opposition"



Photographs by ALLEN J. SCHABEN Los Angeles Times

OUTING: Ryan Mills, 14, left, and his sister Hannah, 12, of La Verne bicycle along the channel overlooking the Bolsa Chica wetlands. "The resource needs to be protected . . . the time to do it is now," said Shirley S. Dettloff, a former Huntington Beach mayor and a founding member of Amigos de Bolsa Chica.

Bolsa Chica Wetlands Are Still in Jeopardy

Restoration has begun, but a nearby eroded flood control channel could cause damage if heavy rains cause it to break.

By SARA LIN
 Times Staff Writer

LAT
 4/25/05

On the surface, the 30-year battle to save the Bolsa Chica wetlands in Huntington Beach from development appears to be near an end.

Hérons and stilts, brown pelicans and snails are abundant. Construction crews are working — not on homes, but on a contoured tidal basin and inlet that will let the ocean flow into the wetland. And a developer's long-ago plan for thousands of homes and private marinas in the marshland has withered to just 349 houses on a mesa far from the water.

To environmentalists, Bolsa Chica represents a shining victory. But a point of vulnerability remains:

a 40-year-old flood control channel along the project's western edge. Its earthen levees withstood this year's heavy rains, but federal and county flood control officials say the East Garden Grove Wintersburg channel's eroded banks could fail in a severe storm and cause millions of dollars in damage to the restored wetlands.

Activists say it's something that needs fixing.

"The resource needs to be protected . . . the time to do it is now," said Shirley S. Dettloff, a former Huntington Beach mayor and founding member of Amigos de Bolsa Chica. "What comes down a flood channel in a big storm is not what you would want to see in the wetlands."

For the county, the state of the flood control channel is a story of a missed opportunity. Federal officials in charge of the wetlands restoration project at one time offered to split the cost of repairing the channel.

"We were interested in avoiding this scenario where the flood channel in a big storm fails into our project, causing

hugely expensive damage," said Jack Fancher, a biologist with the U.S. Fish and Wildlife Service, which is overseeing the restoration.

The agencies sketched out a project that would improve the channel and increase its capacity. But state grants that would have helped the county pay its share of the project didn't materialize. And the county failed to finish an environmental report in time to fit in with U.S. Fish and Wildlife's project schedule.

So, the \$65-million wetlands restoration is underway — with no channel improvements planned — while county and federal officials hope their luck holds over the next few winters.

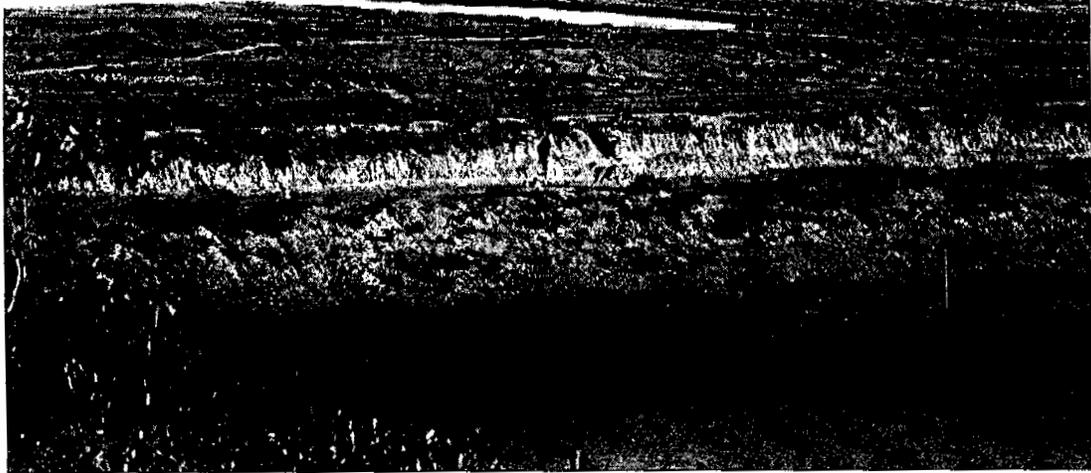
"It's an earthen levee, and every rain washes some more dirt off the slope. In some places it's eye-opening," Fancher said. "What it looks like to the non-engineer is that you have an obvious bank erosion and that the likely failure in a big storm is a hole blown in the levee."

A similar situation developed during this year's winter rains when San Juan [See Wetlands, Page B7]



ECOSYSTEM: One of the many birds attracted to the wetlands stand on the banks of the flood channel.

SAT-atisfaction: Scoring a Perfect



Los Angeles Times
be

rdy

ALLEN J. SCHABEN Los Angeles Times

AT WORK: After a decades-long battle by conservationists to save the Bolsa Chica wetlands, crews are working on a tidal basin and inlet that will once again allow the ocean to flow into the area.

Bolsa Chica Wetlands Vulnerable in a Flood

[Wetlands, from Page B1]

Creek ate at its banks, forcing scores of families to be evacuated.

County flood control officials say they are aware of the potential problem the Wintersburg channel poses for Bolsa Chica but say they don't have the money to improve it.

Other sections of the channel that run behind homes pose a far greater risk, said Herb Nakasone, the county's director of public works.

The East Garden Grove Wintersburg channel was one of several earthen channels built in the 1950s to withstand a 10-year storm. It carries runoff from Anaheim, Garden Grove and Santa Ana. Concrete lining has been added to upstream portions to protect homes, but the bottom end of the creek has received little attention.

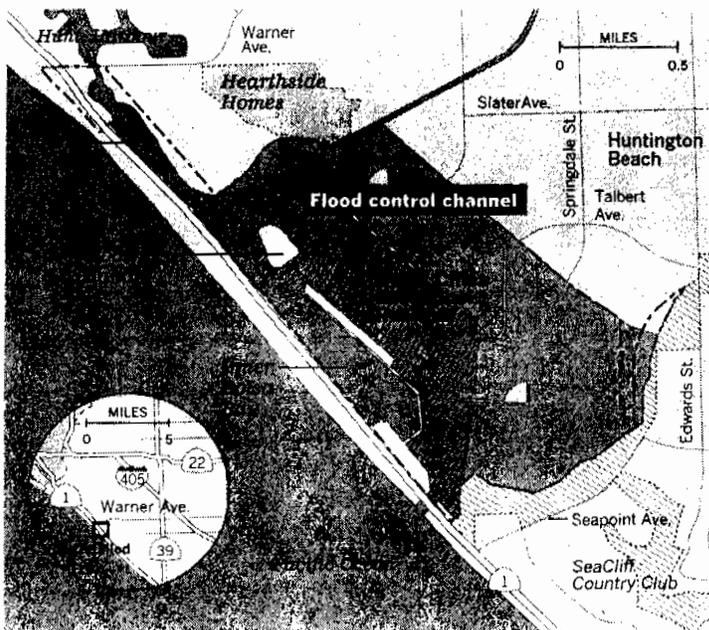
Nakasone said people should not become complacent because the levee held up this year. He said it didn't fail because the county was largely spared the inch-per-hour high-intensity storms that cause flooding.

"The storms we had were rainfall over a long period of time, affecting the larger rivers like the Santa Ana and San Juan Creek," Nakasone said. "We didn't have too many of those flashy storms. That's why the Wintersburg channel did well."

With just \$15 million in the county's \$80-million flood control budget for capital improvement projects such as upgrading flood channels, Nakasone said it was unlikely the county would

At risk

Recent restoration efforts in the Bolsa Chica wetlands could be compromised if heavy rains overwhelm the East Garden Grove Wintersburg flood control channel.



Sources: U.S. Fish and Wildlife Service; California State Lands Commission

Los Angeles Times

get to work on the channel near Bolsa Chica within the decade.

The county's best option for repairing the channel soon is the Army Corps of Engineers, which usually picks up more than half the bill for flood control projects, Nakasone said. He estimated that improvements to the entire channel — including the section

that abuts Bolsa Chica—would cost more than \$100 million.

The county is 18 months away from completing a feasibility study that could result in the federal government funding a major improvement to the Wintersburg channel. But there is no shortage of such projects across the county in line for federal funding.

**Letters Opposing LCPA
As
Proposed**

Tu 8C

Sara M. Mathis
17071 Berlin Lane
Huntington Beach, CA 92649

July 30, 2006

Ms. Meg Vaughn
California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, CA 90802-4316

Reference: Huntington Beach – Shea Homes Parcel – Graham Street

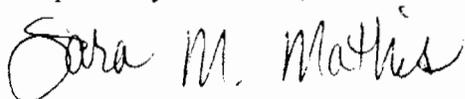
Dear Ms. Vaughn:

I am in FAVOR of the staff recommendation for agenda item Tu 8-c to DENY the LUP Amendment No. 1-06 as submitted, and also to DENY the IP Amendment 1-06 as submitted.

The entire subject parcel is part of the Bolsa Chica wetlands system, despite the owner's ongoing efforts and tactics to convert it to something else. In addition to the presence of ponding and wetland plant species, which have been well-documented on the site, the fact that the subject parcel is one to two feet below sea level and requires overexcavation, dewatering, and 260,000+ cubic yards of imported fill material to make it suitable for building should provide evidence enough that the site is a wetland and not suited for residential development. Clearly, last year's hurricanes have shown us the ramifications associated with draining and filling wetlands for residential development.

The California Coastal Commission is required to protect the functions and values of the wetlands in my watershed. If the California Coastal Commission allows the subject parcel to be drained, filled, and developed, they will destroy habitat for endangered wildlife and plant species, which have been well-documented on the site, further degrade my watershed's water quality due to increased pollution and storm water runoff, increase the surrounding area's vulnerability to flooding, and eliminate scarce open space and yet another vital productive ecosystem from our coastal area.

Respectfully submitted,



Sara M. Mathis

Re: Tu 8-c
Bob & Betty Hogan

California Coastal Commission
Attn: Meg Vaughan
200 Oceangate, 10th Floor
Long Beach, CA 90802-4316

California Coastal Commission:

Our house is in the tract immediately to the east of the Parkside property at issue in the agenda item. We are in FAVOR of the staff recommendation for agenda item Tu 8-c to DENY the LUP Amendment No. 1-06 as submitted, and also to DENY the IP Amendment 1-06 as submitted.

Sincerely,

Robert M. Hogan
Betty R. Hogan

Bob & Betty Hogan
17302 Forbes Lane
Huntington Beach, CA 92649

July 30, 2006

Agenda Tu 8-C
Eileen Murphy

California Coastal Commission
% Meg Vaughn
200 Oceangate, 10th Floor
Long Beach CA 90802-4316

I am writing in FAVOR of the staff recommendation for agenda item Tu 8-c to deny the LCP Amendment No 1-06 as submitted and also to DENY the IP amendment 1-06 as submitted.

The staff should be congratulated on their thorough preparation of this report. Since the wetlands without the dikes, roads and shallow fills were 440 acres of wetlands. In my opinion the buffers should be 100 meters at least instead of 100 feet.

In the LA Times article Sunday 7/30 State tries to save wetlands Pearl by Deborah Schoch The article about the Los Cerritos in Seal Beach. Schoch quotes professor Richard Ambrose, director of the environmental science and engineering program at UCLA. Ambrose concluded "This is a classic case of the difficulties that urban wetlands face. A proposed project next to wetlands generally needs a buffer of 100 to 200 meters or about 330-660 feet"

Please vote in favor of the staff recommendations and deny the LCP and IP amendments.

Respectfully submitted


Eileen Murphy
201 21st Street
HB CA 92648

Marinka Horack
21742 Fairlane Circle
Huntington Beach, CA 92646

July 31, 2006

California Coastal Commission
Attn: Meg Vaughn
200 OceanGate, 10th Floor
Long Beach, CA 90802-4316

RE: Agenda Item Tu 8-c. I am in favor of the staff recommendation to DENY the LUP Amendment No.1-06 as submitted, and also to DENY the IP Amendment 1-06 as submitted. [Shea property]

Dear Meg Vaughn and Coastal Commissioners:

I urge you to deny the LUP Amendment No. 1-06 and to deny the IP Amendment 1-06, regarding the Shea property at Bolsa Chica.

California has lost 95% of its coastal wetlands to development. California cannot afford to lose any more coastal wetlands.

Coastal wetlands are a rich and increasingly rare natural resource which:

- provide wildlife habitat for hundreds of species of animals and plants, including many endangered species;
- serve as flood control reservoirs;
- control pollution from urban runoff;
- provide groundwater recharge to regional groundwater basins;
- are among the most life-productive habitats on earth;
- serve a significant part in regulating global cycles of weather, and nutrient and water cycling.
- provide open space for hiking, nature study, photography, volunteer opportunities, and rest for us humans.

Historically, Bolsa Chica Wetlands covered 30 square miles. What is left is a small fraction. There is no justification for developing even one more acre. Protect what little wetlands remains. Vote to deny the LUP Amendment 1-06. Vote to deny the IP Amendment 1-06.

Thank you for your time and consideration. Thank you for your service to the people of California.

Sincerely,

Marinka Horack, California Resident for 57 Years

August 1, 2006

California Coastal Commission
Attn: Meg Vaughn
200 Ocean Gate 10th Floor
Long Beach, CA 90802-4316

I would like to express to you my agreement of the staff's recommendation for agenda Item: TUE-8c to DENY the LUP Amendment No. 1-106 as submitted, and also to DENY the DP Amendment 1-106 as submitted.

Sincerely,

Mary Jane Turley
6192 Moorfield Ln
Newington Beach, CA

John M. Iacono
5421 Barwood Drive
Huntington Beach, CA 92649
TEL: (714) 840-6618
FAX: (714) 751-4934

TO: California Coastal Commission, ATTN: Meg Vaughn

FROM: John M. Iacono

DATE: August 02, 2006

FAX: (562) 590-5084

RE: **Agenda item number 8c**

If you do not receive 1 page(s) including the transmittal sheet, please call the above number as soon as possible.

I am in FAVOR of the staff recommendation for agenda item Tu 8c to DENY the LUP Amendment No. 1-06 as submitted, and also to DENY the IP Amendment 1-06 as submitted.



The documents accompanying this facsimile transmission may contain confidential information which is legally privileged. The information is intended only for the use of the individual or entity above. If you are not the intended recipient, or the person responsible for delivering it to the intended recipient, you are hereby notified that any disclosure, copying, distribution or use of any of the information contained in this transmission is strictly prohibited. If you have received this transmission in error, please notify us by telephone immediately and mail the original transmission to us. Thank you.

Mrs. Nancy L. Grimes Agenda #(&c)

California Coastal Commission
ATTN: Meg Vaughn
200 Oceangaate -- 10th Floor
Long Beach, CA 90802

COASTAL COMMISSION
AUG 2 2006

August 1, 2006

Dear California Coastal Commission:

I am in **FAVOR** of the staff recommendation for agenda item **Tu 8c** to **DENY**
the LUP Amendment No. 1-06 as submitted, and also to **DENY** the IP Amendment 1-06
as submitted.

Sincerely,

Mrs. Nancy L. Grimes

Mrs. Nancy L. Grimes
8591 Mossford Drive
Huntington Beach, CA 92646

8-1-06

CALIFORNIA COASTAL COMMISSION.

DEAR SIRS,

I AM IN FAVOR OF THE STAFF RECOMMENDATION FOR AGENDA ITEM TV8-C TO DENY THE LUP AMENDMENT NO. 1-06 AS SUBMITTED, AND ALSO TO DENY THE IP AMENDMENT 1-06 AS SUBMITTED.

William E. Wiley
6192 MOONFIELD DR.

HUNTINGTON BEACH, 92648

PHONE/FAX (714) 847-8332

RECEIVED
South Coast Region

AUG 2 2006

COASTAL COMMISSION

Dr. James L. Grimes Agenda # (8c)

California Coastal Commission
ATTN: Meg Vaughn
200 Ocean Gate -- 10th Floor
Long Beach, CA 90802

RECEIVED
South Coast Region

AUG 2 2006

CALIFORNIA
COASTAL COMMISSION

August 1, 2006

Dear California Coastal Commission:

I am in **FAVOR** of the staff recommendation for agenda item **Tu 8c** to **DENY**
the LUP Amendment No. 1-06 as submitted, and also to **DENY** the IP Amendment 1-06
as submitted.

Sincerely,



Dr. James L. Grimes
8591 Mossford Drive
Huntington Beach, CA 92646

Meg Vaughn

From: Deborah Lee
Sent: Thursday, August 03, 2006 10:55 AM
To: Meg Vaughn; Karl Schwing
Subject: FW: Costal Commission Upcoming Hearing
Importance: High

Fyi and place into file; this should also be included in the addendum. Thanks, DNL
-----Original Message-----

From: Meg Caldwell [mailto:megc@stanford.edu]
Sent: Wednesday, August 02, 2006 9:13 PM
To: Deborah Lee
Subject: Fwd: Costal Commission Upcoming Hearing

X-Sieve: CMU Sieve 2.2
Delivered-To: megc@stanford.edu
From: "DEBRA WINDLE" <ffwinman@email.uophx.edu>
To: <megcoastal@law.stanford.edu>
Subject: Costal Commission Upcoming Hearing
Date: Tue, 1 Aug 2006 15:37:50 -0700
X-Mailer: Microsoft Outlook Express 6.00.2900.2869
X-imss-version: 2.041
X-imss-result: Passed
X-imss-scanInfo: M:P L:E SM:0
X-imss-tmaseResult: TT:0 TS:0.0000 TC:00 TRN:0 TV:3.52.1006(14602.002)
X-imss-scores: Clean:21.49600 C:2 M:3 S:5 R:5
X-imss-settings: Baseline:2 C:1 M:1 S:1 R:1 (0.1500 0.1500)
X-MIMETrack: Itemize by SMTP Server on lawmail1/stanford(Release 5.0.12 |February 13, 2003)
at
08/01/2006 03:37:53 PM,
Serialize by Router on lawmail1/stanford(Release 5.0.12 |February 13, 2003) at
08/01/2006 03:37:54 PM,
Serialize complete at 08/01/2006 03:37:54 PM

Dear Ms. Caldwell

I am writing in hopes of alerting the commission to significant problems with a proposed development that is being considered for approval at the August 8th hearing. The project is located in Huntington Beach, South Coast District. The proposal was submitted by the City of Huntington Beach, on behalf of Shea Homes, titled Amendment #1-06 (Parkside).

I received a letter today from Shea Homes requesting neighboring support for the project with claims that the proposed housing project will provide much improved flood protection for neighboring homes.

What is of most concern to me is that the amendment does not include acknowledgement of the problems already encountered by grading activity conducted by Shea on the property. Shea had the property graded in late winter around the borders, and the adjacent neighborhood experienced significant flooding in numerous yards, and first floors from one rain. Subsequently, the streets and sidewalks of the adjacent neighborhood experienced months of water seepage, unrelated to rains.

The property is also described as agriculture but has actually been left in neglect for the last year, resulting in significant overgrowth and a current fire hazard. At risk as a result of the neglected property are hundreds of homes, the Bolsa Chica Wetlands (currently under restoration), and a protected environment of a Eucalyptus grove.

The planned neighborhood calls for the land to be filled in and elevated significantly above the level of the immediately adjacent neighborhood. There has been a lack of explanation as to how the homes next to the proposed elevated project will not be negatively impacted by the difference in elevation, other than a line of vegetation between the two neighborhoods.

Shea does not appear to be considering the impact on this one neighborhood, but focuses on improvement of flood controls and creation of open park space. The land has also been left in neglect for the past year, yet was kept from being allowed to naturally develop back into the Wetlands that actually extend up to the property through plowing and replowing up until this year.

I am asking for the Commission's help in requiring the city and the development company to further examine and provide a sound plan for protecting the existing neighborhood on Graham and Warner that would be negatively impacted by the current proposal.

Thank you for your consideration.

Debi Windle, RN, MSN, CNS
ffwinman@aol.com

Meg Caldwell, J.D.
Senior Lecturer and Director,
Environmental and Natural Resources Law
and Policy Program
Stanford Law School
559 Nathan Abbott Way, Room 243
Stanford, CA 94305-8610
phone: 650/723-4057
fax: 650/725-2190
<http://casestudies.stanford.edu/>
<http://naturalresourceslaw.stanford.edu>

Meg Vaughn

From: JonV3@aol.com
Sent: Thursday, August 03, 2006 2:20 AM
To: Teresa Henry; Peter Douglas; John Dixon; Deborah Lee; Meg Vaughn; Karl Schwing; Mark Johnsson
Subject: August 8, 2006 Meeting, Item Tu-8c, LCPA HNB-MAJ-LCPA1-06

August 3, 2006

Meg Caldwell, Chair, and Members
California Coastal Commission
200 OceanGate, 10th Floor
Long Beach, CA 90802

Re: Item Tu 8c- Major Amendment Request
No. 1-06 City of Huntington Beach
LCPA HNB-MAJ-LCPA1-06
August 8, 2006 meeting in San Pedro

Failure to Consider Coastal Bluff on the Subject Property

Dear Ms Caldwell, Coastal Commissioners and Staff,

I would like to comment on what I see is a major deficiency in the staff report for the above referenced matter that you will be considering on Tuesday, April 8, that is, a failure to consider the coastal resources represented by an unrecognized coastal bluff on the western and northwestern edge of the property.

The staff report alludes to a bluff on the northwestern side of the property on pages 45 and 46, and to a Geotechnical Review Memorandum by staff geologist Dr. Mark Johnsson as exhibit 1.

Page 45, second paragraph, states: "The northwestern corner of the site is crossed by a bluff, approximately 40-50 feet high, carved by the ancestral Santa Ana River."

Page 45, third paragraph, then states "The staff geologist's memo regarding the amendment site is attached as exhibit 1 and is hereby incorporated as though fully set forth herein, and the Commission concurs with and adopts the conclusions stated therein."

Page 46, second paragraph states: "No slope stability calculations have been performed on the bluff in the northwestern corner of the site, and it is likely that it is only marginally stable. This area is planned for open space, however, so slope stability in this area is not a concern."

However, this bluff qualifies as a "Coastal Bluff", and should be protected as such, with appealability to the Coastal Commission if alteration of this natural landform is contemplated in the future.

The Statewide Interpretive Guidelines define a bluff as having a vertical relief of 10 feet or more. This bluff has a vertical relief of 40-50 feet high.

A "Coastal Bluff" is defined as a bluff that is, or historically has been, subject to marine erosion, generally within the past 200 years. There is evidence of this bluff being subject to marine erosion in the last 200 years, because it overlooked tidelands prior to being cut off from tidal action by dams and flood control structures within the past 100-plus years.

Proof of this evidence is attached in the form of the US Coast Survey of 1873, less than 200 years ago. This Map shows the bluff being adjacent to tidal sloughs and tidelands. Being adjacent to tidelands would subject the toe of the bluff to marine erosion, and thus define it as a "coastal bluff". Please see attachment.

Moreover, the US Army Corps of Engineers required a Section 10 Rivers and Harbors Act permit for this property, thereby also acknowledging the historic connection to the sea of this property. Even today, tidal action extends up the adjacent Wintersburg Flood Control Channel to approximately Warner Avenue in Huntington Beach.

8/3/2006

Defining this bluff as a "Coastal Bluff" is important for regulatory and jurisdictional reasons. Coastal bluffs are considered significant scenic and environmental resources and are to be protected under Sections 30251 and 30253. Developments within 300 feet of a coastal bluff can be appealed to the Coastal Commission after the area is certified under the local LCP. Although current plans might designate the bluff for open space, plans change and the bluff may be in jeopardy in the future unless its appealability to the Coastal Commission is retained.

Moreover, this coastal bluff contains major portions of the Eucalyptus Grove ESHA and the open space provides foraging habitat for the raptors utilizing the ESHA.

In addition, views of the Bolsa Chica wetlands and the ocean are available from this coastal bluff, making its preservation important as a scenic resource, both for the views to the bluff from roads such as Pacific Coast Highway and views from the bluff to the wetlands and the ocean.

For these reasons, I request that you recognize and define this bluff as a "Coastal Bluff", thus affording it protections that are given to the Coastal Bluffs under the Coastal Act and the ability to appeal any development within 300 feet of the Coastal Bluff.

Thank you.

Sincerely,

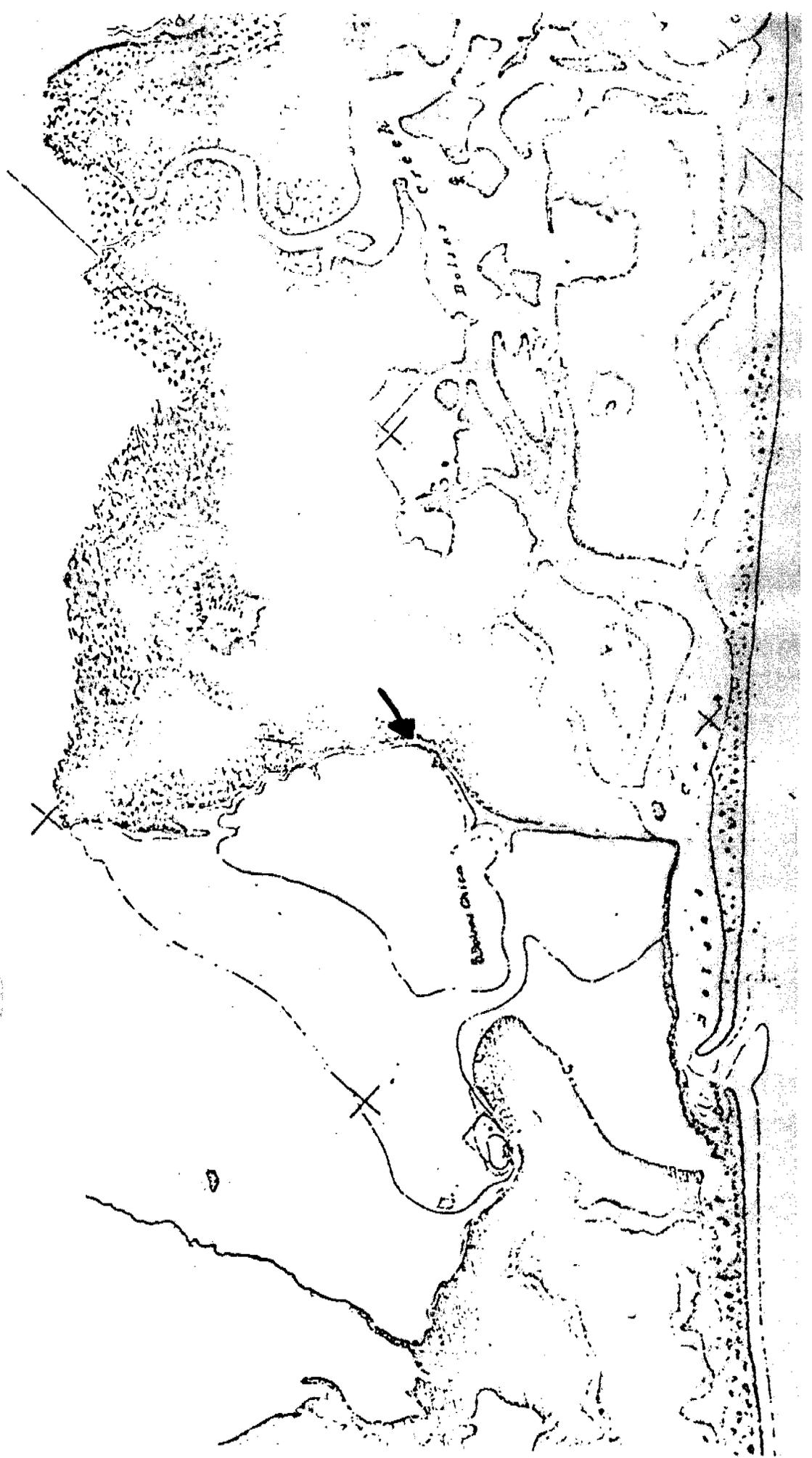
Jan D. Vandersloot, MD

Jan D. Vandersloot, MD
2221 E 16th Street
Newport Beach, CA 92663
(949) 548-6326

Figure 2

FROM: US COAST SURVEY MAP 1873

TIDELANDS



U.S.
COAST SURVEY
Benjamin B. Pore, Superintendent
SECCN.

TOPOGRAPHY
NEW RIVER TO BOLINAS CREEK

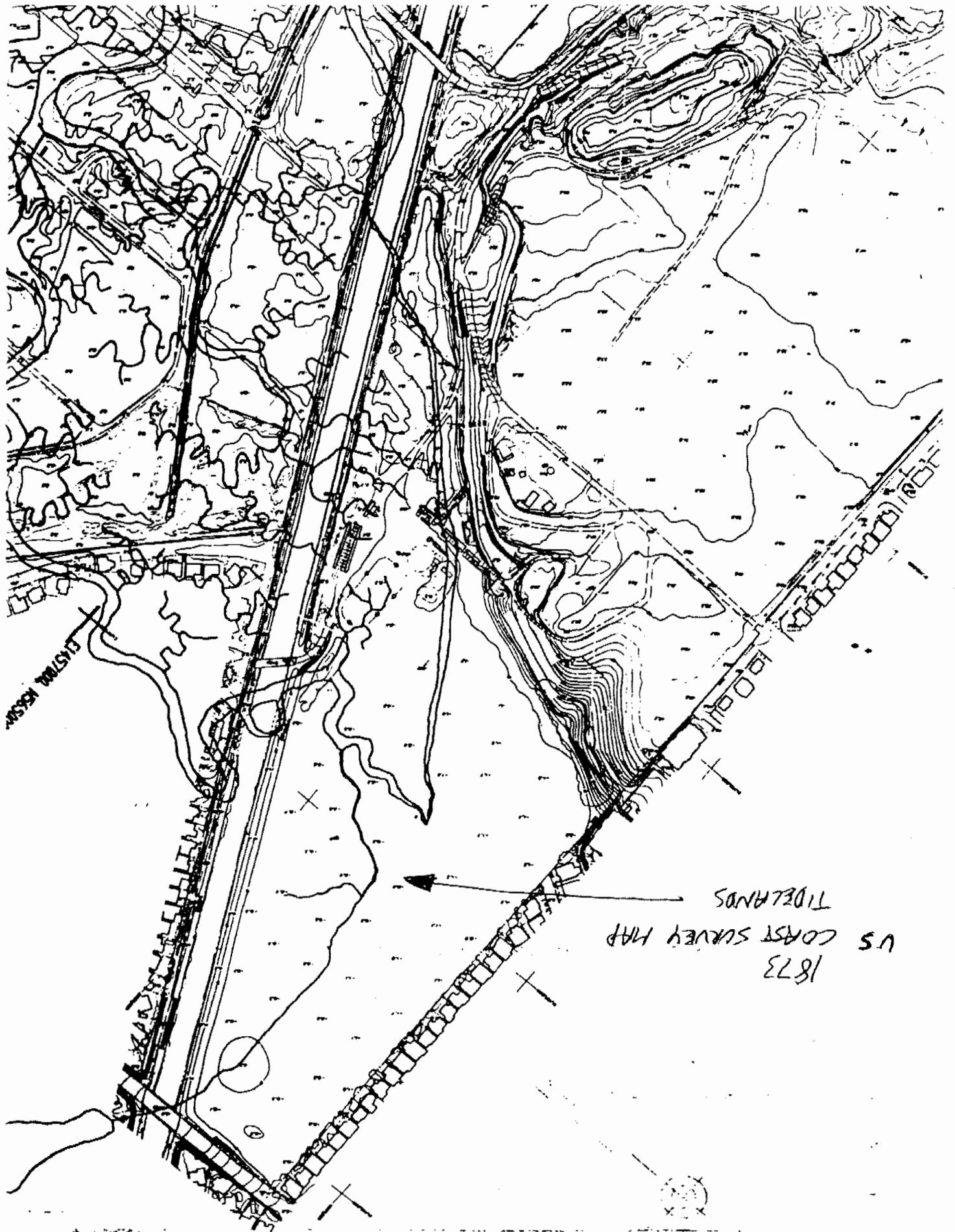
CAL
Surveyed on Eddy March-April
1873

Register No. 1315

*By J. C. Adams
Assistant Chief of Coast*



MAP



1873
U.S. COAST SURVEY MAP
TIDE LANDS

EASTMAN MASSACHUSETTS



**FIGURE 9. APPROXIMATE LOCATIONS
OF TIDAL WATERS AT BOLSA
CHICA, ORANGE COUNTY, CA
IN 1873 AND 1874**

(SOURCE: U.S. COAST AND GEODETIC
SURVEY TOPOGRAPHIC CHARTS
T1345 AND T1369)

July 31, 2006

California Coastal Commission
200 Oceangate, 10th Floor
Long Beach, CA 90802-4316

Re: August 2006 agenda item Tu 8-c: Major Amendment Request No. 1-06 to the City of Huntington Beach Certified Local Coastal Program

Dear Commissioners:

If a picture is worth 1,000 words, then I offer up Exhibit A (attached), the Coastal Commission's own LCP status map. This map is unaltered, taken directly from the Commission's website. Please note where it states "MWD wetland" (MWD being the former owner of the land now owned by Shea Homes).

Don't underestimate the significance of the term "wetland" being used here. The Commission could very easily have used half a dozen other terms, such as property, parcel, field, site, farm, area, coastal, or just plain MWD as an identifier. But the Commission did not, because it is a wetland. It may be a seasonal wetland. It may be severely degraded due to Shea's relentless farming and repeated illegal grading, and from paint ball teens run amok, but make no mistake, it is a wetland. Shea Homes bought a piece of land that *the Commission long ago identified as a wetland*. Agenda item 8-c should be DENIED as submitted.

At this time I cannot support staff's additional recommendation to certify if modified as suggested for several reasons:

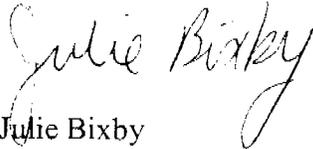
1. California Gnatcatchers, a federally threatened species; Wandering Skippers, a federal species of concern; and Southern Tarplant, a California Native Plant Society List 1B rare plant (and facultative), are not mentioned anywhere in this staff report, thus they are not protected by staff's recommended modifications. (In comparison, for the April 2005 staff report on the Hearthside Brightwater project at Bolsa Chica, Southern Tarplant was mentioned and was protected on that project.)
2. The exact acreage of the areas to be declared "Open Space Conservation" have not been officially determined. I don't think it's a wise idea to say "we certify this but will figure out the details later".
3. Staff seem to be suggesting that the four sensitive areas of (1) former county wetland, the (2) WP wetland, the (3) AP wetland, and the (4) Eucalyptus ESHA, all be protected in isolation. However, there are hydrophytic plants, brass buttons (facultative wetland) and salt sandspurry (obligate wetland), which regularly grow

between the WP & AP wetland areas. I saw them growing there this past April. The larger context must be considered.

4. In the July 30, 2006 California section of the LA TIMES, UCLA environmental science professor Dr. Richard Ambrose notes that "...a project next to a wetlands generally needs a buffer of about 100 to 200 meters, or about 330 to 660 feet." Even if you consider that figure overly generous and cut Dr. Ambrose's estimate by half, *that would still constitute 150 feet of buffer*. However, Commission staff are recommending a wetland buffer of only 100 feet. Additionally, considering the fact that Dr. Dixon's July 2006 memo uses a low rainfall year (2003-04) to estimate the radii of WP & AP, a 100 foot buffer would be completely insufficient for these areas in a high rainfall year.

In summary, LUP & IP 1-06 from the city of Huntington Beach should be DENIED as submitted due to non-compliance with the Coastal Act as stated in the staff report. Staff's recommendation that the LUP & IP be certified with the recommended modifications should also be DENIED due to omissions and shortcomings in the suggested changes.

Sincerely,



Julie Bixby

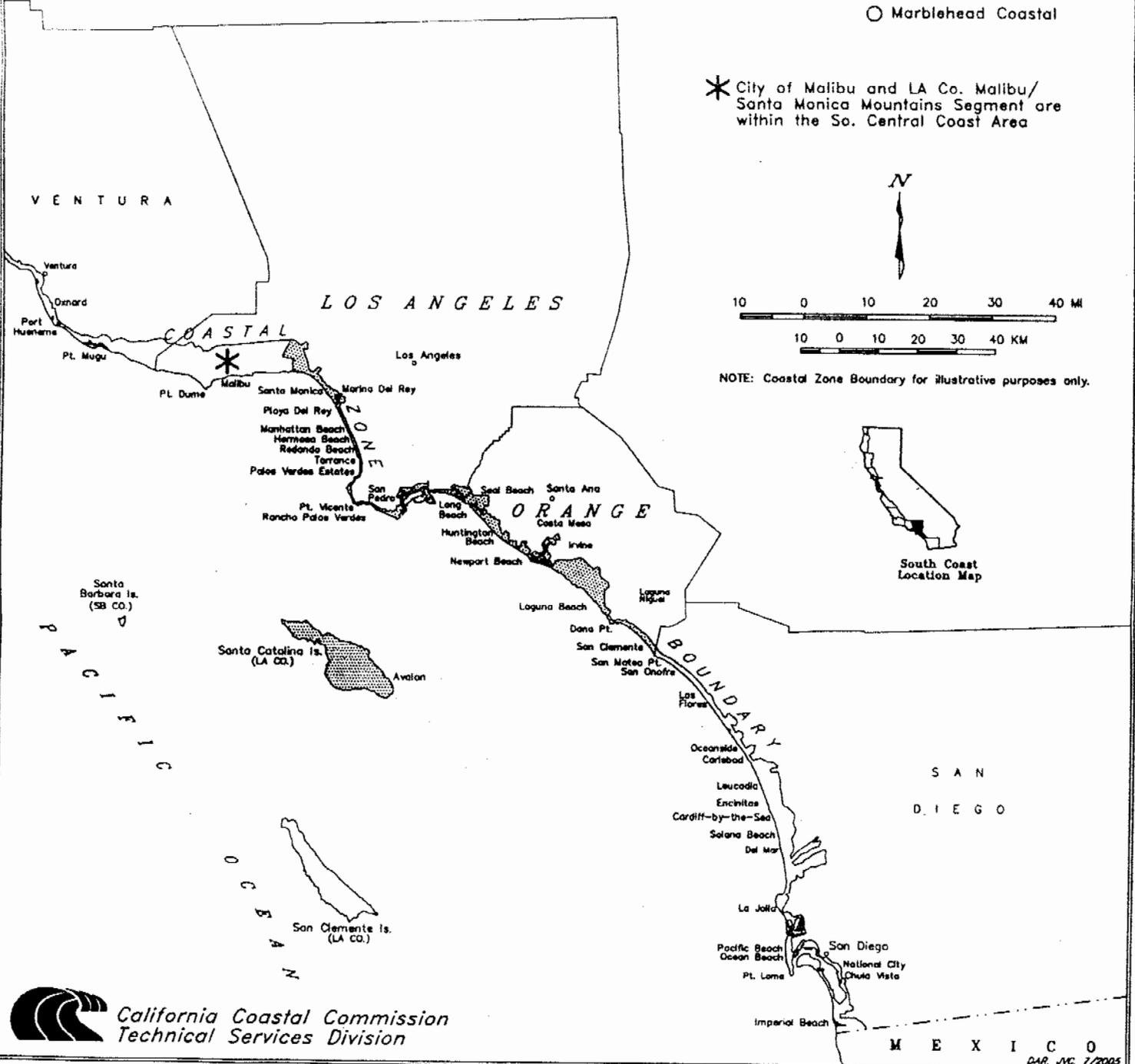
LCP Status South Coast Area As of July 1, 2005

Legend

- County LCP Effectively Certified
- City LCP Effectively Certified
- City LUP Effectively Certified
- No LCP/LUP Effectively Certified
- Area of Deferred Certification

- Los Angeles County (2 of 4 segments)
- Los Angeles
- Santa Monica
 - Beach
 - Civic Center
- El Segundo
- Manhattan Beach
- Hermosa Beach
- Redondo Beach (1 of 2 segments)
 - Edison Easement
- Torrance
- Palos Verdes Estates
- Rancho Palos Verdes
- Long Beach
- Cerritos Wetlands
- Avalon
- Orange County (4 of 7 segments)
- Seal Beach
- Huntington Beach
 - MWD Wetland
- Costa Mesa
- Newport Beach
- Irvine
- Laguna Beach
 - Irvine Cove
 - Hobo Canyon
 - Blue Lagoon
 - Three Arch Bay
- Laguna Niguel
- Aliso Viejo
- Dana Point
 - Dana Strands
- San Clemente
 - Marblehead Coastal

* City of Malibu and LA Co. Malibu/Santa Monica Mountains Segment are within the So. Central Coast Area



NOTE: Coastal Zone Boundary for illustrative purposes only.

AGENDA # TU 8-C
LOIS VACKAR

July 30, 2006

The California Coastal Commission

Dear Commissioners:

Regarding agenda item TU 8-c: The staff recommendation is to deny the LUP as written. I am in favor of this recommendation and also to deny the IP amendment 1-06 as submitted.

The Shea property is a wetland and not a place to build the requested 170 homes, or for that matter, any homes at all.

Sincerely,

A handwritten signature in cursive script that reads "Lois Vackar".

Lois Vackar

June Nye
Agenda item Tu 8-c

California Coastal Commission: 7-30-06

I am in favor of the
Staff recommendation for agenda
item Tu 8-c to DENY the LUP
Amendment No. 1-06 as submitted, and
also to DENY the IP Amendment
1-06 as submitted.

Sincerely, June Nye

FROM: (Print Name) Karen Merickel

Address 2020 Loma Drive

City, State, Zip Hermosa Beach, CA 90254

March 2005

Dear Coastal Commissioners:

Re: **Shea Parkside Project, Huntington Beach, CA**

- **95% of California's wetlands are gone.**
- **The Bolsa Chica property in Huntington Beach owned by Shea Homes is a wetlands by virtue of its ponding hydrology and natural vegetation.**
- **The California Coastal Act section 30233 does not permit building on a wetland.**
- **The city of Huntington Beach's LCP amendment request before the California Coastal Commission should be DENIED.**
- **Shea Homes' GDP application should be DENIED.**

Signature Karen Merickel

Staff received 959 copies of this postcard opposing proposed LCRA.

HNB LCRA 1-000 Parkside



T 8c

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Vice President
Paul Arms
Treasurer
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Marinka Horack

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ENDORSEMENTS

Amigos de Bolsa Chica
Algalita Marine Research
Foundation
Anza Borrego Foundation
Ballona Wetlands Land
Trust
City of Huntington Beach
Friends of Harbors,
Beaches and Parks
Huntington Beach
Wetlands Conservancy
Huntington Beach Tomorrow
Orange Coast League of
Women Voters
Orange County
Coastkeeper
Sea and Sage Audubon
Sierra Club
Angeles Chapter
Surfrider Foundation
Tree Society
Wildlands Conservancy

August 3, 2006

Ms. Meg Caldwell, Chair
Members of the Commission
California Coastal Commission
200 Oceangate – 10th Floor
Long Beach, CA 90802

RE: Item Tu 8c - Major Amendment Request
No. 1-06 to the City of Huntington Beach
Certified Local Coastal Program (For Public
Hearing and Commission Action
August 8-11, 2006 meeting in San Pedro).

Dear Ms. Caldwell and Members of the Commission:

These comments are submitted on behalf of the Bolsa Chica Land Trust, a grassroots, nonprofit organization of nearly 5,000 members residing in California and twenty other states. Our objective is to provide recommendations to the California Coastal Commission (CCC) which will ensure protection of the coastal zone resource values of the Bolsa Chica ecosystem in Huntington Beach, California.

The Bolsa Chica Land Trust urges that the Land Use Plan Amendment and the Implementation Plan be denied as submitted, and further recommends that any other action on the Land Use Plan Amendment and the Implementation Plan be continued until such time as additional protections to wetland areas, sensitive species, and Environmental Sensitive Habitat Areas (ESHAs) have been included in the modifications

I. The LCP Amendment must recognize and provide all mandated protections to wetland habitat on the Shea/Parkside property.

Section 30233 (a) of the Coastal Act reads in part: The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects.

While federal wetlands regulatory definitions are cited and applied in several of the developers' documents, the Coastal Commission's definition of wetlands supersedes all others as the lead jurisdiction on this property. The Coastal Commission's wetlands definition (California Coastal Commission. 1981b. Statewide Interpretive Guidelines. As revised) reads as follows:

Presence or absence of hydric soils and/or hydrophytes alone are not necessarily determinative when the Commission identifies wetlands under the Coastal Act"; and Wetlands must have **one or more** (emphasis added) of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes, (2) the substrate is predominantly undrained hydric soil, and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year. – Cowardin, L.M. et al. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*, U.S. Fish and Wildlife Service.

Wetlands Vegetation – Vegetation data has been compiled by local resident Mark Bixby over a four-year period during which time he visited the Shea property no less than once each week. His studies of hydrophytic vegetation were conducted by systematically walking transects the length and breadth of the property, unlike the developer's consultants who looked for vegetation randomly. Mr. Bixby has compiled an extraordinary amount of photographic evidence which can be found on his website at www.bixby.org/parkside. Mr. Bixby has catalogued the presence of seven Obligate Wetland species, four Facultative Wetland (+) species, seven Facultative Wetland species, two Facultative Wetland (-) species, and twenty Facultative species of vegetation on the property.

In a report to the Bolsa Chica Land Trust dated March 21, 2005 and submitted to the Coastal Commission, biologist Christina Schaefer of Technology Associates International Corporation stated in part:

The website also confirms the presence of wetlands plants in certain locations of the site, specifically in the southern, south central, and southwestern portion of the site, including such obligates as curved sicklegrass (*Parapholis incurve*), pickleweed (*Salicornia virginica*), and saltmarsh sandspurry (*Spergularia marina*).

This is particularly important when one recalls that the majority of the Shea property is under intensive agricultural use. Much of it is rarely fallow yet wetland plants germinate quickly in multiple locations when given the chance. Moreover, a comparison of the vegetation found in the adjacent East Garden Grove-Wintersburg Flood Control Channel confirms that every significant wetland plant species that can be found within the channel (which is self-evidently a wetland) can be found on the Shea property as well.

Please see the attached exhibit entitled "Vegetation – adding it all together" for a composite map overlaying the range of all FACW or greater indicator species found on the Shea property. We contend that the areas shaded in orange qualify as wetlands under Section 30233 of the Coastal Act.

Hydrology – The Bixby website presents an unprecedented amount of data on the hydrology of the Shea property which must be viewed to be fully appreciated. In California, land can be considered a wetlands if surface ponding is observed for 7 or more consecutive days per season. Certain areas of the Shea property do meet this standard on a recurring basis. The Bixby website contains data for twenty-one ponding seasons going back to 1958/59. While it would be impractical to reiterate all of this ponding data here, we believe a recent sampling would be beneficial. The following data were collected at seven sites on the Shea property and are from the 2005/06 rainfall season, which was considered to be "average":

City Parcel Adjacent to Wintersburg Channel (WP Wetland)

14 consecutive days – December 31, 2005 to January 13, 2006

(It should be noted that ponding was severely impaired at this location after the property owner used a box blade scraper to fill a portion of the area with soil shortly after CCC staff ecologist John Dixon issued his draft memo of December 15, 2005 which stated that wetlands were present at this location. See footnote 2, page 25, of the Staff Report).

City Parcel Western Agricultural Boundary (AP Wetland)

46 days – January 12, 2006 to February 26, 2006

85 days – February 27, 2006 to May 22, 2006

Terminus of Greenleaf Street site

7 days – February 27, 2006 to March 5, 2006

Former County Parcel Palm Tree site

8 consecutive days – December 31, 2005 to January 7, 2006

14 consecutive days – February 27, 2006 to March 12, 2006

20 consecutive days – March 27, 2006 to April 15, 2006

Former County Parcel Test Well site

8 consecutive days – December 31, 2005 to January 7, 2006

54 consecutive days – February 27, 2006 to April 21, 2006

Former County Parcel Gas Pipeline site

14 consecutive days – February 27, 2006 to March 12, 2006

40 consecutive days – March 19, 2006 to April 25, 2006

Former County Parcel Vernal Pools site

7 consecutive days – October 10, 2005 to October 22, 2005

14 consecutive days – December 31, 2005 to January 13, 2006

62 consecutive days – February 20, 2006 to April 21, 2006

Photographic evidence of this data is readily available on the Bixby website. Please see the attached exhibit entitled “Hydrology – adding it all together” for a composite map of all ponds in all seasons that met the 7-day standard. We contend that the areas shaded in orange qualify as wetlands under Section 30233 of the Coastal Act.

Soils – Absent the ability to access the site to perform independent testing on the Shea property, verification of the assertions of the developers’ consultants relating to hydric soil conditions is not possible. In a letter to the Bolsa Chica Land Trust dated June 13, 2005, Ron Metzler, Vice President, Planning and Entitlement for Shea Homes stated in part: “We do not believe it is appropriate or helpful to have your biologist conduct vegetation and soil studies on our subject property, and therefore deny your request to do so.” We would like to know what Shea Homes is afraid of. Moreover, we would welcome soils testing conducted by an independent and impartial party and urge the Commission to pursue this at the applicant’s expense.

In a report to the Bolsa Chica Land Trust dated June 12, 2006 and submitted to the Coastal Commission, biologist Julie Fontaine of Trestles Environmental stated:

GLA, under the recommendations of Michael Joselyn of WRA, employed the *alpha-alpha* dipyrindyl dye for proof of anaerobiosis. The studies were utilized and interpreted to determine when anaerobic conditions commenced in saturated soil. Unfortunately the use of the dye does not demonstrate *when* anaerobiosis commences, only that there is the presence of reduced iron in the soil solution. Both GLA and Dr. Josselyn failed to consider basic principals of reducing chemical reactions in hydric soil.”

Fontaine further stated:

Incorrect is the statement relating to the duration of saturated conditions (25-40 day) in the soils studied on the property for this given time frame. In order to effectively provide proof of anaerobiosis, the Shea Homes consulting team should collect redox measurements during soil saturation. This will provide information on the point where oxygen levels in the soil are depleted, as well as the duration that anaerobic conditions persist during soil saturation.

At best, the developer's hydric soil information is inconclusive. Redoximorphic features are present in some areas. Recent data collection could not provide sufficient information to establish whether hydric soil criteria has or has not been met.

Extent of Wetlands - We believe that Staff's estimation that approximately two acres of wetland area exists at the site understates the full extent of wetlands on the Shea property.

In a report to the Bolsa Chica Land Trust dated October 8, 2005 and submitted to the Coastal Commission, biologist Julie Fontaine of Trestles Environmental stated:

Trestles has prepared a wetland map, generated based upon empirical data and data collected by others, where the CCC definition of wetland has been met on the property. The 5-acre "County" parcel meets the definition based upon vegetation, soils, and hydrology on approximately 1.5 acres. A portion of the 45 acre "City" parcel meets the definition of wetlands based upon vegetation and hydrology in areas adjacent to the Wintersburg Channel and in the northern portion of the property. This includes approximately 7.9 acres of EPA-delineated area in the northern portion of the site. . . and 3.3 acres along the Wintersburg Channel.

Please see attached Figure 1.

Biologist Christina Schaeffer in her report of March 21, 2005 stated:

. . . I conclude that the site currently contains pockets of wetlands under the Coastal Commission's definition. . . These pockets are mainly concentrated in the southern, south-western, and south-central portion of the site, with irregular ponding occurring in the south-eastern portion of the site along the flood control channel. Judging by ponding patterns published on the website, regularly inundated/saturated areas make up approximately 30 percent of the site, and more during unusually wet years.

The Bixby data demonstrates that an even larger portion of the property meets the Coastal Commission definition of wetlands. Please see the attached exhibits referenced under Vegetation and Hydrology. We contend that the areas shaded in orange qualify as wetlands under Section 30233 of the Coastal Act.

The Bolsa Chica Land Trust urges that an independent review of all wetlands indicators and data be conducted by a panel of independent experts under the direction of CCC staff. This is not without precedent and would be similar to the procedure used by CCC to assess raptor habitat and needs at the adjacent Brightwater/Bolsa Chica Mesa site.

II. The LCP Amendment must recognize and provide all mandated protections to the Environmentally Sensitive Habitat Areas on the Shea/Parkside property.

Section 30107.5 of the Coastal Act reads: "Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem which could be easily disturbed or degraded by human activities and developments.

The Shea property contains significant Environmentally Sensitive Habitat area. In a report to the Bolsa Chica Land Trust dated June 8, 2006 and submitted to the Coastal Commission, raptor expert Peter H. Bloom stated:

Raptor use (nesting, roosting, and foraging) of the Eucalyptus ESHA and adjacent area on the Bolsa Chica Mesa has been documented by my work from 1982 to the present to include California state listed peregrine falcon, as well as osprey, fully protected white-tailed kite, red-shouldered hawk, red-tailed hawk, Cooper's hawk, kestrel, turkey vulture, northern harrier, great horned owl and barn owl. This parcel is a vital ecological magnet for the area for raptor perching, nesting, and foraging; and bodes that the existing California State declared Environmentally Sensitive Habitat Area (ESHA) (1976) should be expanded to include an additional 325 meters of Eucalyptus grove along the eastern edge of the Bolsa Chica mesa.

Mr. Bloom concluded:

Based on analysis of fieldwork accomplished by myself and others, I strongly recommend that this additional portion is the best and healthiest segment of raptor habitat in the immediate vicinity of the ESHA and should be conserved as additional segments of the existing ESHA.

III. The LCP must recognize and provide ESHA protection for the following endangered, threatened, or rare species which have been overlooked in the Staff Report.

Coastal California Gnatcatchers – In a report to the Bolsa Chica Land Trust dated December 22, 2004 and submitted to the Coastal Commission, biologist Robert A. Hamilton stated:

I have verified the presence of a pair of federally threatened Coastal California Gnatcatchers (*Polioptila californica californica*) that have been reported in the Bolsa Chica area in recent weeks. . . At 9:10 a.m. on 21 December 2004, Mark Bixby and I walked the Wintersburg Channel levy west and south from Slater Street to the area where a pair of California Gnatcatchers had been reported. Upon reach this area, I played a tape of California Gnatcatcher vocalizings, as authorized on Federal 10(A) Permits TE-799557. After the birds responded, I spent approximately 20 minutes observing and photographing them.

Numerous additional observations of gnatcatchers have been made subsequently by Mark Bixby and other local residents and photographic evidence is recorded on his website. Impacts to California Gnatcatchers and their habitat have been addressed in prior Commission actions. ESHA protection must be afforded this federally Threatened species on the Shea property.

Southern Tarplant – While Southern Tarplant is not a state or federally listed species, it is classified as a rare and endangered plant (List 1B.1) by the California Native Plant Society. Although at least a dozen stands of Southern Tarplant have been reported to the Commission and Shea Homes by Mark Bixby, no survey for Southern Tarplant has ever been performed on the Shea property. A thorough field survey should be conducted over more than one peak blooming season to establish the location of Southern Tarplant using transects over the 50 acre site. Locations should be mapped and marked using GPS coordinates.

Coastal Development Permit No. 5-05-020 dated December 15, 2005 for the adjacent Hearthside Homes/Brightwater development stated that “No development, as defined in Section 30106 of the Coastal Act, shall occur within the Southern Tarplant and Seasonal Pond Environmental Protection Area approved by the Executive Director in the final habitat management plan.” And, indeed, a Southern Tarplant and Seasonal Pond Protection Area has been set aside in the Hearthside development.

The same protections must be afforded Southern Tarplant on the Shea property.

Fairy Shrimp – Multiple species of Fairy Shrimp have been observed in the vernal pools located on the Shea property. They are short-lived animals that hatch and reproduce during a short interval in the winter when vernal pools are filled with water. Fairy shrimp cysts fall to the bottom of the pool where they withstand the hot, dry summers of California. After one or more dry seasons, the cysts will hatch when the pools are once again inundated and the cycle of life begins again.

The endangered San Diego Fairy Shrimp are known to be present at Fairview Park in Cosa Mesa, approximately six miles away from the Shea property. Although

observations of Fairy Shrimp are well documented on the Bixby website, no official survey meeting U.S. Fish and Wildlife Service protocols has ever been done to determine the exact species present on the property.

Wandering Skipper Butterfly – Although the Wandering Skipper Butterfly was never observed by the developer's consultants during preparation of the EIR, they have been observed and photographed on the Shea property every year for the last four years by local residents at Bolsa Chica. The Bixby website has a map specifying the locations where the Wandering Skipper has been found. ESHA protection must be afforded this federal Species of Concern on the Shea property.

IV. The LCP must require that adequate buffer areas be established to protect sensitive coastal resource and values on the Shea/Parkside property as mandated by the Coastal Act.

Section 30240 (a) of the California Coastal Act states in part: "Environmentally Sensitive Habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed in those areas."

The Bolsa Chica Land Trust applauds the decision by Staff to recognize the existence of eucalyptus ESHA along the southern and western boundary of the property and we fully support the establishment of a 100-meter buffer around the ESHA. Both the U.S. Fish and Wildlife Service and the state Department of Fish and Game have supported this buffer requirement. Adequate buffer width is required to provide essential raptor foraging area.

It is critical that there be complete connectivity between the eucalyptus ESHA area on the southern portion of the property and the staff-recommended ESHA on the northern portion of the property. Raptor expert Pete Bloom, whose work led to the initial establishment of eucalyptus ESHA at Bolsa Chica, stated in a personal communication that this was, in fact, his intention when his original report was written in 1982. There is no logical reason for an ESHA boundary to end at a legal boundary that wildlife cannot see and will not observe. The eucalyptus ESHA must be preserved in its entirety.

As Bloom stated in his report to the Bolsa Chica Land Trust of June 8, 2006:

Maintaining ecosystem integrity (see Karr 1992, De Leo and Levin 1997) of the Eucalyptus ESHA remains an important attribute for maintaining the remnant local raptor ecosystem component, present and future contributions to the regional raptor population and migration corridor, and to support prey components that contribute to a functional

ecosystem. The currently non-protected segment of the Eucalyptus ESHA is critical to that task, and its loss would contribute to further degradation of local ecosystem integrity.

Moreover, we consider the imposition of a “public view park,” even within the outer third of the ESHA buffer, to defeat the purpose of the buffer and contend that it is inconsistent with the mandates of the Coastal Act.

V. Conclusion

In conclusion, we respectfully request that the Commission DENY the Land Use Plan Amendment and Implementation Plan as submitted. We further request that the Commission DENY the Land Use Plan Amendment and Implementation Plan even as modified, until such time as additional independent analyses can be completed and adequate protections for wetland areas and ESHA have been included in the modifications.

Sincerely,



Marc Stirdivant
Executive Director
Bolsa Chica Land Trust

cc: Ms. Meg Vaughn
Dr. John Dixon

Vegetation – adding it all together



Hydrology – adding it all together



Figure 1. Coastal Commission Wetland Map (2000 Aerial)



ESHA - adding it all together

