CALIFORNIA COASTAL COMMISSION

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Commission Action:	

STAFF REPORT: REGULAR CALENDAR

APPLICATION NUMBER: **5-04-356** RECORD PACKET COPY

APPLICANT: University of California Natural Reserve System
University of California, Irvine
Dr. Peter Bowler, Dept. of Ecology & Evolutionary Biology

AGENT: Michael Josselyn, Wetlands Research Associates, Inc.

PROJECT LOCATION: San Joaquin Freshwater Marsh Reserve
North of University Drive/West of Campus Drive
Irvine, Orange County

PROJECT DESCRIPTION: Second phase of the San Joaquin Marsh restoration plan. Activities proposed include: 1) removal of 4,000 lineal feet (3.97 acres) of existing levees, 2) excavation of 13.08 acres of marsh vegetation to restore lost open water/mudflat habitat, 3) installation of a new pipeline along the east-west main levee to provide the flexibility to be able to pump water through the marsh system and between selected marsh units with a portable pump, 4) installation or repair/replacement of culvert connections between marsh units, 5) installation of 2.8 acres of riparian vegetation along existing levees and other newly created features to mitigate for 0.93 acre of riparian habitat lost during levee removal and construction of marsh connections, and 6) improvement and repair of existing levee roads to facilitate better access to marsh units throughout the marsh.

SUMMARY OF STAFF RECOMMENDATION:

Staff is recommending the Commission **approve** the proposed project subject to three (3) special conditions which are necessary to assure that the project conforms with Section 30233 of the Coastal Act regarding wetland protection and with Section 30240 regarding protection of environmentally sensitive habitat areas.

Special Condition No. 1 requires submittal of a revised monitoring plan including submittal of annual reports on the success of the proposed project; Special Condition No. 2 requires adherence to best management practices during construction and submittal of site access, staging, work area, equipment storage, and erosion control plan(s); Special Condition No. 3 requires that any changes to the approved plan be submitted to the Executive Director.

The standard of review for the proposed development is the Chapter 3 policies of the Coastal Act. The subject site is within the City of Irvine which has a certified Local Coastal

Program. However, because the site is part of the UC Irvine campus system, the City's LCP does not apply. UCI does not have a certified Long Range Development Plan. Thus, development on the UCI campus within the coastal zone requires a coastal development permit from the Coastal Commission.

LOCAL APPROVALS RECEIVED: Streambed Alteration Agreement # 1600-2004-0375-R5

SUBSTANTIVE FILE DOCUMENTS: Coastal Development Permit application No. 5-99-089 (UCI & California Coastal Conservancy); 5-93-253 (Hoag Memorial Hospital); Streambed Alteration Agreement # 1600-2004-0375-R5; Pre-Construction Notification document for Nationwide Permit 27 to U.S. Army Corps of Engineers, July 2004; Vascular Plant Checklist for the UCNRS San Joaquin Freshwater Marsh Reserve, Bowler and Elvin, August 2004; Species List for UCNRS San Joaquin Marsh Reserve, Bowler, February 2005; 2004 Report on Avian Surveys at UCNRS San Joaquin Freshwater Marsh Reserve, Harmsworth Associates, January 2005; and Report on California Gnatcatcher and Cactus Wren Surveys at the UCNRS San Joaquin Freshwater Marsh Reserve and Ecological Preserve, Harmsworth Associates, January 2005

I. APPROVAL WITH CONDITIONS

STAFF RECOMMENDATION:

Staff recommends that the Commission **APPROVE** the permit application as conditioned.

MOTION: ***I move that the Commission approve Coastal Development Permit No. 5-04-356 pursuant to the staff recommendation.***

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO APPROVE THE PERMIT:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit 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 development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS:

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date this permit is reported to the Commission. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and Conditions of the permit.

5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS:

1. Revised Monitoring Plan

A. **Prior to issuance of the coastal development permit**, the applicant shall submit for the review and approval of the Executive Director a revised Monitoring Plan that incorporates the requirements of Streambed Alteration Agreement No. 1600-2004-0375-R5 (SAA) dated January 20, 2005, including, but not limited to, preparation and submittal to the Executive Director of an annual report (described in item 7 of the Streambed Alteration Agreement), and the success criteria (described in item 8 of the SAA).

B. The applicant shall comply with all requirements in Streambed Alteration Agreement No. 1600-2005-0375-R5.

C. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

2. General Construction Responsibilities

A. The permittee shall comply with the following construction-related requirements:

1. To avoid adverse impacts on nesting/breeding birds, construction shall not occur from March 15th to September 15th of any year. However, work may occur during this time if a qualified biologist conducts a minimum of three days of surveys for nesting birds within seven days prior to vegetation removal, and at least one survey must be within three days prior to vegetation removal, consistent with the requirements of Streambed Alteration Agreement Notification No. 1600-2004-0375-R5. These surveys shall be submitted for the review and approval of the Executive Director.
2. Prior to commencement of any work approved by this permit, a temporary barrier or work area demarcation (such as but not limited to flagging, staking or plastic mesh fencing) shall be placed between the construction areas and habitat areas to remain undisturbed. Barriers and other work area demarcations shall be inspected and approved by a qualified biologist. All temporary flagging, staking, fencing shall be removed upon completion of the development. No work shall occur beyond the limits of the project as identified on the project plans (San Joaquin Marsh Enhancement-Phase II, prepared by Noble, dated 4/30/05).
3. No construction materials, debris, or waste shall be placed or stored where it may encroach upon adjacent habitat areas or enter any storm drain, or San Diego Creek;
4. Construction materials, chemicals, debris and sediment shall be properly contained and secured on site to prevent the unintended transport of material, chemicals, debris, and sediment into habitat areas, including the freshwater marsh and San Diego Creek by wind, rain or tracking. Best Management Practices (BMPs) and Good Housekeeping Practices (GHPs) designed to prevent spillage and/or runoff of construction-related materials, and to contain sediment or contaminants associated with construction activity, shall be implemented prior to the on-set of such activity. BMPs selected shall be maintained in a functional condition throughout the duration of the project. A pre-construction meeting shall be held for all personnel to review procedural and BMP/GHP guidelines.
5. Disposal of debris and excess material. Debris and excess material shall be disposed or recycled at a legal disposal/recycling site. If the disposal site is located in the coastal zone, a coastal development permit or an amendment to this permit shall be required before disposal can take place unless the Executive Director determines that no amendment or new permit is required. No debris or excess material shall be placed on or within habitat areas except as provided in the enhancement plan.
6. Debris and sediment shall be removed from the construction areas as necessary to prevent the accumulation of sediment and other debris which may be discharged into habitat areas and coastal waters.
7. Any and all debris resulting from construction activities shall be removed from the project site within 24 hours of completion of construction.

8. Construction vehicles shall not be stored or serviced on site.

B. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit site access, staging, work area, equipment storage, and erosion control plan(s) which conforms with the requirements of subsection A.1 through A.8. of this special condition. The permittee shall undertake development in accordance with the approved final plan(s). Any proposed changes to the approved final plan(s) shall be reported to the Executive Director. No changes to the approved final plan(s) shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

3. Changes to Approved Plan

Any changes to the approved final plans and any cessation of work prior to completion, shall be reported to the Executive Director. All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions set forth herein. Any deviation from the approved plans must be reviewed and approved by the Executive Director and may require Commission approval.

IV. FINDINGS AND DECLARATIONS:

The Commission hereby finds and declares:

A. Project Description

The applicant proposes to implement the second phase of the San Joaquin Marsh restoration plan. The first phase of the restoration plan was completed in 1999 pursuant to coastal development permit No. 5-99-089. Activities proposed include: 1) removal of 4,000 lineal feet (3.97 acres) of existing levees, 2) excavation of 13.08 acres of marsh vegetation to restore lost open water/mudflat habitat, 3) installation of a new pipeline along the east-west main levee to provide the flexibility to be able to pump water through the marsh system and between selected marsh units with a portable pump, 4) installation or repair/replacement of culvert connections between marsh units, 5) installation of 2.8 acres of riparian vegetation along existing levees and other newly created features to mitigate for 0.93 acre of riparian habitat lost during levee removal and construction of marsh connections, and 6) improvement and repair of existing levee roads to facilitate better access to marsh units throughout the marsh.

According to information submitted with the permit application, the overall purpose of Phase II of the restoration plan is to improve water movement within the freshwater marsh, specifically to increase water circulation through the Phase II area, and to restore open water habitat to the existing marsh system where it has been diminished by growth of cattails and localized siltation.

Excavation of 103,377 cubic yards and fill of 42,377 cubic yards is proposed to accomplish the proposed restoration. The proposed grading will result in a net export of 61,000 cubic yards of excess cut material. Some of the excavated material is proposed to be placed on existing levees between and around the perimeter of the ponds constructed in the Phase I area. Approximately 38,393 cubic yards of material is proposed to be used to raise levees or construct levee connections/road extensions. A portion of the excavated materials (approximately 3,984 cubic yards) is proposed to be placed in upland areas around the periphery of the freshwater marsh that currently are ruderal and/or serve as access roads. The remainder of the excavated material that cannot be used on-site (61,000 cubic yards) is proposed to be disposed of off-site. The applicant has indicated that the excess cut material will be disposed of at a nearby landfill. Special condition 2 requires that if the location of the disposal site is within the coastal zone, an amendment to the coastal development permit or a new coastal development permit may be necessary.

The coastal zone boundary cuts through the San Joaquin Freshwater Marsh Reserve. Of the total 202 acre reserve area, 95 acres are within the coastal zone. The Phase I area comprises approximately 28 acres within the coastal zone. And the Phase II area comprises approximately 67 acres within the coastal zone. The total acreage (including the area outside the coastal zone) of the Phase II area is approximately 180 acres. All of the Lower Marsh, and virtually all of the Middle Marsh, as well as the majority of the Phase I area, are located within the coastal zone. The Upper Marsh and Seasonal Marsh are located outside the coastal zone. The proposed levee removal (with retained "wildlife islands"), raising of levees, excavation of the lower marsh, the new marsh outlet into San Diego Creek, placement of the buried pipeline within the main east-west levee, and portions of the proposed installation of riparian vegetation will occur within the coastal zone. Excavation to create the seasonal marsh, portions of the proposed installation of riparian vegetation, and the road extension will occur outside the coastal zone. Exhibit B shows the location of the coastal zone boundary relative to the entire project.

In its current state, the Phase II area of the marsh consists of several individual marsh units separated by levees that are largely filled with emergent vegetation, primarily cattails. Water is distributed to these marsh units sequentially via culverts and gates. Inflow is primarily from direct precipitation, surface runoff, and from the channel draining the Irvine Ranch Water District and other lands on the northeast side of Campus Drive. There is no through-marsh channel system and water must flow sequentially through each marsh unit in the system. Siltation and the inability to control water levels has resulted in the spread of cattails throughout the marsh units which has substantially decreased habitat diversity within the Phase II area. A detailed description of the proposed restoration measures follows.

The majority of two existing levees are proposed to be removed. Portions of the levees with good tree canopy are proposed to left in place as "wildlife habitat islands". Approximately 4,000 lineal feet of levees are proposed to be removed, resulting in a net increase in wetland area of 3.97 acres. The removal of the levees is proposed to restore natural flow through the wetland area and to create additional emergent wetland habitat.

The marsh excavation is proposed to include creation of a meandering channel to be constructed through the seasonal marsh area from Campus Drive to the northeast corner of the Phase I area, restoring 6.92 acres of open water/mudflat to the existing marsh system by excavating 6.92 acres of the existing seasonal marsh. Currently, the seasonal marsh area is almost fully vegetated, containing less than 1 percent open water. A basin connecting to San Diego Creek will be excavated in the cattail dominated lower marsh area which will result in restoration of 6.16 acres of open water/mudflat to the existing marsh system by excavating 6.16 acres of existing cattail marsh. Currently, the lower marsh area contains about 2 percent open water. The increase in water circulation resulting from the proposed project is expected to decrease the potential for sedimentation in the marsh, which would make future maintenance excavation unnecessary.

A new pipeline is proposed to be placed along the main east-west levee to pump water through the marsh system and between marsh units with a portable pump. The proposed pipeline will extend from the Campus Drive inlet to the lower marsh. Phase II restoration has been designed to improve water movement through the marshland by gravity flow and use of the repaired/replaced water control structures. Pumping between marsh units is not expected to be utilized as a regular management tool due to operational costs.

Culvert connections between marsh units are proposed to be installed, repaired, or replaced (as needed) to improve water circulation within the marsh. In some cases, accumulated sediments may be removed during culvert placement. The proposed culverts are intended to allow water to circulate naturally between areas of the marsh. The proposed culverts would also allow water flow to be managed by opening/closing slide gates and pumping the water. In addition, one new outlet location is proposed to be install to connect the lower marsh to San Diego Creek at approximately +3 feet NAVD 88, a lower invert elevation than the existing outlets. The new outlet is proposed to allow better marsh drainage and an opportunity for more frequent inflows from the creek. Two 24 inch diameter pipes are proposed to be installed. The pipes are to be fitted with slide gates which may be closed to prevent exchanges of water in either direction when desired.

Riparian vegetation is proposed to be installed along existing levees to remain and along newly created wetland features in order to offset the 0.93 acre of riparian habitat that will be lost due to the proposed levee removal (0.77 acre) and excavation of connections between marsh units (0.16). The proposed riparian vegetation will be planted at a 3:1 acreage ratio, creating 2.8 acres of new riparian habitat.

Levee roads are proposed to be raised and repaired. In addition, new levee connections and extensions are proposed. Many of the Phase I levees are proposed to be raised where they have subsided over time, primarily at the northern end of the ponds. Some material is also proposed to be placed around the perimeter roads. A 100-foot levee connection is proposed to be constructed to create access between Phase I ponds and the Phase II marsh and a 65-foot road extension is proposed between an existing road and the main east-west levee to improve access to the upper marsh area. These measures are proposed to improve access throughout the marsh for University, Reserve, and other authorized personnel. Only limited public access will be allowed within the marsh, primarily via scheduled tours and educational programs.

Electrical service is proposed to be installed at various locations within the marsh to assist university research projects.

B. Project Location & History

The San Joaquin Marsh is a remnant of an extensive marsh system that once existed along the ancestral course of the Santa Ana River to Newport Bay. The river has long since altered course, leaving the existing marsh as an abandoned arm. Historically, the marsh was contiguous with and exchanged water directly with San Diego Creek. San Diego Creek, located along the southern border of the marsh and separated by a levee, drains into Upper Newport Bay and then into the Pacific Ocean less than 5 miles downstream. When the creek was channelized in 1968, flow between the marsh and San Diego Creek was impeded by the flood control levee and water exchange was limited to installed water control structures. In addition, prior to 1958, a duck club converted part of the Marsh (the entire Phase I area and portions of Phase II) into a system of levees and ponds.

The San Joaquin marsh is historically a part of the flood plain for San Diego Creek, but was also subject to tidal inundation from Upper Newport Bay. San Diego Creek was a tributary of the Santa Ana River delta system. In 1825 a large flood shifted the course of the Santa Ana River northwest and San Diego Creek became the sole drainage feeding Upper Newport Bay. Up until the 1800's the San Joaquin marsh was a part of an extensive wetland complex. The Spanish brought agriculture and cattle grazing. In modern times, agricultural uses have been replaced with industry, retail and residential uses. In the early 1900's gun clubs leased the San Joaquin Marsh area for hunting. The San Joaquin Gun Club installed a system of dikes, ditches and pipes to divert water from San Diego Creek. In 1934 the Irvine Company built a saltworks in Upper Newport Bay and constructed a dam across San Diego Creek to protect the salt-evaporation ponds from sedimentation. The gun club ponds at San Joaquin Marsh were purchased for inclusion into the Natural Reserve System in 1970.

In 1968 the San Diego Creek flood control channel was constructed. The flood control channel had the effect of isolating the San Joaquin Marsh from its source of freshwater (San Diego Creek) and tidal influences from Upper Newport Bay. Currently the ponds obtain water from direct precipitation, runoff from surrounding areas, and back flooding from an outlet pipe from San Diego Creek during flood events. Local surface runoff enters the marsh via a drainage channel that runs under Campus Drive and flows through the adjacent riparian complex owned by the Irvine Ranch Water District.

The County flood control agency installed the water control structure at the time of channelization to allow the marshland to drain into the engineered creek channel, but the structure was installed at an elevation which allowed drainage out of the lower marsh area only during flood conditions when the marsh was full. A second culvert was installed downstream of the first at a slightly lower elevation during Phase I of the restoration, but the marsh must still be nearly full to allow drainage. Similarly, water can only enter the lower marsh from San Diego Creek during floods when the water level in the creek is high

enough to enter installed water control structures (and then only when the gates are open). Many winters, there is not a single flood event which generates enough creek flow to allow backflooding into the marsh.

Unlike most marshes that are "open" systems based on their ability to receive water and return it to rivers or streams, San Joaquin Marsh receives water from various controlled sources and its outflow is regulated through culverts back to San Diego Creek. The site currently exhibits perennial and seasonal freshwater to brackish marsh and ponds; riparian woodlands within the leveed portion of the wetland and along San Diego Creek; and coastal sage scrub areas along levee banks.

Marshes are zonal in plant distribution, with the zones defined by the depth and duration of inundation. Within the study area, multiple zones occur in permanently ponded areas, ranging from floating-leaf plants in open waters to deepwater emergents to shallow water emergents. The majority of the marshland ponds water only seasonally, and supports a variety of emergent freshwater plants. In the early 1900s and before, the study area was used for agricultural purposes and leased to duck clubs which converted a portion of the marsh into duck ponds; much of the site has since been restored to marshland and is currently operated as a wildlife sanctuary. It is primarily managed for research and educational purposes by UC Irvine, but limited, controlled public use is allowed by arranged permission.

The San Joaquin Marsh Reserve is owned by the Regents of the University of California and managed through the UC Natural Reserve System (UCNRS) and the University of California, Irvine (UCI) School of Biological Sciences. The Reserve has been managed since 1970 to provide mixed wetland habitat for wildlife and to maintain a natural facility for academic research and student education. Information submitted with the application describes the mission of the Natural Reserve System as follows: "The mission of the Natural Reserve System is to contribute to the understanding and wise management of the Earth and its natural systems by supporting university-level teaching, research, and public service at protected natural areas throughout California. In this context, the San Joaquin Marsh Reserve is managed for naturalness to the extent possible, with the presence of water, particularly in the Phase II area, following the natural hydroperiod for the region and climate. To the extent feasible, wildlife, their habitat, and other natural resources are protected from disturbance. Biological and physical resources are managed passively to retain their value as examples of natural conditions. Recreational use and unrestricted public access are not permitted."

The San Joaquin Marsh is a part of the University of California natural Reserve System (UCNRS). The regents of the University established the reserve system in 1965 to set aside representative ecologically diverse habitats and manage them in perpetuity as outdoor classrooms and outdoor laboratories for ecological study. The UCNRS functions as a Trustee Agency of the State, mandated by the California Environmental Quality Act to protect and steward the natural resources of its reserves to serve the public interest. Today the reserve system encompasses 33 sites, six of which are coastal zone reserves (Bodega Marine Reserve, Carpinteria Salt Marsh Reserve, Coal Oil Point Natural Reserve, Kendall-Frost Mission Bay Reserve, San Joaquin Freshwater Marsh Reserve, and the

Younger Lagoon Reserve). Traditionally, NRS lands are reserved for research and educational activities and are off-limits to the public except by appointment.

The educational opportunities at the Marsh include a recording weather station and observation blinds. The Museum of Systemic Biology houses collections of representative plants and insects of the Reserve and publishes articles about the Reserve ecology. Each year 50 - 75 people receive permits to use the Reserve. There are public access opportunities as well. An average of two formal tours per month for local school and community groups are taken into the Reserve. The Reserve also has a website on the internet which includes information which can be used in conjunction with site visits or as general wetlands teaching guides.

The project area is adjacent to the UCI main campus and is bordered on the south side by San Diego Creek. Adjacent land uses include UCI open space, the UCI Arboretum, and other UCI development to the north; Campus Drive and Irvine Ranch Water District (IRWD) ponds to the east; and San Diego Creek, University Drive, and UCI main campus development to the south.

The Phase II project area includes the Phase I ponds and the Phase II marshland, which is further divided into lower, middle, upper, and seasonal marsh units separated by levees (see exhibit B). Although the entire Phase I area is included in the project area, the only work proposed within the Phase I site is to raise some of the levees to a consistent elevation and to replace some culverts connecting Phase I and Phase II areas. The Hoag Hospital mitigation site (subject of coastal development permit 5-93-253) is in the southeast corner of the Phase I area but is not a part of the current project area.

In 1999, the Commission approved coastal development permit 5-99-089 for the first phase of the marsh restoration. Development approved under that permit included grading and excavation of existing seasonal wetland duck ponds, re-contouring the pond floors to provide a diversity of open water and freshwater marsh habitat, regrading the levees to impound water at specific depths and improve the existing hydrology by pumping water from San Diego Creek, and planting upland areas with coastal sage scrub vegetation. The first phase of the restoration project was completed in 1999. The California Coastal Conservancy was a co-applicant on that project and provided funding.

In addition, the Commission has approved several other permits for the Marsh: P-2-1-77-59 (University of Irvine), 5-87-644 (University of California Irvine), and 5-93-253 (Hoag Memorial Hospital). Approval of coastal development permit P-2-1-77-59 allowed construction of a 30 foot wide by-pass channel, vegetation clearance, installation of culverts, and removal of sediment to deepen existing ponds. Coastal development permit 5-87-644 was approved for the renovation of Pond No. 4 and involved the removal of excessive overgrowth of marsh vegetation to enhance habitat value. There were no special conditions. CDP 5-93-253 was approved for an expansion of Hoag Memorial Hospital which involved the removal of 1.52 acres of wetlands for a public service purpose. Mitigation for the wetlands impacts due to the approved hospital expansion was also approved under CDP 5-93-253. The approved mitigation for the wetland removal involved the restoration of 4.56 acres of freshwater marsh within the San Joaquin Freshwater

Marsh Reserve. The Hoag mitigation site consists of a 3.0 acre seasonal pond, a 0.75 acre portion of upland and a 0.81 acres portion of an adjoining seasonal pond.

C. Wetlands

Section 30233 of the Coastal Act states, in pertinent part:

(a) 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 environmentally effects, and shall be limited to the following:

...

(7) Restoration purposes.

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

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. ...

The proposed development involves excavation of 103,377 cubic yards from the San Joaquin Marsh. The Coastal Act definition of wetland includes saltwater marshes and freshwater marshes. The proposed development's excavation within the marsh constitutes dredging in a wetland. Thus, the project must be reviewed for conformance with Section 30233 of the Coastal Act. In order to be consistent with Section 30233, a project that involves filling or dredging in a wetland must meet the three-prong test. The use must be one of the uses specifically allowed, it must be the least environmentally damaging alternative, and it must provide adequate mitigation to offset any impacts created by the project.

1) Allowable Use

The goal of the proposed project is to restore the amount of open water area within the marsh to an area more consistent with the amount of historical open water area that existed prior to construction of the duck club in the early 1900s. Thus the project constitutes a restoration project. In addition, the area currently is used by the University for nature study. The proposed project will continue to allow study of the natural system, and will return the system to a more natural state, thus improving nature study opportunities. Thus, the proposed project is an allowable use in that it constitutes a nature study project. The proposed development meets the Section 30233 allowable use requirement on two counts, as a restoration project and because it provides an opportunity

for nature study. Therefore, the proposed development is consistent with Section 30233 of the Coastal Act with regard to uses allowed within wetlands.

2) Alternatives

In addition to the proposed alternative, three other alternatives were considered for the proposed project. These included: the no project alternative, levee removal and pipeline construction alternative, and, levee removal, pipeline construction and marsh excavation near San Diego Creek alternative. The no project alternative would leave the marsh in its current condition. Under this alternative, cattail growth and expansion will continue into the limited open water areas that currently exist. In addition, the water distribution structures will continue to be inefficient and management cost for vegetation control and vector control will increase. No increase in wetland habitat would occur under this alternative and habitat diversity would not be increased.

Under the second alternative, levees would be removed, a flow-through channel would be constructed, and a pipeline would be installed along the main east-west alignment to distribute water to the remaining freshwater marsh units. This alternative would result in a net increase in wetland habitat; however, the water distribution system would not be restricted by the amount of flow that could be transported within the pipeline distribution system and through the constructed channel. In addition, water distribution will be limited by proximity to the main levee where both the pipeline and channel will be located. The pipeline system will require maintenance and adjustment on an annual basis. This alternative would create 1.66 acre of open water habitat and thus would not result in a significant increase in habitat diversity.

The third alternative is similar to the second alternative. However, it would also involve the excavation of a channel/open water basin system through an area of cattail in the lower marsh near San Diego Creek, and the installation of a connecting culvert through the levee to allow for cycling of water through the constructed channel to and from the creek. This alternative would still rely on the pipeline and seasonal marsh channel to distribute water along the main axis of the marsh system. Approximately 7.82 acres of open water/mudflat and emergent marsh would be created under this alternative.

Under the proposed alternative, water will continue to flow through the marsh and discharge into San Diego Creek as it currently does and did historically. Proposed flow management will continue to follow natural environmental conditions regarding flow volumes. However, once water enters the marsh it will follow a more directed flow path through the marsh system. Currently, there is minimal water movement within the Phase II area because individual marsh units are separated by levees and many culverts connecting them are non-functional. By installing a pipeline and new water control structures which can be opened and closed, water can be directed to areas within the Phase II marsh where it would be most beneficial. Water in Phase II could also be actively moved from one marsh unit to another by a portable pump, however, Phase II restoration has been designed to improve water movement through the marshland by gravity flow and use of repaired/replaced water control structures. Pumping between marsh units is not expected to be utilized as a regular management tool due to operational costs.

The Phase I area, which is a more artificial system of ponds created for waterfowl by the duck club in the early 1900s, is managed separately from Phase II. Active pumping from San Diego Creek occurs at times to provide water to Phase I ponds, however, this water does not enter the Phase II area.

The proposed alternative was chosen because it provides the greatest flexibility for water distribution and management within the marsh. It provides better water circulation and management flexibility by creating a flow-through system connecting marsh units from San Diego Creek to Campus Drive. Flow through the marsh system can be controlled by pumping between desired marsh units. The created channel system will not require significant maintenance except for possible removal of silt near the inlet structures. It supplies greater habitat diversity than other alternatives by incorporating the restoration of lost marsh components such as open water and mudflat, and the creation of new riparian habitat adjacent to wetland and/or water features.

The proposed alternative will result in the greatest net increase in wetland habitat through the removal of upland levee roads (3.97 acres). It will also result in a significant increase in habitat diversity and habitat quality in portions of the marsh which have become degraded by sedimentation and subsequent proliferation of emergent vegetation (seasonal and lower marsh areas). Open water and mudflat areas (13.08 acres) will be restored to these marsh units by excavating existing marsh. These restored habitat areas will provide foraging habitat for the California least tern and other fish eating birds. In addition, waterfowl and shorebirds are expected to utilize the open water and mudflat areas. It is expected that fish will colonize the open water areas more readily and therefore improve vector control. Planting riparian trees adjacent to wetland/water features in the seasonal marsh area and around the periphery of the marsh system will improve habitat quality for many bird species.

The proposed alternative is the least environmentally damaging in that it provides the greatest benefits without significant additional impacts. Therefore, the proposed alternative is consistent with Section 30233's requirement that fill or dredge of wetlands must be the least environmentally damaging alternative.

3) Mitigation

Section 30233 of the Coastal Act requires that wetland projects include feasible mitigation measures to minimize adverse environmental effects. As stated previously, the objective of the proposed project is restoration. As such, the question of adequate mitigation is somewhat different than with other projects that would result in a net loss of wetland without mitigation.

The proposed project is a restoration plan for the continued improvement of the San Joaquin Freshwater Marsh. The net effects of the project are beneficial and will result in improved water management and increased habitat diversity. The Phase I portion of the project and the Hoag Hospital mitigation site have both been shown to have a net increase in wetland habitat and a positive increase in plant and animal diversity. It is expected that

the Phase II portion of the restoration project will have similar positive benefits. However, some impacts will occur as a result of the project.

Although several portions of levees with good tree canopy will be preserved as wildlife habitat islands, the removal of levees will result in the loss of approximately 0.77 acres of riparian trees (primarily willow and mulefat) that are growing on these levees. In addition, 0.16 acre of riparian trees will be eliminated during excavation necessary to construct flow-through connections between lower marsh and adjacent marsh units. To compensate for this loss of riparian vegetation, the applicant proposes the implementation of a mitigation program to plant additional trees and shrubs along the edges of the marsh and along created wetland features at a 3:1 acreage ration (2.8 acres total). Over ninety-three percent of the existing riparian habitat will remain unaffected by the proposed project.

Construction of the proposed project will result in the excavation of existing wetland areas and the net loss of emergent vegetation. However, removal of this vegetation, primarily cattails, is not considered to be an adverse impact, but rather a goal of the restoration project. This vegetation has invaded the freshwater marsh and replaced open water habitat over time as water levels have decreased or siltation has occurred within the marsh system. Currently, the seasonal marsh area is almost fully vegetated, containing less than 1 percent open water habitat, while the lower marsh area contains about 2 percent open water habitat. The project will convert existing cattail marsh (6.16 acres; 27%) and seasonal marsh (6.92 acres; 17%) to open water and mudflat habitat. Restoration of open water and mudflat habitat will improve habitat diversity in the marsh system and potentially decrease vector problems by decreasing the area of dense cattail growth. In addition, hydrological improvements will result in better water management and the potential to create more permanent open water habitats for resident and migratory birds. Thus, no mitigation is proposed for the loss of emergent vegetation as its removal will restore the lost open water component to the seasonal marsh and lower marsh units of the existing marsh system, and thereby increase the habitat value of the marsh system.

Construction of the proposed development has the potential to cause temporary adverse impacts to sensitive species, including nesting birds, if those species are present during construction. In addition, soil from the proposed excavation could create adverse impacts if not properly managed. Potential impacts to sensitive species could be significantly minimized by imposing measures such as restrictions on timing of construction (i.e. avoiding the nesting season), requiring pre-construction surveys, and periodic biological monitoring of the site during construction. If active nests of sensitive birds are identified, halting work or limiting it to an area that would not adversely effect the nest would minimize the potential adverse impact. Potential impacts from the excavated soil would be significantly reduced by restricting excavation activities to the dry season and placement of silt fencing and fiber rolls. Therefore, a special condition is imposed which requires mitigation measures during construction to assure that any adverse environmental impacts of the proposed development are minimized to the maximum extent feasible. In addition, a special condition is imposed which requires that the project be carried out as proposed, including the wetland restoration and riparian mitigation program. Any changes to the proposed plan are required to be submitted to the Executive Director to determine whether an amendment to this permit or a new permit is required. Therefore, only as conditioned,

is the project consistent with Section 30233 of the Coastal Act with regard to the provision of adequate mitigation.

4. Section 30233(d)

Section 30233(d) states:

> *Erosion control and flood control facilities constructed on water courses can impede the movement of sediment and nutrients which would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for such purposes are the method of placement, time of year of placement, and sensitivity of the placement area.*

The proposed project is not an erosion control or flood control facility. Nevertheless, a significant of amount of marsh material is proposed to be excavated (103,377 cubic yards and fill of 42,377 cubic yards, a net export of 61,000 cubic yards), which, if suitable, would be useful for beach replenishment. The export material has been examined for suitability for beach replenishment by the project geotechnical engineer and coastal engineer (see exhibit C). Regarding suitability for beach replenishment, a letter from the project coastal engineer states:

> *"As mentioned in our August 19, 2005 letter, five shallow cores were obtained in the project area. A grain size analysis was performed on two of the samples. The D50 of the samples was 0.003 mm and 0.07 mm. Further, the percentage of material passing the No. 200 sieve, and approximate limit of sandy material, was 97 percent and 51 percent. In other words, 3 percent of one sample was sand or larger material, and 49 percent of the other sample was sand. The project Geotechnical Engineer classified these samples as Fat Clay (CH) and silty clay (CL), respectively.*
>
> *It is our experience that a minimum of 80 percent sand material is desired prior to placing dredged or excavated material either on an ocean beach or in the nearshore zoned. Ideally, the material should be similar to, or have a larger grain size than, the beach material. Therefore, it is our opinion that the material to be excavated from the San Joaquin Marsh Enhancement Project is too fine and will not be suitable for beach nourishment."*

The grain size of the material is too fine to be suitable for beach replenishment. Thus beach replenishment is not proposed as part of the subject project. The applicant has indicated that the export will be taken to a nearby landfill.

D. Environmentally Sensitive Habitat Areas

Section 30107.5 of the Coastal Act defines environmentally sensitive area (ESHA) as:

"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 the ecosystem and which could be easily disturbed or degraded by human activities and developments.

Section 30240 of the Coastal Act states:

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

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

Section 30240 of the Coastal Act limits the amount and types of development that may occur within and adjacent to an environmentally sensitive habitat area (ESHA). The Coastal Act defines environmentally sensitive area as "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."

A Biological Resources report was prepared for the proposed project by Wetlands Research Associates, Inc. dated March 2003. The Biological Resources report identifies species that occur and are likely or expected to occur within the San Joaquin Freshwater Marsh Reserve. In addition, surveys of marsh flora and fauna are conducted by the University on a regular basis. The following recent surveys were included in the coastal development permit application file: Vascular Plant Checklist for the UCNRS San Joaquin Freshwater Marsh Reserve, Bowler and Elvin, August 2004; Species List for UCNRS San Joaquin Marsh Reserve, Bowler, February 2005; 2004 Report on Avian Surveys at UCNRS San Joaquin Freshwater Marsh Reserve, Harmsworth Associates, January 2005; and, Report on California Gnatcatcher and Cactus Wren Surveys at the UCNRS San Joaquin Freshwater Marsh Reserve and Ecological Preserve, Harmsworth Associates, January 2005.

Regarding the subject site, the Vascular Plant Checklist for the UCNRS San Joaquin Freshwater Marsh Reserve, Bowler and Elvin, August 2004, states:

"The San Joaquin Freshwater Marsh Reserve is a significant wetland remnant near the larger salt marsh wetland in the Upper Newport Bay Ecological Reserve. The SJFMR is used for teaching and research, and because of controlled human access, it is a true refuge, with 263 bird species and abundant other wildlife having been recorded there."

A number of federally and state listed birds exist or are likely to exist within the marsh. Among those known to occur at the site are the snowy egret (federal species of concern), white faced ibis (federal species of concern and CDFG species of special concern), white tailed kite (federal species of concern and CDFG fully protected animal), osprey (CDFG species of special concern), and the Califomia least tern (federal and state endangered species). In addition, a number of other sensitive birds have high and moderate potential for occurrence at the site. In addition to sensitive bird species, the southwestern pond turtle, a federal and state species of special concern, has a high potential for occurring on site. Although it has not been sited recently, the pond turtle has been detected on the site by biologists during previous surveys, and suitable aquatic and upland habitat are available. In addition, sensitive plant species including southern tarplant and many-stemmed dudleya, both California Native Plant Society List 1B plants (rare, threatened, or endangered in California and elsewhere) are present on site.

In addition, the Report on California Gnatcatcher and Cactus Wren Surveys at the UCNRS San Joaquin Freshwater Marsh Reserve and Ecological Preserve, Harmsworth Associates, January 2005, found that in the nearby (see exhibit D) UCI Ecological Preserve, seven pairs of California gnatcatchers were present, and that within the area called the NCCP slopes, two pairs of California gnatcatchers were present. Additionally, two pairs of cactus wrens were recorded at the UCI Ecological Preserve. Within the subject site itself, two pairs of California gnatcatcher were recorded within the 2004 season.

The subject site supports significant types and amounts of sensitive plant and animal species and habitat that is rare and especially valuable because of their special nature or role in an ecosystem and which can be easily disturbed or degraded by human activities and developments. The site's ecological value is augmented by its proximity to the UCI Preserve and the Upper Newport Bay Ecological Reserve. Furthermore, the San Joaquin Freshwater marsh is part of the University of California Natural Reserve System and is dedicated in perpetuity as a public trust for nature preservation, restoration, nature study, and research. Thus, the site meets the Coastal Act definition of an environmentally sensitive habitat area (ESHA). As such, any development within the ESHA must conform with Section 30240 of the Coastal Act. Section 30240 of the Coastal Act requires that ESHA be protected against any significant disruption of habitat value and that only uses dependent on the ESHA resource are allowed within the ESHA. The proposed development is a restoration project that is intended to restore the site to its previous condition of higher functioning freshwater marsh and, thus, to increase the biodiversity at the site. Impacts have been minimized to the maximum extent feasible, and only that grading necessary to restore habitat is proposed. The impacts to existing sensitive habitats would result in habitat enhancement, and so will not result in a significant disruption of habitat values. The project includes replacing riparian habitat that would be lost due to levee removal at a ratio of 3:1. Thus no long term impacts are anticipated from the proposed project. In fact, the ESHA will be enhanced in the long term by the proposed project.

However, if certain measures are not implemented during construction, temporary short term impacts to the ESHA may occur. This includes potential impacts to nesting birds

during construction activities, adverse impacts due to erosion during construction, and adverse impacts due to noise from use of restoration-related construction equipment within the ESHA. These temporary impacts and any significant disruption to habitat values can be avoided by incorporating specific measures into the project. To avoid impacts to nesting birds, construction activity should be limited to the non-nesting season (September 15th through March 14th). However, if a qualified biologist conducts a minimum of three days of surveys for nesting sensitive birds within seven days prior to the construction activity, and at least one survey within three days prior to the construction activity, and no nesting sensitive birds are observed, construction may continue. However, if work is to occur within this nesting season based on surveys concluding an absence of nesting sensitive birds, a qualified biologist must be present to monitor all construction activities during this time. If breeding activities and/or an active sensitive bird nest is located, subject to the approval of the California Department of Fish and Game, the nest shall be fenced a minimum of 100 feet in all directions, and the area shall not be disturbed until the nest becomes inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, and the young will no longer be impacted by the construction activity.

In addition, impacts due to erosion during construction activities can be avoided or significantly minimized by placement of silt fencing, straw bales, sand bags, and/or the construction of silt catchment basins. In addition, sensitive areas not proposed for excavation should be flagged to assure accidental impacts do not occur. Finally, heavy equipment used for excavation and other project needs, should not be stored or serviced within the subject site. This would avoid leakage or spills from these vehicles into the wetlands and surrounding sensitive areas. Therefore a special condition is imposed which requires that these types of measures be incorporated into the project to minimize adverse impacts due to construction activity.

The Application for Department of the Army Permit (ACOE NWP27) includes as Appendix B, a Mitigation Monitoring Plan for the San Joaquin Freshwater Marsh Reserve Phase II Restoration Plan. Mitigation measures proposed in this plan include: construction during times of the year when special status species are not likely to be present, pre-construction surveys in work areas prior to beginning work, beginning work after absence of special status species is confirmed; or if active nests of special status species are observed, appropriate buffers will be maintained around nests, and work in nesting areas will be delayed until offspring have fledged; periodic biological monitoring during construction to assure continued absence of special status species from work areas; construction will be conducted during the dry season to minimize impacts from soil disturbance, and, in addition, standard sediment and erosion control measures will be implemented during project construction; and, vegetated areas will be re-vegetated as soon as possible after construction.

In order to assure that the measures described above are implemented as part of the project, a special condition is imposed which requires the applicant to submit plan(s) incorporating these measures.

The Streambed Alteration Agreement for the proposed project (1600-2004-0375-R5, see exhibit E) imposes monitoring requirements and success criteria for the proposed revegetation. The Streambed Alteration Agreement requires the applicant to submit an annual report each year for 5 years after planting, or longer as necessary to achieve the required success rate. The annual report is required to include the survival, percent coverage, and height of both tree and shrub species, the number by species of plants replaced, an overview of the revegetation effort, and the method used to assess these parameters. Photos from designated photo stations are also required. In order to assure that benefits to ESHA occur as proposed, and consistent with the requirements of the Streambed Alteration Agreement signed by the applicant, a special condition is imposed which requires that the measures identified above be incorporated into the proposed project. With these measures incorporated, the proposed project will not result in any significant disruption of habitat values of the ESHA.

Therefore, as conditioned, the project is consistent with Section 30240 of the Coastal Act with regard to protection of ESHA.

E. Water Quality

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.*

The subject site is a freshwater marsh. Section 30231 of the Coastal Act requires that the biological productivity of wetlands (marshes) be maintained, and where feasible, restored. The proposed project is a restoration project that will restore and enhance the biological productivity of the marsh. The proposed San Joaquin Freshwater Marsh Restoration – Phase II project has been designed to increase circulation of water throughout the marsh, and therefore decrease the potential for pollutants to settle out of static water compared to existing conditions. The project is proposed to improve existing hydrological and biological conditions in the marsh. No new sources of water will be discharged from the marsh and no pollutants will be generated by the marsh restoration. No loss of marsh acreage will occur (restoration will result in a net increase in marshland and in increased habitat diversity) which might decrease the marsh's ability to store water and process water-born constituents. The Phase II marsh restoration is proposed to be managed for naturalness to the extent possible, with the presence of water, following the natural hydroperiod for the region and climate.

Currently, the marsh functions largely as an impounded system due to poor water circulation, and pollutants potentially could settle out in static water and accumulate in the

marsh. However, proposed Phase II improvements are expected to decrease potential pollutant loading within the marsh, depending on operational restrictions. If the culverts in the lower marsh are opened, less static water and less evaporation will occur under Phase II restoration as a result of improved water circulation and better drainage, which will decrease the potential for pollutants to settle out or be taken up by biota. In addition, any pollutants present in the water would be discharged into the creek, but would be present at a low concentration due to dilution and would enter the creek at a time when it also was diluted due to high flow. If the culverts are kept closed, circulation will still be improved within the marsh due to the removal of the levees, but flow through the marsh would not occur. In this case, the marsh would continue to function as an impounded system as it currently does which would not be a change in operation. The goal of the proposed project is to improve water circulation within the marsh thereby improving biological diversity. Therefore, the proposed project is consistent with Section 30231 of the Coastal Act with regard to maintaining and enhancing the biological productivity and the quality of wetlands.

F. Local Coastal Program

Section 30604(a) of the Coastal Act provides for the issuance of coastal development permits directly by the Commission in regions where the local government having jurisdiction does not have a certified local coastal program. The permit may only be issued if the Commission finds that the proposed development will not prejudice the ability of the local government to prepare a Local Coastal Program which conforms with the Chapter 3 policies of the Coastal Act.

The City of Irvine LCP was certified by the Commission on 5/22/80. Pursuant to Section 30519 of the Coastal Act, development review authority is delegated to the local government for the areas of their jurisdiction covered by the certified LCP, but such delegation does not apply to any development within any State university or college within the coastal zone. The University is not, therefore, covered by the City's LCP. Neither has the University of California, Irvine applied for certification of a Long Range Development Plan (LRDP) as provided for in Section 30605 of the Coastal Act. Therefore, in the absence of a certified LRDP, the standard of review for development proposed on University lands within the coastal zone is the Chapter 3 policies of the Coastal Act. Approval of the proposed development, as conditioned, will not prejudice the ability of the University to prepare a LRDP which conforms with the Chapter 3 policies of the Coastal Act.

G. California Environmental Quality Act

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

The proposed project as conditioned has been found consistent with the wetland and ESHA protection and water quality policies of the Coastal Act. As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment. Therefore, the Commission finds that the proposed project can be found consistent with the requirements of the Coastal Act to conform to CEQA.

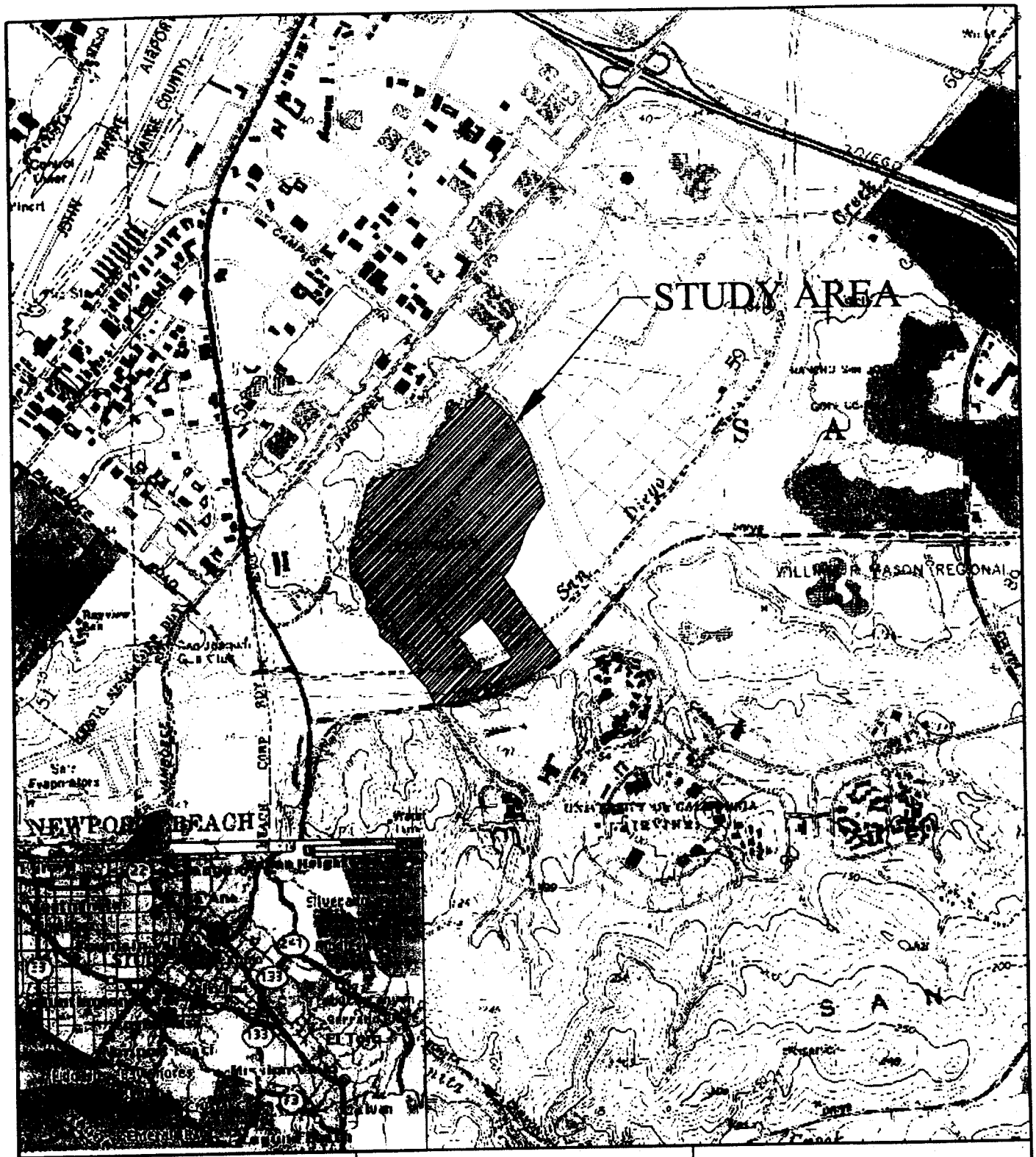


FIGURE 1

Regional map showing the location of the San Joaquin Freshwater Marsh Reserve study area in Orange County, California.

SOURCE: USGS 7.5' Quadrangle Map

1,000 0 1,000 2,000 FEET

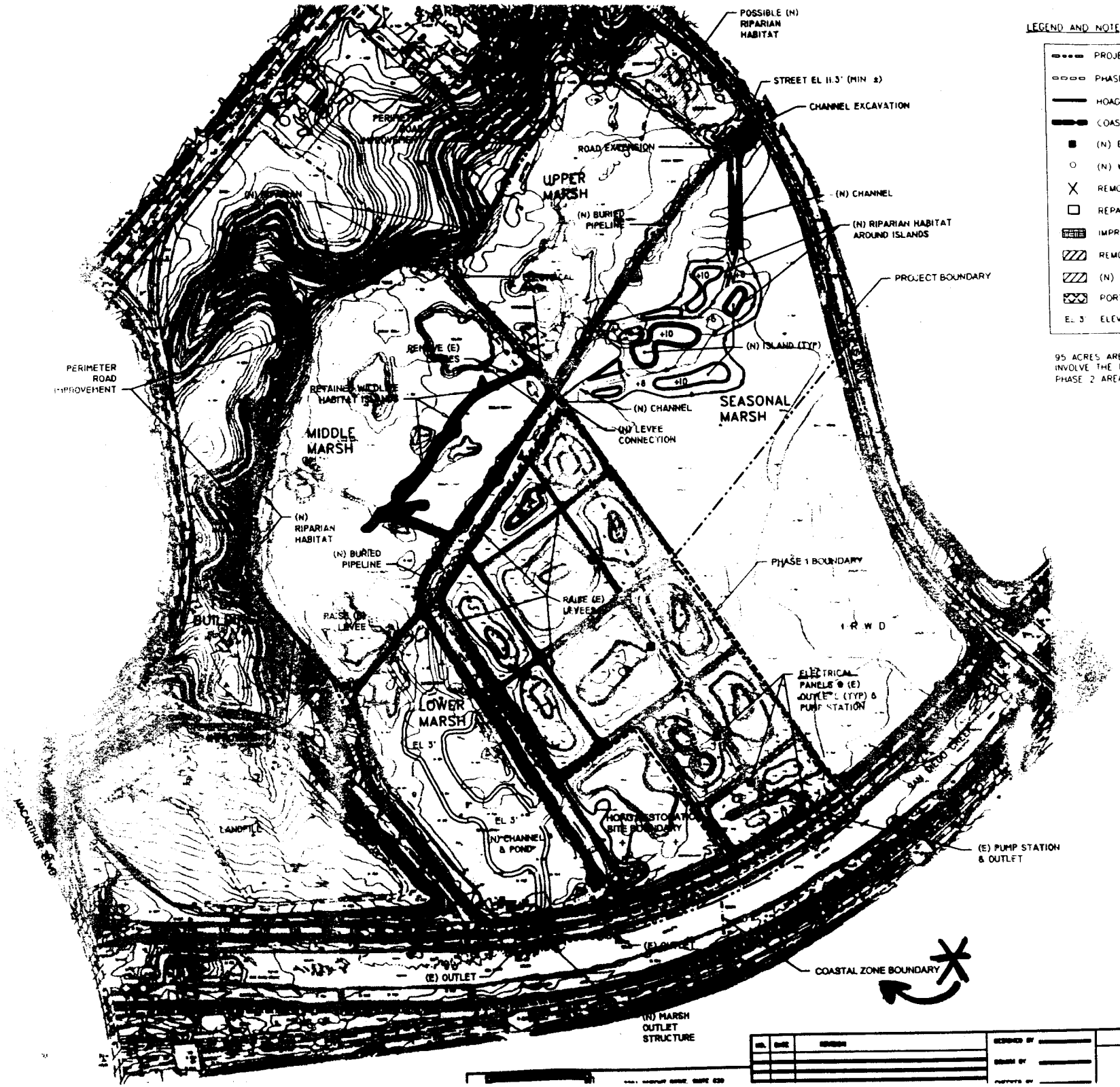
SCALE: 1" = 2,000'

Wetlands Research Associates, Inc.
2169-G East Francisco Blvd.
San Rafael, CA 94901
Phone: 415-454-8868

SAN JOAQUIN MARSH

COUNTY: Orange
DATE: October 12, 2002
FILE: 00005\dwg\wra\location.dwg

5-04-356 VICINITY MAP EXHIBIT A



LEGEND AND NOTE

- PROJECT BOUNDARY
- PHASE 1 BOUNDARY
- HOAG RESTORATION SITE BOUNDARY
- COASTAL ZONE BOUNDARY
- (N) ELECTRICAL PANEL
- (N) WATER CONTROL STRUCTURE
- REMOVE (E) WATER CONTROL STRUCTURE
- REPAIR/REPLACE (E) WATER CONTROL STRUCTURE
- IMPROVE (E) LEVEES/ROADS
- REMOVE (E) LEVEES
- (N) RIPARIAN PLANTING
- PORTIONS OF LEVEES TO REMAIN
- EL. 3' ELEVATION, FEET NAVD

95 ACRES ARE WITHIN THE COASTAL ZONE (28 ACRES INVOLVE THE PHASE 1 AREA AND 67 ACRES INVOLVE THE PHASE 2 AREA)

COASTAL COMMISSION
5-04-350
EXHIBIT # B
PAGE 1 OF 1

250 0 250
SCALE

Project Plan + COASTAL ZONE BOUNDARY MAP

UC IRVINE	SHEET
PROJECT FEATURES	JOB NO.
	SCALE

NOBLE
CONSULTANTS, INC.

August 22, 2005 895-01

Ms. Meg Vaughn, Staff Analyst
California Coastal Commission
South Coast District Office
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416

RECE
South C
AUG 2 2
CAL
COASTAL

Re: **San Joaquin Marsh Enhancement, Phase II**
Coastal Commission Application No. 5-04-356

Dear Ms. Vaughn:

At your request, we are herein submitting an opinion regarding the suitability of using the excess material to be excavated from the subject project as beach nourishment material. As mentioned in our August 19, 2005 letter, five shallow cores were obtained in the project area. A grain size analysis was performed on two of the samples. The D_{50} of the samples was 0.003 mm and 0.07 mm. Further, the percentage of material passing the No. 200 sieve, an approximate limit of sandy material, was 97 percent and 51 percent. In other words, 3 percent of one sample was sand or larger material, and 49 percent of the other sample was sand. The project Geotechnical Engineer classified these samples as Fat Clay (CH) and silty sandy clay (CL), respectively.

It is our experience that a minimum of 80 percent sand material is desired prior to placing dredged or excavated material either on an ocean beach or in the nearshore zone. Ideally, the material should be similar to, or have a larger grain size than, the beach material. Therefore, it is our opinion that the material to be excavated from the San Joaquin Marsh Enhancement Project is too fine and will not be suitable for beach nourishment.

If you have any questions regarding this correspondence, please call.

Sincerely,

Noble Consultants, Inc.

Scott M. Noble, P.E.

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. NOBLE
No. 38563
exp 3/31/07
CIVIL
STATE OF CALIFORNIA

Cc: Peter Bowler, Ph.D., UCI (letter only)
William Bretz, Ph.D., UCI (letter only)
Karen Bane, Coastal Conservancy (letter only)
Crystal Acker, WRA (letter only)

5-04-356

EXHIBIT C

Figure 2: Approximate location of survey areas (in red) and California gnatcatchers (G) and cactus wrens (W) detected in 2004, Phase 1 ponds area in blue. Source: TOPO!@2001 National geographic Holdings, Tustin USGS Quadrangle.

COASTAL COMMISSION
5-04-356
EXHIBIT # D
PAGE 1 OF 1

CALIFORNIA DEPARTMENT OF FISH AND GAME
4949 Viewridge Avenue
San Diego, California 92123

Notification No. 1600-2004-0375-R5

AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the **Department**, and University of California, Irvine (P.O.C. Dr. Peter Bowler), 750 University Tower, Irvine, California 92697-2325; Phone (949) 824-5183, Fax (949) 824-2181, hereinafter called the **Operator**, is as follows:

WHEREAS, pursuant to Section 1602 of California Fish and Game Code, the Operator, on the 30th day of August, 2004, notified the Department that they intend to divert or obstruct the natural flow of, or change the bed, channel, or bank of, or use material from the streambed(s) of, the following water(s): **San Diego Creek (within San Joaquin Marsh), tributary to the Upper Newport Bay, Orange** County, California, Section 8, Township 6S, Range 9W; USGS Map Tustin 7.5; and

WHEREAS, the Department has determined that such operations may substantially adversely affect those existing fish and wildlife resources within **San Diego Creek (within San Joaquin Marsh), tributary to the Upper Newport Bay**, specifically identified as follows: Amphibians: Pacific treefrog; Reptiles: southwestern pond turtle, western fence lizard, side-blotched lizard, California kingsnake, and gopher snake; Fishes: various local fish; Birds: least Bell's vireo, southwestern willow flycatcher, yellow-breasted chat, white-tailed kite, Northern harrier, red-tailed hawk, red-shouldered hawk, Osprey, Cooper's hawk, American kestrel, mourning dove, wrens, California towhee, California quail, wrentit, turkey vulture, swallows, common raven, northern mockingbird, owls, killdeer, Anna's hummingbird, great blue heron, black-crowned heron, green heron, great egret, snowy egret, teals, mallard, gadwall, coots, rails, terns, swifts, woodpeckers, western kingbird, wrens, vireo, grosbeaks, orioles, waxbills, California horned lark, finches, black phoebe, warblers, sparrows, numerous other songbirds and shorebirds; Mammals: longtail weasel, coyote, raccoon, California ground squirrel, Virginia opossum, brush rabbit, Audubon cottontail, Botta's pocket gopher, mice, and striped skunk; Riparian vegetation which provides habitat for those species: willow, mulefat, western sycamore, cottonwood, alder, cattails, bulrush; and all other aquatic and wildlife resources, including that riparian vegetation which provides habitat for such species in the area.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife resources during the Operator's work. The Operator hereby agrees to accept the following measures/conditions as part of the proposed work.

If the Operator's work changes from that stated in the notification specified above, this Agreement is no longer valid and a new notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this Agreement and with other pertinent code sections, including but not limited to Fish and Game Code Sections 5650, 5652, 5937, and 5948, may result in prosecution.

Nothing in this Agreement authorizes the Operator to trespass on any land or property, nor does it relieve the Operator of responsibility for compliance with applicable federal, state, or local laws or ordinances. A consummated Agreement does not constitute Department of Fish and Game endorsement of the proposed operation, or assure the Department's concurrence with permits required from other agencies.

This Agreement becomes **effective the date of Department's signature and terminates December 31, 2006** for project construction only. This Agreement shall remain in effect for that time necessary to satisfy the terms/conditions of this Agreement.

STREAMBED ALTERATION CONDITIONS FOR NOTIFICATION NUMBER: 1600-2004-0375-R5

1. The following provisions constitute the limit of activities agreed to and resolved by this Agreement. The signing of this Agreement does not imply that the Operator is precluded from doing other activities at the site. However, activities not specifically agreed to and resolved by this Agreement shall be subject to separate notification pursuant to Fish and Game Code Sections 1600 *et seq.*

PROJECT DESCRIPTION:

2. The Operator proposes to alter the streambed and banks through the implementation of the San Joaquin Marsh Phase II Restoration Project (Project). The project proposes the following restoration activities: 1) removal of 4,000 lineal feet of existing levees which impede flow through the marshland, 2) excavation of marsh vegetation (consisting of cattails) to restore lost open water/mudflat habitat, 3) installation of a new pipeline along the main east-west levee to provide the flexibility to be able to pump water through the marsh system and selected marsh units with a portable pump, 4) installation or repair/replacement of water control structures, including two 24-inch & two 36-inch diameter culvert pipes, 5) installation of 2.8 acres of riparian vegetation to mitigation for 0.93 acre lost, and 6) improvement/repair of existing levee roads. The overall purpose of Phase II restoration is to improve water movement within the freshwater marsh, specifically to improve circulation through the Phase II area, and to restore open water habitat to the existing marsh system where it has been diminished by growth of cattails and localized siltation. Currently, the Phase II area consists of individual marsh units separated by levees; there is no through-marsh channel system and water must flow sequentially through each marsh unit. This inability to direct flow and control water levels has resulted in localized siltation and an increase in cattails, and has reduced the overall functions and values of the marsh.

3. The agreed work includes activities associated with No. 2 above. The project area is located in **San Diego Creek (within San Joaquin Marsh), tributary to the Upper Newport Bay**, in **Orange** County. Specific work areas and mitigation measures are described on/in the plans and documents **(Notification of Lake or Streambed Alteration, Initial Study/Mitigated Negative Declaration, dated November 2003 and amended May, 2004, SCH# 2003121017)** submitted by the Operator, and shall be implemented as proposed unless directed differently by this agreement.

IMPACTS:

4. The Operator **shall not impact more than 14.01 acres** of stream channel and associated wetland/riparian habitat. Approximately 0.93 acre are permanent impacts to wetland/riparian habitat (of which approximately 0.77 acre are permanent impacts on upland levees), and approximately 13.08 acres are temporary impacts to native wetland habitat consisting of predominately cattails.

MITIGATION:

5. The Operator shall mitigate 0.93 acre of permanent impacts, at a compensation to impact ratio of 3:1, **for a total mitigation obligation of 2.8 acres;** and shall consist of on-site creation and restoration.

In addition, the Operator shall mitigate 13.08 acres of temporary impacts to native wetland/riparian habitat (as proposed in the project description) through the following:

a. Construction of a meandering channel through the seasonal marsh area from Campus Drive to the east end of Phase I area, and restoration of 6.92 acres of open/mudflat to the existing marsh system by excavating existing seasonal marsh.

E 2

TREAMBED ALTERATION CONDITIONS FOR NOTIFICATION NUMBER: 1600-2004-0375-R5

b. Excavation of a basin in the cattail dominated lower marsh area near San Diego Creek which would result in the restoration of 6.16 acres of open/mudflat to the existing marsh system.
c. Restoration of the natural flow through the wetland areas and creation of additional emergent wetland habitat by removing the majority of the existing levees (portions of the levees with good tree canopy will be left as "wildlife habitat islands"). Approximately 4,000 lineal feet of levee system would be removed resulting in a net increase in wetland area of 3.97 acres.

. The Operator shall submit a Final Revegetation/Mitigation plan for Department review within 30 days of signing this Streambed Alteration Agreement. Plans for creation, restoration, and/or enhancement should be prepared by persons with expertise in southern California ecosystems and native plant re-vegetation techniques. The plan should include at minimum: (a) the location of the mitigation site; (b) the plant species to be used; (c) a schematic depicting the mitigation area; (d) time of year that the planting will occur; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met.

. An annual report shall be submitted to the Department by Jan. 1 of each year for 5 years after planting. This report shall include the survival, % cover, and height of both tree and shrub species. The number by species of plants replaced, an overview of the revegetation effort, and the method used to assess these parameters shall also be included. Photos from designated photo stations shall be included.

3. All planting shall have a minimum of 80% survival the first year and 100% survival thereafter and/or shall attain 75% cover of native woody species after 3 years and 90% cover of native woody species after 5 years for the life of the project. Nonnative species shall comprise less than 5% of the cover after 5 years; and invasive species including, but not limited to, *Arundo donax*, castor bean, tree tobacco and fennel, shall comprise 0% of the cover at the end of the 5-year monitoring period. If the survival and cover requirements have not been met, the Operator is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements for 5 years after planting. Irrigation shall be stopped two years prior to achieving the success criteria.

9. If after 3 years of monitoring the mitigation meets the 5-year success criteria, AND the Department reviews and approves the mitigation status in writing, the Operator may consider the sites have been successful and cease monitoring.

10. All planting shall be done between October 1 and April 30 to take advantage of the winter rainy season.

BIOLOGICAL SURVEYS AND TIME RESTRICTIONS:

11. The Operator shall not remove vegetation within the stream from March 15th to September 15th to avoid impacts to nesting birds. However, work may occur during this time if a qualified biologist conducts a minimum of three days of surveys for nesting birds within seven days prior to the vegetation removal, and at least one survey must be within three days prior to the vegetation removal, to ensure no nesting birds shall be impacted by the project. These surveys shall include the areas within 200 feet of the edge of the proposed impact areas. Documentation of findings, including a negative finding must be submitted to the Department for review and concurrence. If no breeding/nesting birds are observed and concurrence has been received from the Department, site preparation and construction activities may begin. If breeding activities and/or an active bird nest is located and concurrence has been received from the Department, the breeding habitat/nest site shall be fenced a minimum of 100 feet (200

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feet for raptors) in all directions, and this area shall not be disturbed until the nest becomes inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, and the young will no longer be impacted by the project.

12. Prior to construction activities, the area shall be surveyed for southwestern pond turtle by a qualified on-site biologist to ensure that no direct or indirect impacts shall occur to southwestern pond turtle as a result of the proposed project. If turtles are present, the specialist shall submit a Pond Turtle Mitigation Plan to the Department and it shall include complete avoidance measures for Department review and approval, prior to project initiation.

13. **No direct or indirect impacts shall occur to any threatened or endangered species** (e.g. least Bell's vireo (*Vireo bellii pusillus*)), as a result of implementing the project or the project's activities. If any threatened or endangered species could be impacted by the work proposed, U.S. Fish and Wildlife Service (USFWS) protocol surveys shall be conducted prior to implementing the project, or the project's mitigation activities. If necessary, the Operator shall obtain the required state and federal threatened and endangered species permits. If there is no USFWS survey protocol for a particular listed species, the Department shall be consulted to determine appropriate survey procedures. The Department shall be provided copies of survey reports prior to project implementation, and prior to the implementation of mitigation activities. This agreement does **not** authorize the take of **any** federal or state threatened or endangered species.

14. If any sensitive species are observed in project surveys, the Operator shall cause a California Native Species Field Survey Form and survey map to be submitted to the Natural Diversity Database (NDDB) within five working days of the sightings. The form is available on-line at http://www.dfg.ca.gov/whdab/natspec.pdf, and instructions for completing the form are available at http://www.dfg.ca.gov/whdab/fsfinst.pdf. The form and survey map shall be sent to the Department of Fish and Game, California Natural Diversity Database, 1807 13th Street, Suite 202, Sacramento, CA 95814, with copies sent to the Department at 4949 Viewridge Avenue, San Diego, CA 92123, Attn: Streambed Alteration Program, SAA # 1600-2004-0375-R5.

15. In order to protect State and/or Federally listed avian species, all construction activities within the streambanks must not exceed ambient sound levels of 60 Db.

VEGETATION REMOVAL/HABITAT PROTECTION:

16. Disturbance, removal or trimming of vegetation for equipment access shall not exceed the limits approved by the Department.

17. Due to the presence of native riparian vegetation, all vegetation clearing shall be conducted under the supervision of a qualified biological monitor, and the perimeter of the work site shall be adequately flagged to prevent damage to adjacent riparian habitat, and to ensure that direct and indirect impacts to fish or wildlife, in particular birds and pond turtles, are avoided.

18. The work area shall be identified to all workers, as represented in plans. Native vegetation shall not be removed or intentionally damaged or beyond the designated work area.

19. Except where provided for within this agreement, the removal of soil and native vegetation from the streambed or streambanks is prohibited without prior written approval from the Department.

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20. No alteration of the streambed, bank or channel shall occur, except as otherwise permitted

in this Agreement. The removal of soil, native vegetation and vegetative debris from the streambed or stream banks is prohibited, except as otherwise specified within this Agreement.

21. A qualified biological monitor shall be present and/or shall examine the site and mark native vegetation that is to be trimmed with flagging to ensure impacts are within the conditions of this Agreement.

EQUIPMENT ACCESS AND TEMPORARY FLOW DIVERSIONS:

22. No equipment shall be operated in ponded or flowing areas. When work in a flowing stream is unavoidable, the entire stream flow shall be diverted around the work area by a barrier, temporary culvert, new channel, or other means approved by the Department. Construction of the barrier and/or the new channel shall normally begin in the downstream area and continue in an upstream direction, and the flow shall be diverted only when construction of the diversion is completed. Channel bank or barrier construction shall be adequate to prevent seepage into or from the work area. Channel banks or barriers shall not be made of earth or other substances subject to erosion unless first enclosed by sheet piling, rock rip-rap, or other protective material. The enclosure and the supportive material shall be removed when the work is completed and removal shall normally proceed from downstream in an upstream direction.

23. Flow diversions shall be done in a manner that shall prevent pollution and/or siltation and which shall provide flows to downstream reaches. Flows to downstream reaches shall be provided during all times that the natural flow would have supported aquatic life. Said flows shall be sufficient quality and quantity, and of appropriate temperature to support fish and other aquatic life both above and below the diversion. Normal flows shall be restored to the affected stream immediately upon completion of work at that location.

24. Precautions to minimize turbidity/siltation shall be taken into account during project planning and shall be installed prior to construction. This may require that the work site be isolated and that water be diverted around the work area by means of a barrier, temporary culvert, new channel, or other means approved by the Department. Precautions may also include placement of silt fencing, straw bales, sand bags, and/or the construction of silt catchment basins, so that silt or other deleterious materials are not allowed to pass to downstream reaches. The method used to prevent siltation shall be monitored and cleaned/repaired weekly. The placement of any structure or materials in the stream for this purpose, not included in the original project description, or Department approved water pollution/water diversion plan shall be coordinated with the Department. Coordination shall include the negotiation of additional Agreement provisions.

25. Silty/turbid water from dewatering or other activities shall not be discharged into the stream. Such water shall be settled, filtered, or otherwise treated prior to discharge. The Operator's ability to minimize turbidity/siltation shall be the subject of pre construction planning and feature implementation.

26. Upon Department determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation, shall be halted until effective Department approved control devices are installed, or abatement procedures are initiated.

27. Water containing mud, silt, or other pollutants from equipment washing or other activities, shall not be allowed to enter a lake or flowing stream or placed in locations that may be subjected to high storm flows.

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28. If an off stream siltation pond/s is/are used to control sediment, pond/s shall be constructed in a location, or shall be designed, such that potential spills into the stream/lake during periods of high water levels/flow are precluded.

29. If silt catchment basin/s is/are used, the basin/s shall be constructed across the stream immediately downstream of the project site. Catchment basins shall be constructed of materials which are free from mud and silt. Upon completion of the project, all basin materials along with the trapped sediments shall be removed from the stream in such a manner that said removal shall not introduce sediment to the stream.

30. Silt settling basins shall be located away from the stream or lake to prevent discolored, silt bearing water from reaching the stream or lake during any flow regime.

31. Should a silt catchment basin be required, the following operational methods shall be employed:

a. A silt catchment basin or basins (number and location to be determined by the Department) shall be constructed across the stream immediately below the project site. This catchment basin(s) shall be constructed of silt free gravel or other materials approved by the Department.
b. Upon completion of the project and after all flowing water in the area is clear of turbidity, the gravel along with the trapped sediment shall be removed from the stream.
c. The work area shall be secured from trespass when (as determined by the Department) fish or wildlife resources are vulnerable to damage from unsupervised public access.

32. Staging/storage areas for equipment and materials shall be located outside of the stream.

33. Access to the work site shall be via existing roads and access ramps.

34. No equipment maintenance shall be done within or near any stream channel where petroleum products or other pollutants from the equipment may enter these areas under any flow.

35. Vehicles shall not be driven or equipment operated in water covered portions of a stream or lake, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed.

POLLUTION, SEDIMENTATION AND LITTER:

36. All equipment shall be properly cleaned offsite prior to entering the stream channel.

37. All sediment and associated material removed from the stream channel shall be legally hauled and disposed of off-site.

38. Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil and/or entering the waters of the state. These materials, placed within or where they may enter a stream/lake, by Operator or any party working under contract, or with the permission of the Operator, shall be removed immediately.

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39. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, or other organic or earthen material from any construction, or

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ssociated activity of whatever nature shall be allowed to enter into or placed where it may be vashed by rainfall or runoff into, waters of the State. When operations are completed, any xcess materials or debris shall be removed from the work area. No rubbish shall be deposited vithin 150 feet of the high water mark of any stream or lake.

0. The Operator shall comply with all litter and pollution laws. All contractors, subcontractors ınd employees shall also obey these laws and it shall be the responsibility of the operator to ınsure compliance.

)THER:

1. The Operator may request one extension of this Agreement, if the Operator requests the xtension prior to the expiration of its original term. The Department shall grant the extension ınless it determines that the Agreement requires modification because the measures contained n the agreement no longer protect the fish and wildlife resources that the activity may substantially adversely affect. In the event the Department makes that determination, the Department shall propose measures intended to protect those resources. If the Operator lisagrees with the Department's determination that the Agreement requires modification to rotect fish and wildlife resources or with the measures proposed by the Department, the lisagreement shall be resolved pursuant to the procedures described in subdivision (b) of Section 1603. The Department may not extend an agreement for more than five years. The riginal Agreement shall remain in effect until the Department grants the extension request, or ıew measures are imposed to protect fish and wildlife resources by agreement or through the ırbitration process, however, the original Agreement may not remain in effect for more than ne year after its expiration date. If the Operator fails to submit a request to extend an ıgreement prior to its expiration, the Operator shall submit a new notification before ommencing or continuing the activity covered by the Agreement. Any activities conducted ınder an expired agreement constitute a violation of Fish and Game Code Section 1600 *et seq.* The extension request and fees shall be submitted to the Department's Region 5 Office Streambed Team at 4949 Viewridge Avenue, San Diego, California 92123. If the Operator fails o request the extension prior to the agreement's termination then the Operator shall submit a ıew notification with fees and required information to the Department. Any activities conducted ınder an expired agreement is a violation of Fish and Game Code Section 1600 *et seq.*

2. The Operator shall provide a copy of this Agreement to all contractors, subcontractors, and the Operator's project supervisors. Copies of the Agreement shall be readily available at work sites at all times during periods of active work and must be resented to any Department personnel, or personnel from another agency upon demand.

3. The Department reserves the right to enter the project site at any time to ensure ompliance with terms/conditions of this Agreement.

4. All provisions of this Agreement remain in force throughout the term of the Agreement. Any provisions of the Agreement may be amended or the Agreement may be terminated at any time provided such amendment and/or termination is agreed to in writing by both parties. Mutually approved amendments become part of the original Agreement and are subject to all previously negotiated provisions.

5. If the Operator or any of the individuals mentioned above, violate any of the terms or conditions of this agreement, all work shall terminate immediately and shall not proceed until the Department has taken all of its legal actions.

6. The Operator shall notify the Department, in writing, at least five (5) days prior to

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initiation of construction (project) activities and at least five (5) days prior to completion of construction (project) activities. Notification shall be sent to the Department at 4949 Viewridge Avenue, San Diego, California 92123, Attn: Donna Cobb, ES. **SAA# 1600-2004-0375-R5.**

47. It is understood the Department has entered into this Streambed Alteration Agreement for purposes of establishing protective features for fish and wildlife. The decision to proceed with the project is the sole responsibility of the Operator, and is not required by this agreement. **It is further agreed all liability and/or incurred cost related to or arising out of the Operator's project and the fish and wildlife protective conditions of this agreement, remain the sole responsibility of the Operator.** The Operator agrees to hold harmless the State of California and the Department of Fish and Game against any related claim made by any party or parties for personal injury or any other damages.

48. The Department reserves the right to suspend or cancel this Agreement for other reasons, including but not limited to the following

a. The Department determines that the information provided by the Operator in support of the Notification/Agreement is incomplete or inaccurate;
b. The Department obtains new information that was not known to it in preparing the terms and conditions of the Agreement;
c. The project or project activities as described in the Notification/Agreement have changed;
d. The conditions affecting fish and wildlife resources change or the Department determines that project activities will result in a substantial adverse effect on the environment.

49. Before any suspension or cancellation of the Agreement, the Department will notify the Operator in writing of the circumstances which the Department believes warrant suspension or cancellation. The Operator will have seven (7) working days from the date of receipt of this notification to respond in writing to the circumstances described in the Department's notification. During the seven (7) day response period, the Operator shall immediately cease any project activities which the Department specified in its notification. The Operator shall not continue the specified activities until that time when the Department notifies the Operator in writing that adequate methods and/or measures have been identified and agreed upon to mitigate or eliminate the significant adverse effect.

CONCURRENCE

(Operator's name)

Peter A. Bowler
(signature) (date)

Peter A. Bowler
(Type or print name and title)
Lecturer

CALIFORNIA DEPT. OF FISH AND GAME

(signature) 1/26/2005 (date)

C.F. RAYSBROOK, Regional Manager

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Prepared by: Donna L. Cobb, Environmental Scientist