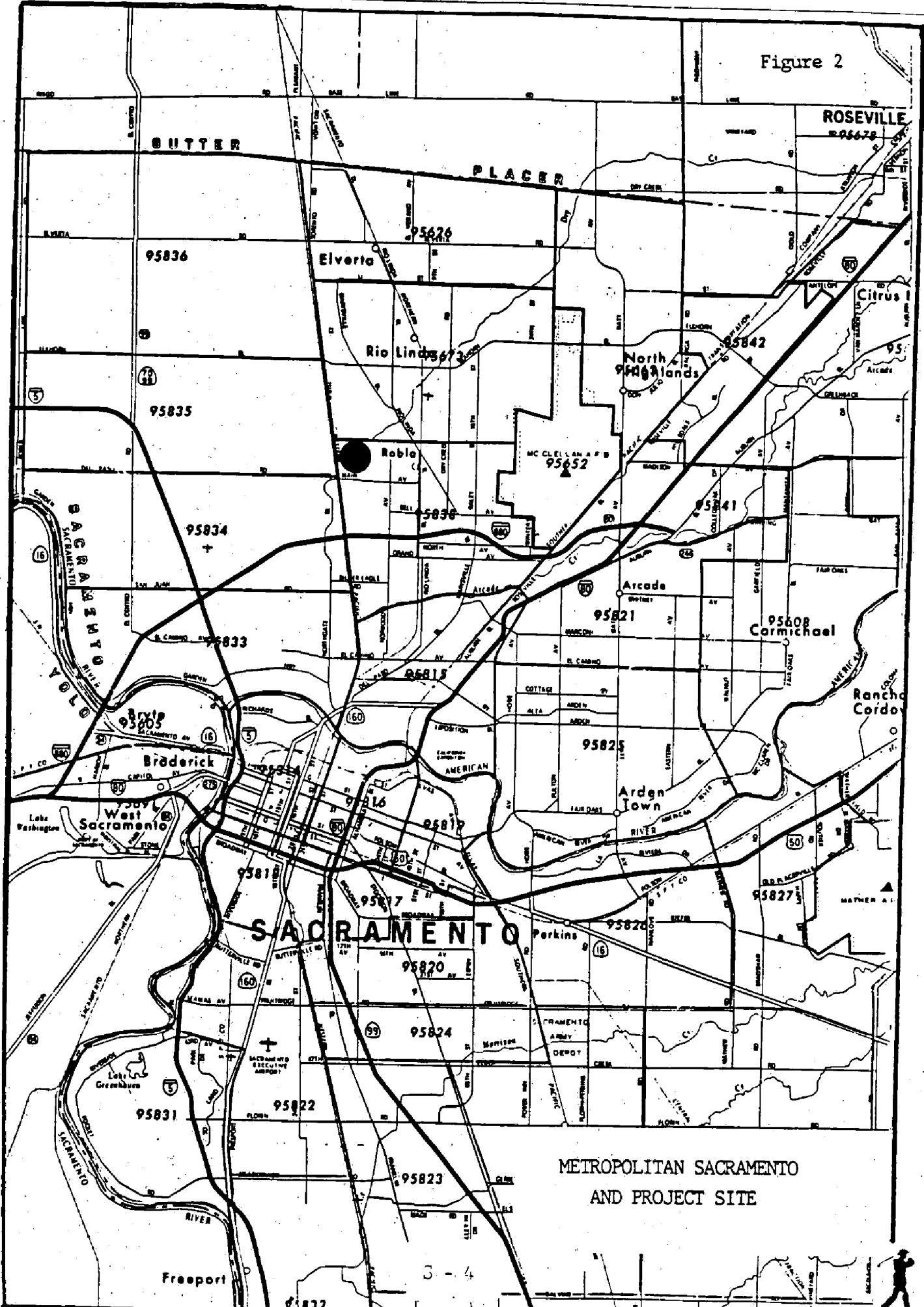


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EXHIBIT A
CARL F. HANSEN REGIONAL PARK AND GOLF COURSE
SITE LOCATION

Figure 2



METROPOLITAN SACRAMENTO AND PROJECT SITE

EXHIBIT B

CARL F. HANSEN REGIONAL PARK AND GOLF COURSE

EIR COMMENTS

CARL F. HANSEN REGIONAL PARK AND GOLF COURSE
DRAFT EIR COMMENTS REGISTERED

COMMENTOR

DATE

State and Federal Agencies

California Department of Fish and Game

April 30, 1985

Public Utilities Commission

April 24, 1985

The Reclamation Board

April 15, 1985

Local Agencies

City of Sacramento, Planning Commission

May 3, 1985

City of Sacramento, Department of Public Works

April 10, 1985

Private Individuals and Organizations

The Arcade Creek Restoration Committee

June 3, 1985

The California Native Plant Society

May 22, 1985

The Environmental Council of Sacramento, Inc.

June 2, 1985

The Sacramento Audubon Society

May 31, 1985

EXHIBIT C

CARL F. HANSEN REGIONAL PARK AND GOLF COURSE
VERNAL POOL SURVEY



JONES & STOKES ASSOCIATES, INC. / 2321 P STREET / SACRAMENTO, CA. 95816

916/444-5638

July 2, 1985

Mr. Dale Achondo
Superintendent of Golf
Department of Parks and
Community Services
City of Sacramento
1231 I Street, Suite 400
Sacramento, California 95814

Subject: Vernal Pools at Hansen Ranch Regional Park Site

Dear Mr. Achondo:

Jones & Stokes Associates, Inc. conducted a reconnaissance level survey of the proposed Hansen Ranch Regional Park site to describe the location and resource values of the vernal pools on the site. The site was surveyed in late May 1985. No federal or state designated rare, threatened, or endangered plants were found on the regional park site. The vernal pool species likely to occur in Sacramento County are listed in Exhibit 1. None of the listed species were found on the site. Vernal pool species differ in their emergence and blooming period and can occur from early spring to summer. This survey (conducted in May) could have missed some of the earliest and latest emerging or blooming species, but special care was taken to look for the species listed in Exhibit 1 in any form or condition. The botanists that conducted the site survey are local experts specializing in plant and seed identification.

The regional park site has received heavy livestock use for many years and the effects of grazing and trampling are very evident in the degraded condition of the grasslands and vernal pools. There is evidence of land management activities that have affected the presence and distribution of native plant species. The survey identified a total of 151 plant species on the site of which 87 were native species. The long-term heavy grazing and other agricultural operations have contributed to the significant number of introduced weedy species.

In spite of the human and domestic animal use of the site, the survey identified 51 vernal pool species locations (~~Exhibit-2~~) on the regional park site. Vernal pool species are found in two different habitats on the site: 1) "classic" vernal pools which are shallow closed basins underlain with impermeable clay layers that hold water in the spring and support concentric

rings of different plant species as the waters evaporate; and 2) assemblages of vernal pool species found in deep depressions in natural ephemeral drainage channels. There were also areas of standing water or wet soil areas on the park site that support water-loving plants rather than vernal pool plants. The water-loving species are those typically found in permanent and seasonal marshes, drainage ditches, and permanent ponds. The difference between the vernal pool and standing water habitat is the duration of the standing water and the necessity for the summer dryness regime to continue vernal pool occurrence.

The most representative vernal pools are numbers 18, 19, 20, 21, 22, and 23 on the accompanying map. Pools 24, 25, and 36 have particularly rich vernal pool flora, but the water supply appears to be augmented by being in a natural drainage. Pool 39, the large pool near a corner of the site remains wet for too long for a number of the vernal pool species and supports a preponderance of Eleocharis (spike-rush).

The park site contains an extensive number of vernal pools and drainages that support vernal pool plant species. The heavy grazing and trampling has degraded the site, but enough plants survive to produce ample seed for many vernal pool plants and a good wildflower display in the spring. The quantity and quality of the vernal pools merit efforts aimed at making minor alterations in the park conceptual plan to accommodate the retention of some of the better quality pools.

If an attempt is made to keep the best quality vernal pools among the various features of the golf course and rest of the facility, several important points should be kept in mind. The pools must have a gradual drying out phase in the spring, summer dryness, and accumulating winter rains. Such a regime is essential to the continued existence of the vernal pools. The drainage basins that support the vernal pools cannot be used for water detention basins for the golf course. The pools need the winter flooding and the summer drying out. Planted turf should not be placed in the drainage catchment basins of the protected vernal pools. If the basins around vernal pools are retained, they will provide a buffer zone between the turf and the pools. Irrigation water should not be applied to the retained vernal pools or the buffer zone basins. The natural hydrologic cycle provides the appropriate moisture. Low barriers (e.g., logs at or near ground level) should be installed to keep golf carts and lawn mowers (but not people) away from the vernal pool areas.

Vernal pools are a unique habitat that occurs at only a few locations in the world. It would be desirable to retain a selection of the most representative pools in the final plan. Retaining some vernal pools and natural vegetation in the roughs will provide showy spring wildflowers. Protection of some of the vernal pools and natural vegetation in roughs will augment the other science and outdoor education/recreation aspects of the park.

Please call us if you have any questions. We have included for your files, handwritten field notes that include a species list of all 151 species found on the site and a characterization of each vernal pool by size and major species.

Sincerely,



Jo Anne Sorenson

JAS:jp
Enclosure

Exhibit 1

Vernal pool taxa likely to occur in Sacramento County

| <u>TAXON</u> | <u>FLOWERING TIME</u> | <u>STATUS¹</u> | | | <u>DISTRIBUTION BY COUNTY</u> |
|---|-----------------------|---------------------------|-------------------|------------------|---|
| | | <u>FEDERAL</u> | <u>CALIFORNIA</u> | <u>CNPS</u> | |
| <u>Euphorbia Hooveri</u> (Hoover's spurge) | July | C ² | E ³ | R-E ⁴ | Butte, Stanislaus, Tehama, Tulare |
| <u>Gratiola heterosepala</u> (Bogg's Lake hedgehyssop) | April-July | C | E | R-E | Fresno, Lake, Madera, Sacramento |
| <u>Juncus leiospermus</u> (Red Bluff rush) | April | C | - | R-E | Butte, Placer, Sierra, Tehama |
| <u>Legenere limosa</u> (Greene's legenere) | April-May | C | - | R-E | Lake, Napa, Placer, Sacramento, San Mateo, Solano, Sonoma, Stanislaus |
| <u>Neostapfia colusiana</u> (Colusa grass) | May-July | C | - | R-E | Colusa, Merced, Solano, Stanislaus |
| <u>Orcuttia pilosa</u> (Hairy Orcutt grass) | May-July | C | E | R-E | Madera, Merced, Stanislaus, Tehama |
| <u>Orcuttia tenuis</u> (Slender Orcutt grass) | May-July | C | E | R-E | Lake, Plumas, Sacramento, Shasta, Tehama |
| <u>Orcuttia viscida</u> (Sacramento sticky Orcutt grass) | June-July | C | E | R-E | Sacramento |
| <u>Tuctoria Greene</u> (Greene's Orcutt grass) | May-July | C | E | R-E | Butte, Fresno, Madera, Merced, San Joaquin, Stanislaus, Tehama |

1. Status: Federal - Designation by U.S. Fish and Wildlife Service under the federal Endangered Species Act
 State - Designation by California Department of Fish and Game under the California Native Plant Protection Act
 CNPS - Designation in the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California
2. C: Candidate for Federal designation under the Endangered Species Act.
3. E: Designated "Endangered" under the California Native Plant Protection Act
4. R-E: Considered as "Rare and endangered" by the California Native Plant Society.

32-14/1/62 Partial List of Plants Hansen Ranch Regional Park May 22, 23, 26 1962

| | | | |
|-------------|--|----------------|--------------------|
| Naturalized | <i>Silybum Marianum</i> | Compositae | Milk Thistle |
| Native | <i>Quercus Douglasii</i> | Fagaceae | Blue Oak |
| Introduced | <i>Hordeum leporinum</i> | Gramineae | Foxtail |
| Naturalized | <i>Sisymbrium officinale</i> | Cruciferae | Hedge Mustard |
| Introduced | <i>Malva parviflora</i> | Malvaceae | Cheeseweed |
| Introduced | <i>Centaurea solstitialis</i> | Compositae | Star Thistle |
| Naturalized | <i>Lolium perenne</i> | Gramineae | Perennial Ryegrass |
| Introduced | <i>Erodium moschatum</i> | Geraniaceae | Filaree |
| Introduced | <i>Avena fatua</i> | Gramineae | Wild Oats |
| Native | <i>Amsinckia intermedia</i> | Boraginaceae | Fiddleneck |
| Native | <i>Hedycarya virgata</i> | Compositae | Tarweed |
| Naturalized | <i>Raphanus sativus</i> | Cruciferae | Wild Radish |
| Introduced | <i>Lippia nodiflora</i> var. <i>rosea</i> | Verbenaceae | Lippia |
| Introduced | <i>Rumex crispus</i> | Polygonaceae | Curly Dock |
| Introduced | <i>Hemizonia Fitchii</i> | Compositae | Spikeweed |
| Introduced | <i>Anthemis Cotula</i> | Compositae | Dog Fenugreek |
| Introduced | <i>Polygomon maritimus</i> | Gramineae | Beard Grass |
| Native | <i>Cyperus Eragrostis</i> | Cyperaceae | Umbrella Sedge |
| Introduced | <i>Mentha Pulegium</i> | Labiatae | Pennyroyal |
| Native | <i>Brodiaea elegans</i> | Amaryllidaceae | Harvest Brodiaea |
| Introduced | <i>Bromus molis</i> | Gramineae | Soft Chess |
| Naturalized | <i>Hypochoeris glabra</i> | Compositae | Cat's Ear |
| Native | <i>Layia Fremontii</i> | Compositae | Tidy Tips |
| Native | <i>Paspalum distichum</i> | Gramineae | Knot Grass |
| Native | <i>Eryngium Vaseyi</i> var. <i>vallicola</i> | Umbelliferae | Coyote Thistle |
| Naturalized | <i>Convolvulus arvensis</i> | Convolvulaceae | Bindweed |
| Introduced | <i>Xanthium strumarium</i> var. <i>canadense</i> | Compositae | Cocklebur |
| Native | <i>Heleocharis palustris</i> | Cyperaceae | Spike Rush |
| Native | <i>Jussiaea repens</i> var. <i>peplodes</i> | Onagraceae | Yellow Waterlily |
| Native | <i>Polygonum</i> sp. | Polygonaceae | Smartweed |
| Native | <i>Tillaea aquatica</i> | Crossobaceae | Pigmy Woe |
| Native | <i>Plagiobothrus stipitatus</i> var. <i>micranthus</i> | Boraginaceae | Popcorn Flower |

32 - 16 native

| | | | |
|------------|---|----------------|---------------------|
| Introduced | <i>Lolium multiflorum</i> | Gramineae | Italian Ryegrass |
| Native | <i>Navaretta leucocephala</i> | Polemoniaceae | Navaretta |
| Introduced | <i>Briza minor</i> | Gramineae | Quaking Grass |
| Introduced | <i>Trifolium dubium</i> | Leguminosae | Clover |
| Native | <i>Lythrum hyssopifolia</i> | Lythraceae | Loosestrife |
| Native | <i>Trifolium variegatum</i> | Leguminosae | White-top Clover |
| Introduced | <i>Cotula coronopifolia</i> | Compositae | Brass But |
| Introduced | <i>Lactuca Scariola</i> var. <i>integrata</i> | Compositae | Prickly Lett |
| Introduced | <i>Lactuca Scariola</i> | Compositae | Prickly Lett |
| Introduced | <i>Poa annua</i> | Gramineae | Annual Bluegrass |
| Introduced | <i>Aceris echinodes</i> | Compositae | Ox Tongue |
| Native | <i>Trifolium depauperatum</i> | Leguminosae | Bladder Clo |
| Native | <i>Euphorbia serpyllifolia</i> | Euphorbiaceae | Sponge |
| Introduced | <i>Phalaris caroliniana</i> | Gramineae | Canary Grass |
| Introduced | <i>Lotus uliginosus</i> | Leguminosae | Birds Foot Tre |
| Native | <i>Juncus bufonius</i> | Juncaceae | Toad Rush |
| Native | <i>Ranunculus alveolatus</i> | Ranunculaceae | Water Butter |
| Introduced | <i>Ranunculus muricatus</i> | Ranunculaceae | Prickleseed B. |
| Native | <i>Brodiaea coronaria</i> | Amaryllidaceae | Brodiaea |
| Native | <i>Trifolium tridentatum</i> | Leguminosae | Tom cat Clo |
| Introduced | <i>Geranium dissectum</i> | Geraniaceae | Cranesbill |
| Native | <i>Graphalium palustre</i> | Compositae | Lowland Cudweed |
| Introduced | <i>Graphalium luteo-album</i> | Compositae | Everlasting Cudweed |
| Native | <i>Quercus jolonensis</i> | Fagaceae | Hybrid Lobster |
| Native | <i>Pogogyne zizyphoroides</i> | Labiatae | Pogogyne |
| Native | <i>Brodiaea hyacinthina</i> | Amaryllidaceae | White Brodiaea |
| Introduced | <i>Bromus diandrus</i> | Gramineae | Ripgut Brom |
| Native | <i>Lupinus bicolor</i> | Leguminosae | Miniature Lupin |
| Introduced | <i>Erodium Botrys</i> | Geraniaceae | Filaree |
| Native | <i>Brodiaea laxa</i> | Amaryllidaceae | Thursell's Spear |
| Native | <i>Asclepias ericae</i> | Asclepiadaceae | Milkweed |
| Introduced | <i>Bromus rubens</i> | Gramineae | Foxtail Chess |

| | | | |
|---------------------------|---|----------------------|-----------------------|
| Native | <i>Wyethia angustifolia</i> | Compositae | Wyethia |
| Native | <i>Besduvalia cleistogama</i> | Oragraceae | Besduva |
| Native | <i>Besduvalia glabella</i> var. <i>compositis</i> | Oragraceae | Besduva |
| Native | <i>Hordeum pusillum</i> | Gramineae | Barley |
| Introduced | <i>Maticaria matricarioides</i> | Compositae | Pineapple |
| Native | <i>Vicia dasycarpa</i> | Leguminosae | Vetch |
| Native | <i>Carduus pycnocephalus</i> | Compositae | Flumeless II |
| <small>see page 1</small> | <i>Bromus mollis</i> | Gramineae | Soft Chica |
| Native | <i>Polygonon manspeliensis</i> | Gramineae | Beard Grass |
| Native | <i>Alisma triviale</i> | Alismaceae | Water Plant |
| Native | <i>Leersia oryzoides</i> | Gramineae | Rice Cutgrass |
| Introduced | <i>Plantago major</i> | Plantaginaceae | Common Plant |
| Native | <i>Quercus lobata</i> | Fagaceae | Valley Oak |
| Native | <i>Helenium piperulum</i> | Compositae | Sneeweed |
| Native | <i>Foeniculum vulgare</i> | Umbelliferae | Sweet Fern |
| Native | <i>Salix sp.</i> | Salicaceae | Willow |
| Native | <i>Salix Goodingii</i> | Salicaceae | Black Willow |
| Native | <i>Typha angustifolia</i> | Typhaceae | Shul Rod |
| Native | <i>Hordeum depressum</i> | Gramineae | Barley |
| Introduced | <i>Medicago hispida</i> var. <i>confinis</i> | Leguminosae | Bur Clover |
| Introduced | <i>Ranunculus sceleratus</i> | Ranunculaceae | Bittercup |
| ? | <i>Rubus sp.</i> | Rosaceae | Blackberry |
| Native? | <i>Mentha (arvensis?)</i> | Labiatae | Field Mint |
| Introduced | <i>Sonchus oleraceus</i> | Compositae | Sow Thistle |
| Native | <i>Orthocarpus sp.</i> | Scrophulariaceae | Orthocarpus |
| Native | <i>Artemisia Douglasiana</i> | Compositae | Mugwort |
| Native | <i>Sida hederacea</i> | Malvaceae | Alkali Mallow |
| Native | <i>Cichorium Intybus</i> | Compositae | Chicory |
| Native | <i>Fraxinus latifolia</i> | Oleaceae | Oregon Ash |
| Native | <i>Ambrosia psilostachya</i> | Compositae | Western Ragweed |
| Native | <i>Eremocarpus setigerus</i> | Euphorbiaceae | Tockey Mullie |
| Native | <i>Lasthenia glaberrima</i> | Compositae | Lasthenia |

| | | | |
|--------|-----------------------------------|------------------|------------------|
| Native | Achyrocline molle | Compositae | Blau Wiese |
| Native | Populus Fremontii | Salicaceae | Cottonwool |
| Native | Gnoder dactylon | Gramineae | Bermudagrass |
| Native | Carex senta | Cyperaceae | Carex |
| Native | Plantago lanceolata | Cyperaceae | Carex |
| Native | Cephalanthus occidentalis | Plantaginaceae | English Plant |
| Native | Helianthus annuus | Rubraceae | Butterbush |
| Native | Grindelia camporum | Compositae | Common Sunf |
| Native | Asclepias fascicularis | Compositae | Gum Weed |
| Native | Psilocarpos oregonus | Asteraceae | Milk Weed |
| Native | Psilocarpos brevisimus | Compositae | Psilocarpos |
| Native | Amaranthus californicus | Compositae | Psilocarpos |
| Native | Rompha curvisiliqua | Amaranthaceae | Calif. Amaranth |
| Native | Alpecurus Howellii | Cruciferae | Yellow Cree |
| Native | Festuca sp. | Gramineae | Foxtail |
| Native | Cyperus niliaca | Gramineae | Cyperus |
| Native | Veronica peruviana sp. xalapensis | Scrophulariaceae | Luridum Sp. |
| Native | Elymus glaucus sp. viridens | Gramineae | Wild Rye |
| Native | Lepidum dictyotum var. acutidens | Cruciferae | Pepper Grass |
| Native | Polygonum aviculare | Polygonaceae | Common Knotweed |
| Native | Brevica gemiculata | Cruciferae | Mustard |
| Native | Plagiobothrys notthofolius | Borraginaceae | Peppercorn Flour |
| Native | Chenopodium ambrosioides | Chenopodiaceae | Mexican Tea |
| Native | Chenopodium album | Chenopodiaceae | Lamb's Quarts |
| Native | Lilaea scilloides | Liliaceae | Flowering Quill |
| Native | Trichostema lanceolatum | Labiatae | Vinegar Weed |
| Native | Brodiaea multiflora | Amaryllidaceae | Brodiaea |
| Native | Absethoris lutea | Liliaceae | Yellow Menace |
| Native | Chlorogalum pomoides | Liliaceae | Scap Plant |
| Native | Eschscholzia californica | Papaveraceae | California Poppy |
| Native | Scirpus acutus | Cyperaceae | Common Tide |

| | | | | |
|----------------|---------|-----------------|-------------------------------------|------------|
| Spring Vetch | Maaikea | Leguminosae | <i>Vicia sativa</i> | Introduced |
| Stork-Tight | Maaikea | Compositae | <i>Bidens frondosa</i> | Native |
| Bur Clover | Maaikea | Leguminosae | <i>Medicago hispida</i> | Introduced |
| Philadelphia | Maaikea | Compositae | <i>Erigeron philadelphicus</i> | Native |
| Cluster-flower | Maaikea | Verbenaceae | <i>Verbena bonariensis</i> | Introduced |
| Cal. Wild R. | Maaikea | Rosaceae | <i>Rosa californica</i> | Native |
| Common Chick | Maaikea | Caryophyllaceae | <i>Stellaria media</i> | Introduced |
| Shepherdia R. | Maaikea | Cucitaceae | <i>Capsella bursa-pastoris</i> | Introduced |
| Buffalo Bun | Maaikea | Solanaceae | <i>Solanum rostratum</i> | Introduced |
| Salt Grass | Maaikea | Gramineae | <i>Distichlis spicata var. rama</i> | Native |
| Cattail | Maaikea | Typhaceae | <i>Typha latifolia</i> | Native |
| on Cabbage | Maaikea | Cucitaceae | <i>Cuscuta campestris</i> | Native |
| Western Field | Maaikea | Cucitaceae | <i>Cuscuta campestris</i> | Native |
| Common Cate | Maaikea | Bignoniaceae | <i>Catalpa bignonioides</i> | Introduced |
| Honey Locust | Maaikea | Leguminosae | <i>Gleditsia triacanthos</i> | Introduced |
| Poison Hemlock | Maaikea | Umbelliferae | <i>Conium maculatum</i> | Introduced |
| Arrowhead | Maaikea | Alismataceae | <i>Sagittaria (latifolia?)</i> | Native |
| Haigrass | Maaikea | Gramineae | <i>Deachampsia danthonoides</i> | Native |
| Willow Herb | Maaikea | Diapentaceae | <i>Epilobium adenocaulon</i> | Native |
| Scarlet Pimper | Maaikea | Primulaceae | <i>Angallis aurea</i> | Introduced |
| Spanish Clover | Maaikea | Leguminosae | <i>Lotus Fuschianus</i> | Native |
| Barnum | Maaikea | Compositae | <i>Baccharis Fremontii</i> | Native |
| Wort Grass | Maaikea | Cucitaceae | <i>Coronopus didymus</i> | Introduced |
| Needle-leaved | Maaikea | Palaeomoniacae | <i>Alvarivetia intertexta</i> | Native |

Vernal Pool

| | | <i>Eryngium</i> <i>Vaseyi</i> | <i>Plagiobothrys</i> <i>striptatus</i> | <i>Psilocarpus</i> <i>brevislimus</i> | <i>Laethenia</i> <i>glaberrima</i> | <i>Hordeum</i> <i>pusillum</i> | <i>Navarretia</i> <i>leucecephala</i> | Misc. |
|----|-------------------------|----------------------------------|---|--|---------------------------------------|-----------------------------------|--|-------|
| 1 | 58' x 25' | 4 | 1 | 5 | 2 | 3 | | |
| 2 | 30' x 15' | 3 | 1 | | 2 | | | |
| 3 | 18' x 6' | 3 | 1 | | | 2 | | |
| 4 | 30' x 6' | 4 very little | 1 | | 3 very little | 2 | Parallel drainage ditches | |
| 5 | 50' x 3' | 4 | 1 | | 3 | 2 | drainage area | |
| 6 | 25' x 7' | 4 | 1 | | 3 | 2 | drainage area | |
| 7 | | 1 | 3 | 2 | | | drainage area | |
| 8 | 100' x 75' | 2 | 3 | 1 | | | Heavily rutted gravel area <i>Psilocarpus</i> sp <i>Boiduvallia</i> sp | |
| 9 | Total of 4 vernal pools | 1 | | 1 | | | | |
| 10 | Total of 3 vernal pools | 3 | 1 | 2 | | | Drainage area | |
| 11 | | ✓ | ✓ | ✓ | ✓ | | | |
| 12 | | | | ✓ | ✓ | ✓ | Drainage area | |
| 13 | | ✓ | ✓ | ✓ | ✓ | | Drainage area | |
| 14 | 55' x 16' | 2 | 1 | | 3 | 4 very little | | |
| 15 | 30' x 16' | 2 | 1 | | | | <i>Polygonum</i> sp. <i>Cotula laciniata</i> <i>Cotula coronopifolia</i> | |
| 16 | 60' x 25' | 2 | 1 | | | 4 very little | 3 <i>Marsilea vestita</i> <i>Doxantha</i> sp <i>oidea</i> | |
| 17 | | 1 | | 2 | | | 3 | |
| 18 | 50' x 32' | 1 | 4 | 2 | 3 | 5 | | |
| 19 | 30' x 23' | 1 | 5 | 2 | 3 | 4 | | |
| 20 | 24' x 19' | 1 | | 3 | | 2 | | |
| 21 | 35' x 28' | 4 | 3 | | 1 | 2 | | |
| 22 | 25' x 13' | 1 | ✓ | ✓ | 1 | ✓ | <i>Psilocarpus oregoni</i> <i>Psilocarpus oregoni</i> | |
| 23 | 58' x 35' | 2 | 1 | | | 3 | | |
| 24 | 100' x 30' | 2 | 4 | 1 | ✓ | ✓ | 3 <i>Boiduvallia</i> sp. Drainage from Canal <i>Boiduvallia</i> sp. | |
| 25 | Very Large Pool | 1 | ✓ | 2 | 3 | ✓ | 1 <i>Boiduvallia</i> sp. Heavily trampled in center | |
| 26 | | ✓ | 1 | ✓ | 1 | ✓ | | |
| 27 | 45' x 25' | 2 | ✓ | | 1 | ✓ | | |
| 28 | 20' x 17' | 3 | 2 | | 1 | 4 | | |
| 29 | 25' x 20' | 1 | 3 | | 2 | 4 | | |
| 30 | 35' x 3' | ✓ | ✓ | | ✓ | ✓ | Intra-specific drainage area <i>Sida hederacea</i> | |
| 31 | 30' x 17' | 3 | 2 | | 1 | 4 | | |



JONES & STOKES ASSOCIATES, INC. / 2321 P STREET / SACRAMENTO, CA. 95816

916/444-5638

May 15, 1986

Mr. Dale Achondo
Superintendent of Golf
City of Sacramento
1231 I Street, Suite 400
Sacramento, CA 95814

SUBJECT: Hansen Ranch Vernal Pool Survey

Dear Mr. Achondo:

Jones & Stokes Associates has completed the first phase of our Spring vernal pool survey of the Hansen Ranch, and our report is enclosed. The survey indicated that, based on our field reviews to date, no plants of special concern are apparently located on the project site. As indicated, we will perform an additional field survey in June, and will submit a final report at that time.

If you have any questions, please call me.

Sincerely,


Ron Bass

Enclosure

VERNAL POOL SURVEY OF HANSEN RANCH REGIONAL PARK

Prepared by Virginia I. Dains
May 6, 1986

Methodology

A floristic survey of vernal pools at Hansen Ranch was conducted on April 23-26, 1986. The purpose of this survey was to search for rare plants and to provide recommendations for conservation of vernal pools based on biological and physical parameters. Pools identified during previous field surveys and additional pools mapped during the April site visits were searched for four early-flowering species: hogwallow star (Downingia humilus), Boggs Lake hedge hyssop (Gratiola heterosepala), Red Bluff rush (Juncus leiospermus), and Greene's legenere (Legenere limosa). Twenty-six vernal pools that represented a range of sizes, depths, and locations were studied in additional detail. Data were taken on the number and coverage of species present and on physical attributes including pool area, presence of standing water, and nature of the pool's watershed. This survey technique served both to uncover any rare species that might be present in the pools and to provide a basis for assessing the habitat value of pools with regard to the floristic diversity of native vernal pool plants.

The results of the April survey do not address the potential for late-flowering plants, specifically the members of grass tribe Orcuttiae and Hoover's spurge (Chamaesyce hooveri), to be found on the project site. Additional field work in mid- to late-June will be conducted to ascertain the presence or absence of these special plants.

Plants of Special Concern

Appendix A lists the plants observed during the two-day field survey in April. None of the plants of special concern was found in Hansen Ranch vernal pools during that survey. A small number of pools (8 out of approximately 55 pools) contained individuals of downingia (Downingia bicornuta). This species is not easily confused with the rarer and smaller hogwallow stars. No populations of Boggs Lake hedge hyssop were noted during the surveys. Special attention was placed on searching for fruiting capsules as well as flowers of this plant. The common and widespread toad-rush (Juncus bufonius) was found in many of the vernal pools, but its more robust and branched habit make it easily distinguishable from the Red Bluff rush, which was not found on the site. Two plants that are commonly associated with Greene's legenere were found in

abundance at Hansen Ranch. These are spike rush (Eleocharis macrostachya) and smooth goldfields (Lasthenia glaberrima). Stands containing these two indicator species were often very dense, with little or no exposed soil. Where bare areas occurred in the vegetation, they were due to dense crusts of drying algae that would make the germination and establishment of legumene seedlings difficult. Although Legumene is very inconspicuous, the habitat at Hansen Ranch appears inappropriate for the plant.

The floristic surveys included two additional species that have sometimes been confused with rare plants. A mat-forming annual spurge (Chamaesyce serpyllifolia) that resembles Hoover's spurge, and a low growing grass (Crypsis sp.) that is sometimes confused with the rare orcutt grasses, were collected and their identity confirmed in the laboratory.

Vernal Pool Vegetation

The number and kinds of plant species, and their relative dominance comprise the vegetation of a vernal pool. The number of species in a pool varies in a complex way with its size, depth, degree of isolation from other pools, and history of disturbance. The kinds of species found in vernal pools can be native to California or introduced from other regions. The species may be more or less restricted to vernal pools or they may occur in many wet-site or grassland habitats. The unique quality of vernal pool vegetation is due to the large number of native plants that are more or less restricted to the vernal pool habitat.

Overall, the vegetation of vernal pools at Hansen Ranch was dominated by a few very common species. These included smooth goldfields (Lasthenia glaberrima), spike-rush (Eleocharis macrostachya), and little water buttercup (Ranunculus bonariensis var. trisepalis). Some pools had subdominant populations of popcorn flower (Allocarya stipitata var. micrantha) or coyote thistle (Eryngium vaseyi var. vallicola). Two shallow pools were dominated by goldfields (Lasthenia fremontii) and purple hairgrass (Deschampsia danthonioides). All of these are native plants. Introduced plants occurred in all of the pools but were less common. Between 66 and 90 percent of the species recorded in the pools are native to California.

Vernal pool specialists, those plants more or less restricted to vernal pools, were less common in the pools at Hansen Ranch than generalist species with wider habitat requirements. Generally, less than one-third of the plants in each vernal pool were characteristic of the vernal pool habitat. Thus, while the vernal pool vegetation at Hansen Ranch is represented by many native plants, the pools contain relatively few characteristic vernal pool species. This is probably because of the site's history of cultivation and grazing. The vernal pools at Hansen Ranch are visible in aerial photos of Sacramento

County taken in 1949, but are evidently disturbed by cultivation. Disturbances such as these can result in long-term changes in vernal pool flora and vegetation. During the April survey, differences in total cover were noted between grazed and ungrazed pools, but species composition and dominance were not different between these two groups.

Vernal Pool Conservation

The vernal pools on the Hansen Ranch property represent one of the few groups of vernal pools remaining in the county on San Joaquin series soils. The early agricultural and urban development of the native landscapes on this lower valley terrace has left few undisturbed sites. Though the pools are in a degraded condition, their regional significance warrants conservation efforts.

The selection of a pool group for conservation should be based on biological and physical parameters. Priority for conservation should be given to pool groups that harbor plants of special concern. Secondly, pools with the greatest diversity of characteristic vernal pool plants should be considered. Lastly, the defensibility of the pools' watersheds will determine the feasibility of any conservation effort.

The latter consideration, based on physical rather than biological properties of pools, is essential if the natural hydrology of the pools is to be maintained. Vernal pools are subjected to wet and dry cycles governed by climate. Each pool, however, differs in the amount of water it receives and stores over the winter season. Some pools fill and drain rapidly several times over the season, while other deeper pools may fill and remain full until water evaporates in the spring. Each of these pool types supports a different group of vernal pool plants. On the Hansen Ranch Property both shallow and deep pools are found, and as described above, different species dominate these pools. Retention of both a natural watershed and a natural water regime is critical for conservation of vernal pools.

For these reasons, pools that are associated with an intermittent stream or influenced by a streamside channel are poor candidates for conservation. In addition, single pools, regardless of large size or depth, may lose species due to biological isolation. For a vernal pool conservation effort to be successful, groups of pools of varying sizes and depths, and with discrete watersheds, should be set aside.

The pools at Hansen Ranch were grouped into six general locations. Representative pools from each location were surveyed in detail. The pool groups were ranked from high to low "quality" by three measures: 1) number of native plants present in the pools, 2) percent of the pool's flora that was

native, and 3) percent of the pool's flora that was represented by vernal pool specialists as opposed to habitat generalists.

The results identify the pool group in the northwest corner of the property as highest overall in habitat quality. The watersheds of four pools in this site are fairly well contained; however, the larger single pool may receive run-off from Ascot Avenue. The round-shaped pool is unnaturally drained by a ditch, probably in an attempt to reclaim the pool bed for farming. This corner location is physiographically isolated from the rest of the property by a low berm that drains to the north and west. Control numbers for pools in this group are 38-51, and 51A added during the April survey.

These results are preliminary. The detection of rare species during early summer surveys may change the priority for conservation of pools on the site.

APPENDIX A

Vernal Pool Plants observed at Hansen Ranch Regional Park,
April 1986

| | <u>Scientific Name</u> | <u>Common Name</u> |
|----|---|------------------------|
| NG | <i>Alisma Triviale</i> | water plantain |
| NS | <i>Allocarya greenii</i> | popcorn flower |
| NS | <i>Allocarya stipitata micrantha</i> | popcorn flower |
| NS | <i>Alopecurus saccatus</i> | foxtail grass |
| NG | <i>Boisduvalia cleistogama</i> | boisduvalia |
| IG | <i>Briza minor</i> | little quaking grass |
| NG | <i>Callitriche marginata</i> | water starwort |
| NG | <i>Centunculus minimus</i> | centunculus |
| IG | <i>Chamaesyce serpyllifolia</i> | spurge |
| IG | <i>Convolvulus arvensis</i> | bindweed |
| IG | <i>Cotula coronopifolia</i> | brass buttons |
| NG | <i>Crassula aquatica</i> | pigmy-weed |
| IG | <i>Crypsis sp.</i> | quell grass |
| NS | <i>Deschampsia danthonioides</i> | purple hairgrass |
| NS | <i>Downingia bicornuta</i> | downingia |
| NG | <i>Eremocarpus setigerus</i> | dove weed |
| NS | <i>Eryngium vaseyi var. vallicola</i> | coyote-thistle |
| NG | <i>Elatine californica</i> | waterwort |
| NG | <i>Eleocharis macrostachya</i> | spike-rush |
| IG | <i>Glyceria declinata</i> | manna grass |
| IG | <i>Hordeum geniculatum</i> | bent-knee barley |
| IG | <i>Hordeum leporinum</i> | fox-tail barley |
| NG | <i>Juncus bufonius</i> | toad-rush |
| NS | <i>Lasthenia fremontii</i> | goldfields |
| NS | <i>Lasthenia glaberrima</i> | smooth goldfields |
| NG | <i>Lilaea scilloides</i> | flowering quillwort |
| IG | <i>Lippia nodiflora</i> | lippia |
| IG | <i>Lolium multiflorum</i> | Italian ryegrass |
| NG | <i>Ludwigia peploides</i> | Ludwigia |
| NG | <i>Lythrum hyssopifolium</i> | loosestrife |
| NG | <i>Marselia vestita</i> | water shamrock |
| NG | <i>Navarretia intertexta</i> | navarretia |
| NG | <i>Phalaris lemmoni</i> | canary grass |
| NS | <i>Pillularia americana</i> | pillwort |
| IG | <i>Poa annua</i> | annual bluegrass |
| NS | <i>Pogogyne zizyphoroides</i> | jujube beardstyle |
| NG | <i>Polygonum sp.</i> | smartweed |
| NS | <i>Psilocarpus brevissimus</i> | wooly marbles |
| NG | <i>Psilocarpus oregonus</i> | psilocarpus |
| NG | <i>Ranunculus aquatilis</i> | water buttercup |
| NG | <i>Ranunculus bonariensis var. trisepalis</i> | little water buttercup |
| IG | <i>Ranunculus muricatus</i> | dread crowfoot |
| IG | <i>Rumex crispus</i> | curly dock |
| IG | <i>Trifolium tridentatum</i> | tom-cat clover |
| NG | <i>Veronica peregrina</i> | veronica |
| IG | <i>Xanthium sp.</i> | cockleburr |

(Legend: N = native, I = introduced, S = vernal pool specialist, G = habitat generalist)



JONES & STOKES ASSOCIATES, INC. / 2321 P STREET / SACRAMENTO, CA. 95816

916/444-5638

July 9, 1986

Mr. Dale Achondo
Superintendent of Golf
City of Sacramento
1231 I Street, Suite 400
Sacramento, CA 95814

SUBJECT: Hansen Ranch Vernal Pool Survey


Dear Mr. Achondo:

A second survey of vernal pools on Hansen Ranch was completed on June 24, 1986 by Virginia Dains. The results of this survey are enclosed. Plant species of special concern were not found on the site. Mitigation measures are suggested in the report that will preserve vernal pool habitat in the northwest corner of the property.

Because of your need to receive these materials immediately, I am sending this draft report and the field map identifying areas surveyed. We planned to prepare a more informative map before sending the report.

Jo Anne Sorenson will contact you on Monday, July 14, 1986, to determine what additional information or graphics you may need. We apologize for our delay in sending this report to you.

Sincerely,


Charles R. Hazel, Ph.D.
President

Enclosures

VERNAL POOL SURVEY OF HANSEN RANCH REGIONAL PARK

The Hansen Ranch property was visited on June 24, 1986 to search vernal pool habitats for rare summer annuals. The species of interest in this survey included Hoover's spurge (Chamaesyce hooveri), Sacramento orcutt grass (Orcuttia viscida), Colusa grass (Neostaphia colusana), and related rare grasses. Each pool on the project site was searched. Summer annuals found in the beds of the pools were recorded. Plants related to the target species were collected so that positive identification could be made in the laboratory.

All of the pools on the site were dry during the field survey. Pockets of ponded water remained in portions of the intermittent stream. The vegetation of these areas was dominated by water primrose (Ludwigia peploides).

None of the rare summer annuals known to occur in vernal pools was detected at Hansen Ranch. Pool-beds frequently were dominated by coyote-thistle (Eryngium vaseyi) or contained mixed populations of other native and introduced plants. These included Hemizonia pungens, Grindelia camporum, Polygonum aviculare, Eremocarpus setigerus, Xanthium strumarium, Sida hederacea, Lepidium latifolia, Crypsis niliaca, Heleochoa schoenoides, Amaranthus graecizans, Chamaesyce serpyllifolia, Ludwigia repens, and Lippia nodiflora.

Though no special status plants occur in the vernal pools at Hansen Ranch, conservation of a pool group is recommended. The pool group in the northwestern corner of the property that has a diversity of native vernal pool indicator species remains a good candidate group for conservation. To conserve pools on the site, the following guidelines should be observed.

1. The set-aside area should be of adequate size to contain as much of the pools' watersheds as possible. The temporary fence constructed around these pools needs to be extended to the south and east to provide a buffer zone of at least 30 feet around the perimeter of the pools. The eastern boundary of the vernal pool area needs to be extended to encompass two additional pools.

2. The set-aside area should be returned to its natural topography. Street drainage should be rerouted away from the vernal pool area. The ditch that drains the large round pool should be filled. The drain entering the western border of the area should be removed if possible.

3. Public access should be developed to the area for educational and research purposes.

4. The City should continue consultations with qualified botanists and concerned citizens to assure that the requirements as listed above are met.

The loss of vernal pools at Hansen Ranch adds to the decline of this habitat throughout the state. The protection and enhancement of representative pools on the site will reduce these losses. Public awareness of vernal pools through access to the set-aside area will aid future conservation efforts and further mitigate the loss of pools on the property.

Hansen Ranch Regional Park

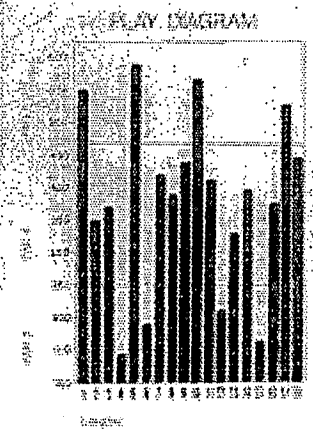


EXHIBIT E

CARL F. HANSEN REGIONAL PARK AND GOLF COURSE

ECOS LETTER



Environmental Council of Sacramento, Inc.

April 22, 1987

Dale Achondo, Golf Superintendent
City of Sacramento
Department of Parks and Community Services
1231 I Street
Sacramento, CA 95814

Dear Mr. Achondo:

We would like to take this opportunity to express our appreciation to you for allowing us to work with you and your staff in the redesign of the Hansen Ranch conceptual plan.

As originally proposed, the golf course and other facilities would have resulted in significant fill or excavation of wetlands within Hansen Ranch Regional Park. These wetlands include riparian woodland, seasonal freshwater marsh, and vernal pools. The recently developed alternative conceptual plan reduces the amount of disturbance to the wetlands which is an improvement upon the original conceptual design. To mitigate this disturbance, you and your staff now propose to preserve some of the more floristically significant vernal pools, restore and enhance riparian woodland, and create perennial freshwater marsh ponds.

As noted in your December 15, 1986 letter, we generally agree with the design set forth in the October, 1986 conceptual plan and understand that the issues set forth below will be incorporated into that design:

1. The areas designated as "natural" will not be reduced in size and may even increase in size.
2. Golf hole #5 may be changed in the final plan so as to curtail the intrusion of golf balls in air space over the wetlands area.
3. The final plan may, in fact, provide for additional wetlands areas.
4. The maintenance area will be constructed in such a manner that runoff water does not enter the golf course area, vernal pools, or natural areas.

Member Organizations

American Lung
Association of
Sacramento —
Emigrant Trails
Audubon Society
California Native
Plant Society,
Sacramento
Valley Chapter
Capital Bicycle
Commuters
Association
League of Women Voters
of Sacramento
Modern Transit Society of
Sacramento
Orangevale Action
Committee
Planned Parenthood
Association of
Sacramento
~~Sacramento County~~
~~Farm Bureau~~
Sacramento Old City
Association
Sacramento Toxics
Alliance
Sacramento Valley
Bicycle Advocates
Save the American River
Association
Sierra Club, Mother Lode
Chapter
South Yuba
Community
Association
Zero Population Growth

5. We will be involved in providing suggestions for the type of native grasses, plants, and trees for landscaping the site.
6. Native perennial grasses will be used to provide buffer or protective zones between the maintained turf area and the natural areas.
7. Native plants found locally will be planted in the roughs.
8. Irrigation and drainage will be designed to mitigate impact on the vernal pools and other wetlands.

We understand that the conceptual plan will undoubtedly require some changes to mitigate impacts identified by the Environmental Protection Agency, National Fish and Wildlife Service, and the Army Corps of Engineers during their review of the construction permit applications.

We look forward to working with you and your staff in the development of a management plan for the natural areas and would like to assist you in the reintroduction of native plant life to those areas.

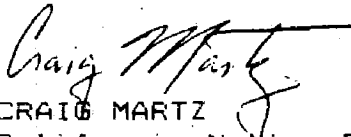
Sincerely,



STEVEN CATES
Environmental Council of Sacramento



ALTA TURA
Sacramento Audubon Society



CRAIG MARTZ
California Native Plant Society,
Sacramento Valley Chapter

EXHIBIT F

CARL F. HANSEN REGIONAL PARK AND GOLF COURSE
MITIGATION MEASURES NECESSARY

DESCRIPTION AND IMPACTS OF
PROPOSED PROJECT

MITIGATION MEASURES NECESSARY TO REDUCE
IMPACTS TO LESS THAN A SIGNIFICANT LEVEL

GEOLOGY AND SOILS

Disturbance of soils and clearing of vegetation during construction could cause significant erosion and sedimentation problems.

Grading should be conducted when erosion potential is minimal (May to October). Eroded streambanks should be stabilized during construction. Development, including pond excavation and vegetation removal should not occur within 100 feet of Dry Creek. A sediment control plan should be formulated for construction within the Robla Creek Channel.

Hydrology and Water Quality

Site preparation would entail grading throughout the property and, consequently, potentially significant increases in the amount of sediment in surface runoff.

Preliminary drainage studies indicate adequate ponding area on-site, but a detailed drainage plan showing specific flood control and storage structures should be prepared as part of engineering improvement plans. Erosion control measures proposed in the preliminary conceptual drainage plan for the site should be implemented to minimize stream sediment loads. Grading should occur during the period of least rainfall.

Vegetation and Wildlife

The project would eliminate or degrade some significant vegetation and wildlife habitat. Some new habitat would be created, and a new habitat type would be introduced.

The master plan design should provide natural area management zones and expanded preserved wetlands to protect vernal pools and wildlife.

Wildlife using the site wetlands would decline in numbers and diversity.

A 404 permit should be obtained and a detailed wetland management plan should be prepared to ensure that no net loss of habitat values occurs. This plan should identify the area, types of wetlands, areas of each wetland type, and wildlife value of the wetland types. At the minimum, the plan should include: acre-for-acre replacement of vernal pools; and marsh capable of supporting use, similar to current use of the site wetlands, by wintering and nesting waterfowl and shore birds.

DESCRIPTION AND IMPACTS OF
PROPOSED PROJECT

MITIGATION MEASURES NECESSARY TO REDUCE
IMPACTS TO LESS THAN A SIGNIFICANT LEVEL

Transportation

Two locations of the existing circulation system would not accommodate project volumes at acceptable levels of operation:

- Norwood Avenue between Bell Avenue and Silver Eagle Road;
- The Northgate/I-80 interchange off-ramp intersections would have extensive traffic backups due to limited visibility.

Norwood Avenue should be widened to four lanes from Silver Eagle Road to Bell Avenue. These improvements would need to be scheduled and funded as part of the City's capital improvement program.

Preliminary analysis of 1995 volumes at Northgate/I-80 interchange ramps indicates signals would be necessary. These improvements would need to be scheduled and funded as part of the City's capital improvement program.

Noise

New recreational development immediately adjacent to the railroad will be affected by train traffic.

The project plans alleviate railroad noise impacts upon park users through the placement of the least sensitive recreation users near the railroad. Appropriate design measures for noise control should be incorporated into the project design. The project sponsor should also consider designing landscaping near the western project boundary to obscure views of the railroad tracks from the site.