Appendix K

Biology Appendices

BIOLOGICAL SURVEYS FOR THE PROPOSED SAN JUAN PROJECT SAN BENITO COUNTY, CALIFORNIA

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SUMMARY

BioSystems Analysis, Inc. (BioSystems) was contracted by the Silver Creek Valley, a California limited partnership, to conduct biological surveys for the proposed San Juan Valley Project. The proposed project consists of an 18 hole public golf course, club house, and practice area. The facility may use reclaimed water from the City of San Bautista wastewater treatment plant as part of the golf course irrigation. Our studies concentrated on surveys to determine the presence and habitat suitability for the San Joaquin kit fox (*Vulpes macrotis mutica*) and several special status amphibians and reptiles including the California tiger salamander (*Ambystoma tigrium californiense*), California red-legged frog (*Rana aurora*), foothill yellow-legged frog (*Rana boylii*), western pond turtle (*Clemmys marmorata*), and coast horned lizard (*Phrynosoma coronatum frontale*). We also conducted surveys for other special status wildlife and plant species with potential to occur in the project area. Field surveys were conducted from 14 May through 21 May and on July 23 and 24, 1992. Biosystems Analysis,. Inc. studied the actual project boundaries for the proposed golf course, the route (on Silver Creek Valley's property) of the potential reclaimed water irrigation pipeline, and an adjacent broad study area around the actual project and irrigation pipeline boundaries.

We did not observe any kit foxes or their sign within either the adjacent study area or the project area. We did identify 19 potential den locations (ground squirrel burrows which show no sign of kit fox activity but could be utilized by kit foxes) in the study area. Nine of the 19 potential dens were identified within the boundaries of the project area. The project area appears to primarily be marginal quality habitat for kit fox. We did not document any occurrence of any of the special status wildlife species in the project area, although there is potentially suitable habitat for some species.

We identified two sensitive habitats within the project area: mixed riparian forest, and coast live oak woodland. We identified two additional sensitive habitat outside the project area but within the broad study area: central coast willow riparian forest and freshwater seep. One special status plant species, valley oak (*Quercus lobata*), occurs within the study and project area.

1.0 INTRODUCTION

1.1 BACKGROUND AND STUDY AREA

BioSystems Analysis, Inc. (BioSystems) was contracted by the Silver Creek Valley to conduct biological surveys for the proposed San Juan Valley golf course project. Our studies concentrated on surveys to determine the presence of and habitat suitability for the San Joaquin kit fox (*Vulpes macrotis mutica*). We also conducted surveys for special status wildlife and plant species with potential to occur in the project area. Field surveys were conducted from 14 May through 21 May and on 23 and 24 July 1992.

San Benito County's projected growth and conflicts with species of concern has prompted the county to pursue a Habitat Conservation Plan (HCP) and Section 10(a) permit. This permit will provide an exemption to the Endangered Species Act for disturbance of endangered species if mitigation on a regional basis is provided. Without this permit, developers must take action to mitigate impacts on a piecemeal basis which is more costly and time consuming. At the same time, developing and following an HCP will provide for protection of threatened and endangered species pursuant to the Endangered Species Act. Recently, the Board of Supervisors of San Benito County adapted ordinance number 541. This ordinance establishes interim mitigation fees and guidelines for protection of the San Joaquin kit fox and the financing of an HCP, as required under the Endangered Species Act.

From a regional perspective, the project area is situated in a transitional belt between hilly oak woodland/chaparral communities to the south and the flat valley bottom grassland communities to the north. Most of the historic grasslands in the region have been converted to intensely managed irrigated row crops, and to a lesser extent to dryland cultivation. The proposed project area (Figure 1-1) lies south of the irrigated row crop land, and mostly occupies the level to gently sloping bottoms of the San Juan Valley and two broad tributary canyons entering the valley (Figures 1-2 and 1-3). Also included in the study area is a small, narrow, west-northwest-draining canyon entering the valley near the mouth of one of the larger tributary canyons. The floor of the northwest-draining tributary canyon (the larger of the two large tributary canyons) is under dryland cultivation (and at times irrigated pasture), and its drainage runs along the northeast edge of the canyon floor. The property is currently used for cattle grazing, dryland farming, and irrigated pasture. Intensive land use practices prevail in much of the study area. In the project area ruderal habitat has been subjected to dryland and irrigated farming and irrigated pasture operations for at least the past 10 years. These practices consist of plowing, planting, and fertilizing the area each November, applying a broadleaf herbicide in January or February, and cutting the crop in May. If the crop is good it is thrashed in July. These fields are occasionally irrigated.

BioSystems conducted specific activities to achieve assessment goals and objectives as follows:

- Conduct a field survey for the San Joaquin kit fox following California Department of Fish and Game (CDFG) Region 4 approved survey methodology.

- Provide a list of special status wildlife species potentially occurring in the study area.
- Conduct a survey for special status wildife.
- Identify, delineate, and characterize vegetation/habitat types in the study area.
- Provide a list of special status plant species potentially occurring in the study area.
- Conduct a rare plant survey.
- Recommend mitigation measures relevant to survey findings.

1.2 KIT FOX NATURAL HISTORY

1.2.1 Status

The San Joaquin subspecies of the kit fox (*Vulpes macrotis mutica*) was listed as federally endangered in 1966. It was classified as rare by the state of California in 1971 and reclassified as threatened in 1985. Over the past 50 years, the number of San Joaquin kit foxes has declined 20 to 43 percent (O'Farrell 1983). The most recent population estimate is about 7,000 adults with a mean density of approximately 1.4 adults per mi^2 (259 ha) over their range (O'Farrell 1983).

1.2.2 Range

San Joaquin kit foxes once occurred throughout the semi-arid Central Valley of California and the adjacent low foothills (Grinnell et al. 1937). Since the early 1900s, loss of habitat from agricultural, industrial, and urban development has resulted in kit fox range reduction and population declines (O'Farrell 1983).

1.2.3 Habitat

Kit foxes occur in annual grasslands, sparsely-vegetated shrubby habitats (O'Farrell 1983), and in some agricultural and urban areas (Jensen 1972; Morrell 1975). Suitable topography is usually low to moderate hills with slopes less than 40° (Morrell 1972; O'Farrell and McCue 1981; O'Farrell et al. 1980). Historically preferred habitats are the native alkali sink plant community and the flat lands of valley bottoms, though substantial populations may also have inhabited the grasslands of the surrounding foothills (O'Farrell 1983; Jensen 1972; Morrell 1975). Jensen (1972) and Orloff et al. (1986) report that light to moderate grazing may increase the suitability of grassland habitats for kit foxes and their prey.

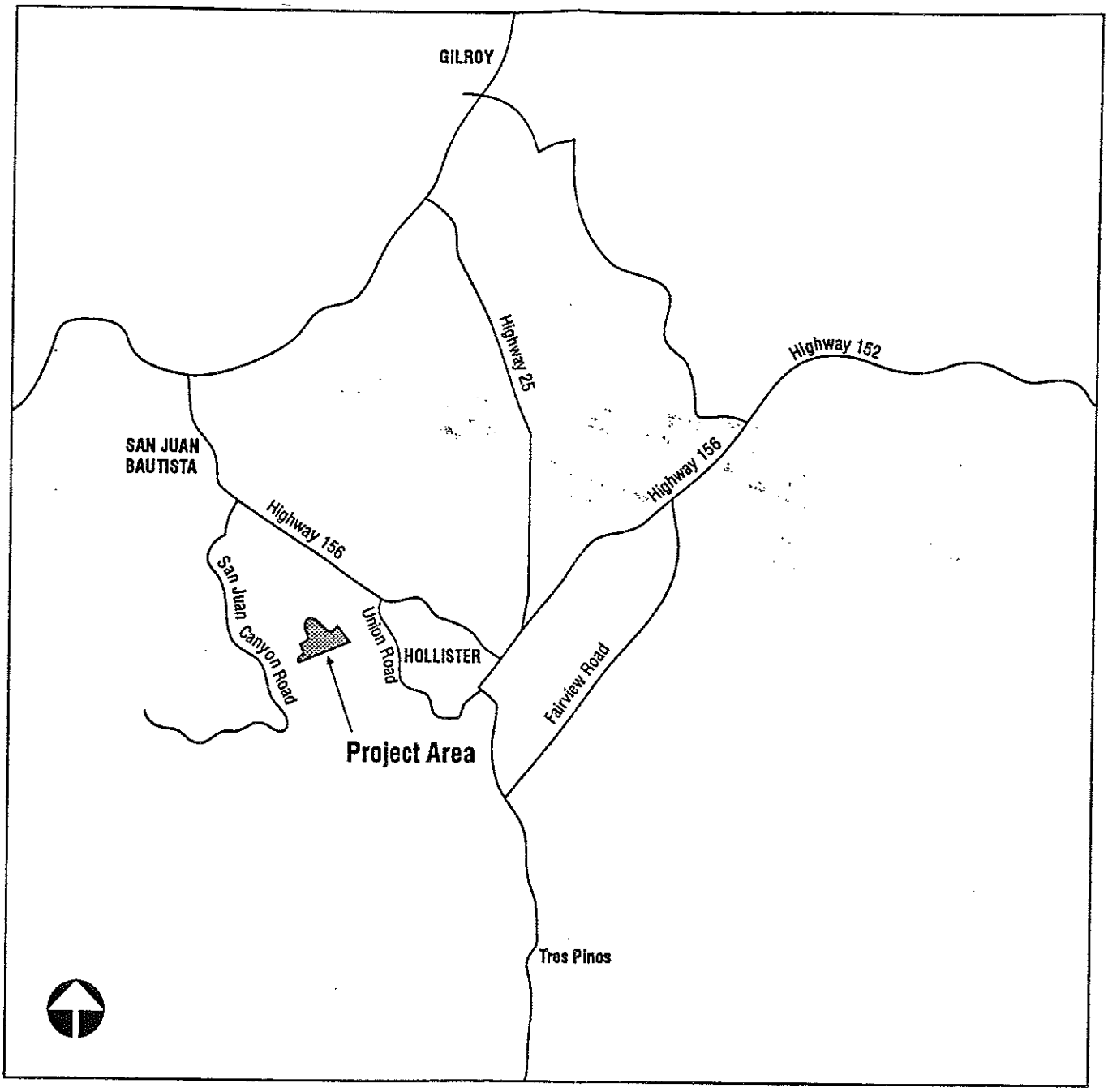

Figure 1-1. San Juan Valley project area location map.

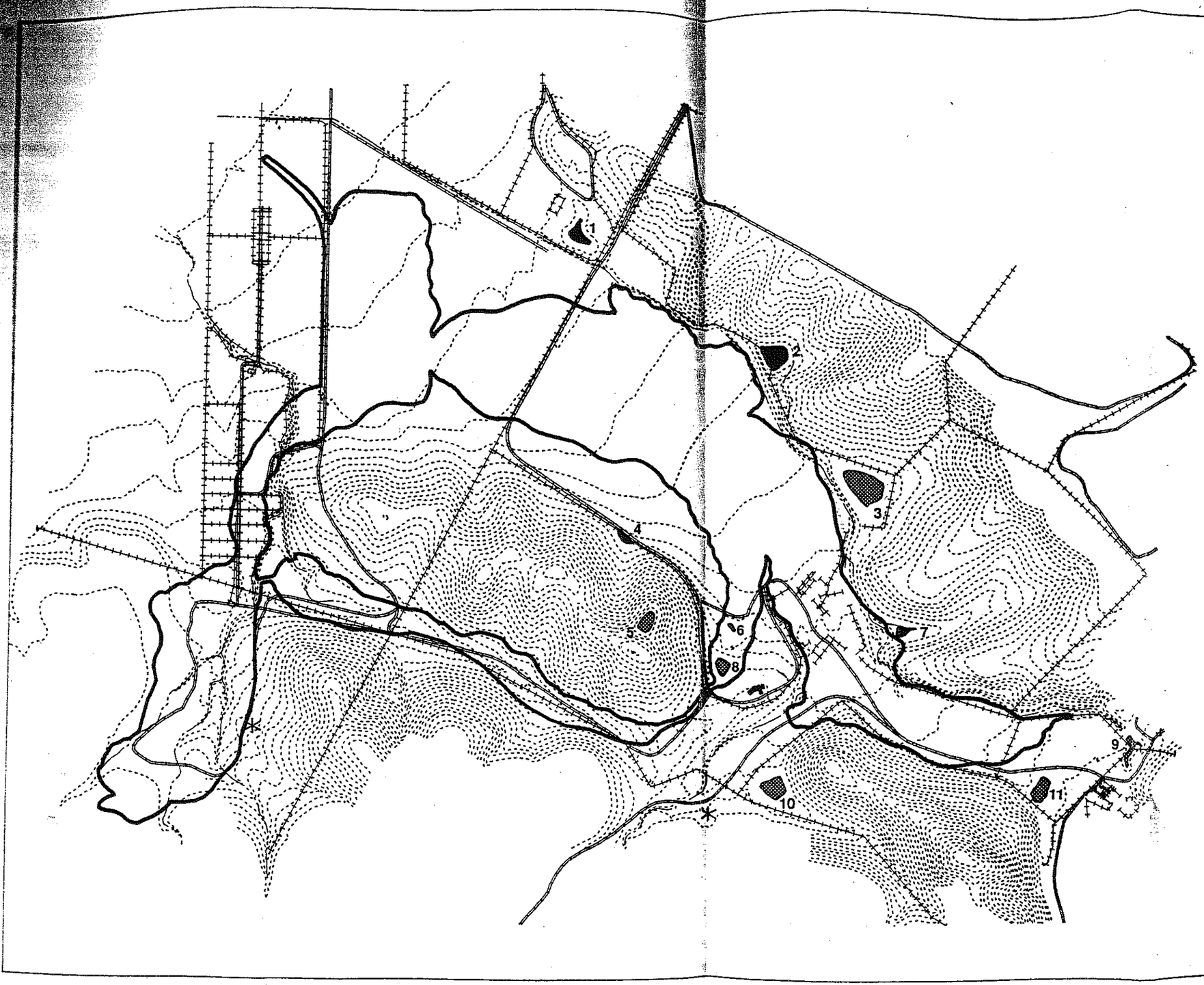

Figure 1-2. San Juan Valley project area physical features.

LEGEND

- 10 foot contours
- Roads
- Streams
- Fences
- Project area boundary
- Livestock pond with water
- Livestock pond without water

Scale 1" = 750'

Prepared by BioSystems Analysis, Inc.

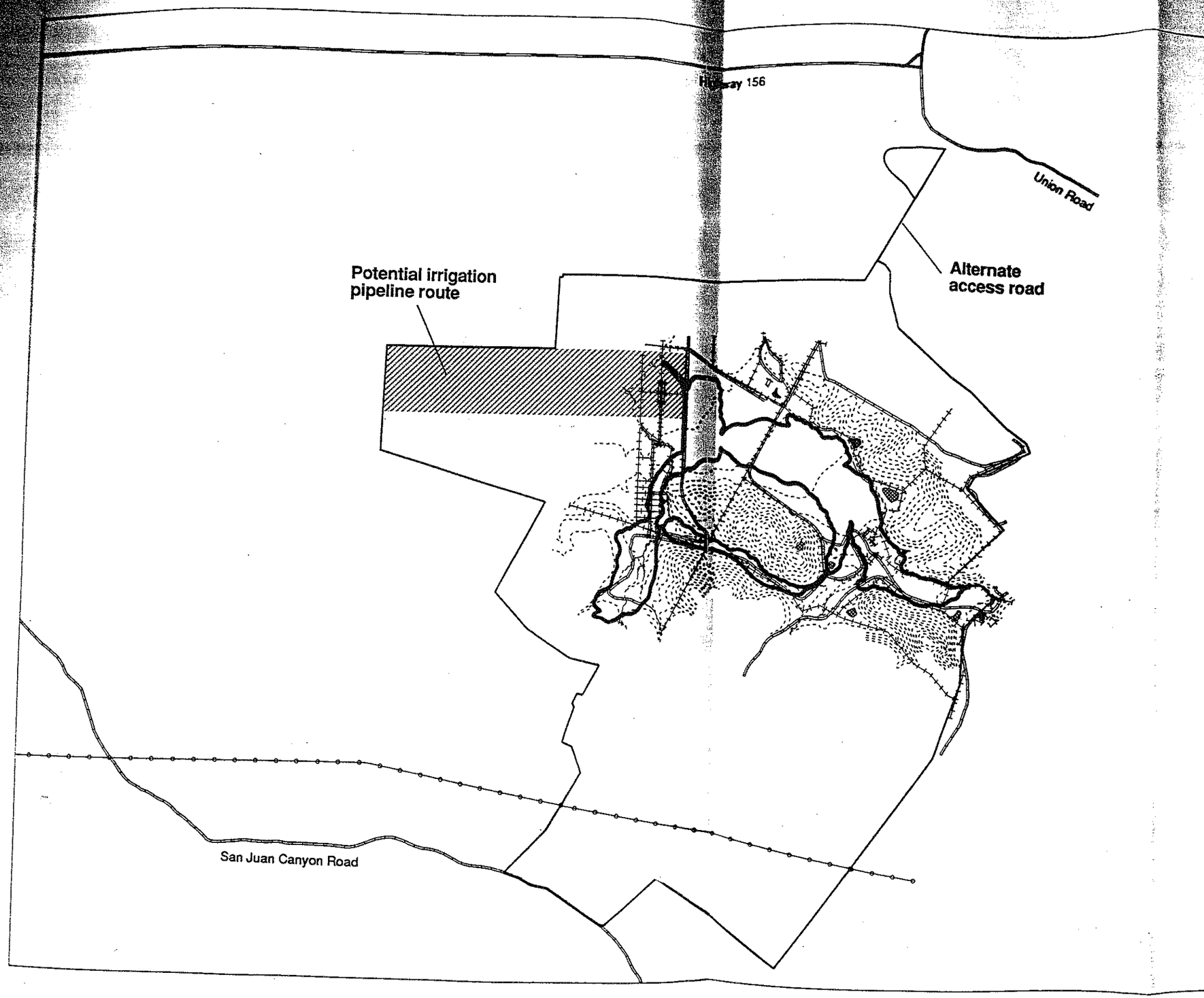

Figure 1-3. Project boundary including potential reclaimed water irrigation pipeline route.

LEGEND

- 20 foot contours
- Highway
- Secondary roads
- Streams
- Fences
- Transmission lines
- Project area boundary
- Property boundary
- Livestock pond with water
- Livestock pond without water

Scale 1" = 1900'

Prepared by BioSystems Analysis, Inc.

1.2.4 Reproduction

Adult foxes are usually solitary during the late summer and fall, but by September and October adult females start to excavate and enlarge natal dens (Morrell 1972). Adult males join the vixens in October or November (Morrell 1972), and mating probably occurs near the first of the year (Egoscue 1956). Pups typically are born in late February or early March, following a gestation period of 49 to 55 days (Egoscue 1962; Morrell 1972). Females produce one litter per year; an average litter is four pups but litters can range from three to five (Morrell 1972; O'Farrell 1984). Pups are weaned about a month after birth, at which time they venture above ground. Pups begin foraging for themselves at about four to five months of age and disperse shortly thereafter (Morrell 1972).

1.2.5 Denning

Most kit fox dens are on flat terrain or the lower slopes of hills. About 77 percent of all kit fox dens are at or below mid-slope (O'Farrell 1983), with the average slope at den sites ranging between 4° and 22° (O'Farrell 1983; CDFG 1980). Natal and pupping dens (used for birthing and rearing pups) are usually found in flatter terrain. Common locations for dens include washes, drainages, and roadside berms.

Kit foxes are reputed to be poor diggers and are usually found in areas with loose-textured, friable soils (Morrell 1972; O'Farrell 1983). However, harder clay soils occur in some parts of their range (Orloff et al. 1986). Some studies have suggested that where hardpan layers predominate, kit foxes create dens by enlarging California ground squirrel (*Spermophilus beecheyi*) or badger (*Taxidea taxus*) burrows (Morrell 1972; Jensen 1972; Orloff et al. 1986). In parts of their range, particularly in the foothills, kit foxes often use ground squirrel burrows for dens (Orloff et al. 1986). They also commonly den in man-made structures such as culverts.

A kit fox may use over 20 dens during a year for shelter and escape cover, although most dens are vacant at any given time (O'Farrell 1983; Orloff et al. 1986; Morrell 1972). A single fox may use four to five dens in one month during the summer (Morrell 1972). Possible reasons for changing dens include infestation by ectoparasites or local depletion of prey.

Natal and pupping dens can have from 2 to 18 entrances and are usually larger than dens not used for reproduction (O'Farrell and McCue 1981; O'Farrell et al. 1980). Families may change dens used to rear pups (pupping dens) once or twice per month (O'Farrell 1983), but they probably do not change natal dens, which contain unweaned pups. Natal dens may be reused in subsequent years (Egoscue 1962). Some biologists believe that natal dens are linked to ancestral breeding sites and, thus, are important to successful reproduction (O'Farrell 1983). Active natal dens are usually 1.2 to 2 mi (1.9 to 3.2 km) from the dens of other mated kit fox pairs (Egoscue 1962; O'Farrell and Gilbertson 1979).

Dens tend to occur in groups, and clusters of dens may be surrounded by hundreds of acres of similar habitat devoid of dens (Egoscue 1962). In the southern San Joaquin Valley, kit foxes

were reported to use up to 39 dens within a denning range of 320 to 482 ac (129 to 195 ha) (Morrell 1972). An average den density of one den per 69 to 92 ac (28 to 37 ha) was reported by O'Farrell (1984). In the northern portion of the kit fox's range, 43 dens were used within a 371-ac (150-ha) area (Orloff et al. 1986).

1.2.6 Food Habits and Behavior

Kit foxes are primarily carnivorous. Their diet includes black-tailed hares (*Lepus californicus*), desert cottontails (*Sylvilagus audubonii*), kangaroo rats (*Dipodomys* spp.), ground squirrels, mice, insects, birds, reptiles, and carrion (Grinnell et al. 1937; Balestreri 1981; Egoscue 1962; Jensen 1972; Knapp 1978; Laughrin 1970; Morrell 1971; O'Farrell 1983; Orloff et al. 1986). Most studies report that kangaroo rats and desert cottontails are the major prey of kit foxes (Grinnell et al. 1937; Jensen 1972; Knapp 1978; Laughrin 1970; Morrell 1972); however, several recent studies suggest that kit foxes are opportunistic feeders that can exploit diurnal prey, such as ground squirrels, as their primary food (Balestreri 1981; L. Briden, CDFG biologist, pers. comm.; Fisher 1981; Orloff et al. 1986). This may be especially true in the foothills of the kit fox's range where ground squirrels are usually abundant.

Kit foxes are nocturnal but may be active around dens during the day, especially when pups are present (Egoscue 1956; Ingles 1965; Morrell 1972). They have even been observed hunting at mid-day (Orloff et al. 1986).

1.2.7 Home Range and Density

Morrell (1972) reported kit fox home ranges varying in size from 1 to 2 mi^2 (260 to 520 ha). Knapp (1978) estimated the average minimum size of a home range in agricultural areas was approximately 1 mi^2 (252 ha). Individual home ranges overlap considerably (Morrell 1972).

Estimates of kit fox density over their entire range vary from two adults per 5.6 mi^2 (1450 ha) (Laughrin 1970) to two adults per 1.4 mi^2 (362 ha) (O'Farrell 1983). At Elk Hills in Kern County, density estimates range from 5.7 adults per mi^2 (259 ha) in the early 1970s (Morrell 1972) to 2 to 2.8 adults per mi^2 more recently (O'Farrell 1984).

2.0 METHODS

2.1 REVIEW OF LITERATURE AND DATA SOURCES

2.1.1 Kit Fox

We reviewed publications and documents on kit fox occurrence, habitat relationships, and management recommendations (CDFG 1980, 1990; Zeiner et al. 1990a; Jensen 1972; O'Farrell 1983). Information on occurrence in the region was supplemented with data gathered from unpublished literature, historical records, and interviews with local residents and field investigators. We also searched the California Natural Diversity Data Base (CNDDB) (1991) for occurrence records and consulted individuals from state and federal resource agencies, as well as expert biologists.

2.1.2 Special Status Wildlife

Biologists reviewed literature pertinent to wildlife of the study area. Particular consideration was given to obtaining information on "Special Animals" (CDFG 1992a) with high potential for occurrence within the study area. These animals include sensitive species (those having special legal or management status), with emphasis on federal and State of California listed threatened and endangered species, federal and state proposed or candidate threatened or endangered species, California state fully protected species, and species that may be considered endangered or rare under Section 15380(d) of the California Environmental Quality Act (CEQA). A search of the CNDDB was conducted for a listing of known sensitive animal species, and sensitive habitats occurring in the vicinity of the Specific Plan Area. Based on our review, we constructed a preliminary list of special status wildlife species with potential to occur in the project area (Table 2.1).

2.1.3 Vegetation Communities and Rare Plants

Prior to conducting a field survey, we conducted a focused survey of literature and rare species data bases. The purpose of this literature survey was to identify special status plant species with potential to occur in the study area. We reviewed special status species occurrence records and maps generated by the CNDDB, county and U.S. Geological Survey (USGS) quadrangle records in Smith and Berg (1988), and local and regional floras (Abrams 1923, 1944, 1951; Abrams and Ferris 1960; Munz and Keck 1968). Based on information from the above sources, supplemented by previous knowledge of the regional flora by BioSystems staff botanists, we developed a working list of special status plant species with potential to occur in the study area (Table 2.2).

Sensitive habitats are defined "by local, state, or federal agencies with resource responsibility with the project region, or by educational institutions, museums, biological societies, or special interest groups with specific knowledge of biological resources within the project study area." (Brownell et. al. 1983). These areas include, but are not limited to, riparian corridors,

wetlands, habitats for legally protected species and species of special concern, areas of high biological diversity, and unusual or regionally restricted habitat types. We reviewed the working list of "high priority" habitats (i.e., those habitats that are rare or endangered within the borders of California) maintained by the CNDDB. Based on this list and the above criteria, we assessed whether any sensitive habitat types occur within the study area.

Table 2.1 Preliminary list of special status wildlife species with potential to occur in the San Juan Valley study area, San Benito County, California [1].

Scientific Name Common Name	Status[1]
Amphibians	
Ambystoma tigrium californiense California tiger salamander	SSC2, FC2
Scaphiopus hammondii Western spadefoot	SSC
Rana aurora draytonii California red-legged frog	SSC2, FC1
Rana boylii Foothill yellow-legged frog	SSC2, FC2
Reptiles	
Clemmys marmorata Western pond turtle	SSC, FC1
Phrynosoma coronatum frontale California horned lizard	SSC
Birds	
Aquila chrysaetos Golden eagle	CP, SSC3, BEPA
Circus cyaneus Northern harrier	SSC2
Elanus caeruleus Black-shouldered kite	CP
Falco peregrinus anatum Peregrine falcon	CE, FE, CP
Falco mexicanus Prairie falcon	SSC3
Coccyzus americanus occidentalis Western yellow-billed cuckoo	SE
Athene cunicularia Burrowing owl	SSC2
Asio flammeus Short-eared owl	SSC2
Eremophila alpestris actia California horned lark	SSC, FC2
Lanius ludovicianus Loggerhead shrike	SSC, FC2
Vireo bellii pusillus Least Bell's vireo	SE, FE
Agelaius tricolor Tricolored blackbird	FC2

2.0 METHODS

2.1 REVIEW OF LITERATURE AND DATA SOURCES

2.1.1 Kit Fox

We reviewed publications and documents on kit fox occurrence, habitat relationships, and management recommendations (CDFG 1980, 1990; Zeiner et al. 1990a; Jensen 1972; O'Farrell 1983). Information on occurrence in the region was supplemented with data gathered from unpublished literature, historical records, and interviews with local residents and field investigators. We also searched the California Natural Diversity Data Base (CNDDB) (1991) for occurrence records and consulted individuals from state and federal resource agencies, as well as expert biologists.

2.1.2 Special Status Wildlife

Biologists reviewed literature pertinent to wildlife of the study area. Particular consideration was given to obtaining information on "Special Animals" (CDFG 1992a) with high potential for occurrence within the study area. These animals include sensitive species (those having special legal or management status), with emphasis on federal and State of California listed threatened and endangered species, federal and state proposed or candidate threatened or endangered species, California state fully protected species, and species that may be considered endangered or rare under Section 15380(d) of the California Environmental Quality Act (CEQA). A search of the CNDDB was conducted for a listing of known sensitive animal species, and sensitive habitats occurring in the vicinity of the Specific Plan Area. Based on our review, we constructed a preliminary list of special status wildlife species with potential to occur in the project area (Table 2.1).

2.1.3 Vegetation Communities and Rare Plants

Prior to conducting a field survey, we conducted a focused survey of literature and rare species data bases. The purpose of this literature survey was to identify special status plant species with potential to occur in the study area. We reviewed special status species occurrence records and maps generated by the CNDDB, county and U.S. Geological Survey (USGS) quadrangle records in Smith and Berg (1988), and local and regional floras (Abrams 1923, 1944, 1951; Abrams and Ferris 1960; Munz and Keck 1968). Based on information from the above sources, supplemented by previous knowledge of the regional flora by BioSystems staff botanists, we developed a working list of special status plant species with potential to occur in the study area (Table 2.2).

Sensitive habitats are defined "by local, state, or federal agencies with resource responsibility with the project region, or by educational institutions, museums, biological societies, or special interest groups with specific knowledge of biological resources within the project study area." (Brownell et. al. 1983). These areas include, but are not limited to, riparian corridors,

wetlands, habitats for legally protected species and species of special concern, areas of high biological diversity, and unusual or regionally restricted habitat types. We reviewed the working list of "high priority" habitats (i.e., those habitats that are rare or endangered within the borders of California) maintained by the CNDDB. Based on this list and the above criteria, we assessed whether any sensitive habitat types occur within the study area.

Table 2.1 Preliminary list of special status wildlife species with potential to occur in the San Juan Valley study area, San Benito County, California [1].

Scientific Name Common Name	Status[1]
Amphibians	
Ambystoma tigrium californiense	
California tiger salamander	SSC2, FC2
Scaphiopus hammondii	
Western spadefoot	SSC
Rana aurora draytonii	
California red-legged frog	SSC2, FC1
Rana boylii	
Foothill yellow-legged frog	SSC2, FC2
Reptiles	
Clemmys marmorata	
Western pond turtle	SSC, FC1
Phrynosoma coronatum frontale	
California horned lizard	SSC
Birds	
Aquila chrysaetos	
Golden eagle	CP, SSC3, BEPA
Circus cyaneus	
Northern harrier	SSC2
Elanus caeruleus	
Black-shouldered kite	CP
Falco peregrinus anatum	
Peregrine falcon	CE, FE, CP
Falco mexicanus	
Prairie falcon	SSC3
Coccyzus americanus occidentalis	
Western yellow-billed cuckoo	SE
Athene cunicularia	
Burrowing owl	SSC2
Asio flammeus	
Short-eared owl	SSC2
Eremophila alpestris actia	
California horned lark	SSC, FC2
Lanius ludovicianus	
Loggerhead shrike	SSC, FC2
Vireo bellii pusillus	
Least Bell's vireo	SE, FE
Agelaius tricolor	
Tricolored blackbird	FC2

Table 2.1 Preliminary list of special status wildlife species with potential to occur in the proposed San Juan Valley project (cont.)

Scientific Name Common Name	Status[2]
Riparia riparia Bank swallow	ST
Dendroica petechia brewsteri Yellow warbler	SSC2
Icteria virens Yellow-breasted chat	SSC3
Mammals	
Plecotus twonsendii townsendii Pacific western big-eared bat	FC2
Eumops perotis californicus Greater western mastiff-bat	FC2
Taxidea taxus American badger	SSC3
Vulpes macrotis mutica San Joaquin kit fox	ST, FE

[1]The principle source of information for endangered and threatened designations is California Department of Fish and Game Natural Diversity Data Base 1992. Under Section 15380 of the California Environmental Quality Act, a species not included in any listing identified by the state "shall nevertheless be considered rare or endangered if the species can be shown to meet the criteria" for listing. Thus, species of special concern (Remsen 1978, Williams 1986) are included in this list.

[2]Wildlife status definitions and governing agencies follow:

U.S. FISH AND WILDLIFE SERVICE

FE	Endangered: any species that is in danger of extinction throughout all or a significant portion of its range.
FT	Threatened: any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
FPE	Proposed as Endangered: proposed to be listed as an endangered species.
FTE	Proposed as Threatened: proposed to be listed as a threatened species.
FC1	Federal Candidate Species, Category 1: taxa that are under review, and for which sufficient biological information exists to support a proposal to list as an endangered or threatened species.
FC2	Federal Candidate Species, Category 2: taxa for which existing information indicates it may warrant listing, but for which substantial biological information to support a proposal is not currently available.
FC2R	Federal Candidate Species, Recommended Category 2: recommended for federal candidate 2 status.
BEPA	Bald Eagle Protection Act: this act contains numerous protection aspects relating to bald eagles and golden eagles.

CALIFORNIA FISH AND GAME COMMISSION

CE	Endangered: a native species or subspecies of animal that is in serious danger of extinction throughout all, or a significant portion, of its range.
CT	Threatened: a native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future.
CP	California Protected: species cannot be taken in any manner at any time of the year except for scientific purposes under special permit.
SSC	Species of Special Concern (not ranked - no priority given).
SSC2	Species of Special Concern, Priority 2: these species are on the decline in a large portion of their range in California, but their populations are still sufficiently substantial that danger is not immediate.
SSC3	Species of Special Concern, Priority 3: these species are not in any present danger of extirpation and their populations within most of their range do not appear to be declining seriously; however, simply by virtue of their small populations in California, they are vulnerable to extirpation should a threat materialize.

Table 2.2 Status, distribution, and habitat of rare plants with potential to occur in the vicinity of the San Juan Valley study area, San Benito County, California.

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[4]
Acanthomintha lanceolata Santa Clara thorn mint	None	None	1-1-3 List 4	dry slopes and scree, chaparral and woodland	ALA FRE MER MNT SBT SCL STA
Balsamorhiza macrolepis var. *macrolepis* balsamroot	None	None	?-?-3 List 3	cismontane woodland, valley grassland	ALA BUT MPA PLA SCL TEH
Calyptridium parryi var. *hesseae* Santa Cruz Mtns. pussypaws	None	None	?-?-3 List 3	chaparral; sandy soil?	MNT SBT SCL SCR
Calystegia collina ssp. *venusta* South Coast Range morning glory	Cat. 2	None	?-?-3 List 3	dry open areas, often on serpentine	FRE MNT SBA SBT
Campanula exigua chaparral harebell	None	None	1-1-3 List 4	open areas in chaparral	ALA CCA SBT SCL SCR STA
Chorizanthe douglasii Douglas' spineflower	None	None	1-1-3 List 4	dry slopes in woodland, sandy or gravelly soils	MNT SBT SLO
Clarkia breweri Brewer's clarkia	None	None	1-1-3 List 4	dry slopes in chaparral and woodland	ALA FRE MER MNT SBT SCL STA
Cryptantha rattanii Rattan's cryptantha	None	None	1-1-3 List 4	dry open areas	FRE MER MNT SBT
Delphinium californicum ssp. *interius* Hospital Canyon larkspur	Cat. 2	None	?-?-3 List 3	wet places in cismontane woodland	ALA CCA SCL SJQ SLO
Eriastrum virgatum virgate eriastrum	None	None	1-1-3 List 4	coastal dunes; inland sand deposits (?)	LAX MNT SBT VEN
Eriogonum argillosum clay-loving buckwheat	None	None	1-1-3 List 4	woodland, clay or serpentine soils	MNT SBT SCL
Eriogonum nortonii Pinnacles buckwheat	None	None	2-1-3 List 1B	chaparral (often after fire), grassland	MNT SBT
Eriogonum vestitum Idria buckwheat	None	None	1-1-3 List 4	barren areas in grassland, often clay or diatomaceous shale	FRE MER SBT
Eriophyllum jepsonii Jepson's woolly sunflower	None	None	1-1-3 List 4	dry slopes, often on serpentine	ALA CCA KRN SBT SCL STA
Eryngium aristulatum var. *hooveri* Hoover's button-celery	Cat. 2	None	1-1-3 List 4	vernal pools, other vernally moist areas (?)	SBT SCL SLO

Table 2.2 Status, distribution, and habitat of rare plants with potential to occur in the vicinity of the proposed San Juan Valley Project (cont.).

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[4]
Eschscholzia hypecoides San Benito poppy	None	None	1-1-3 List 4	dry slopes in grassland, scrub, woodland	FRE MNT SBT SLO
Fritillaria agrestis stink bells	Cat. 3C	None	1-1-3 List 4	heavy soil in grassland and woodland	ALA CCA KRN MEN MNT SBT SLO STA
Fritillaria falcata talus fritillary	Cat. 2	None	2-2-3 List 1B	chaparral and woodland, often on talus	ALA MNT SBT SCL STA
Fritillaria liliacea fragrant fritillary	Cat. 2	None	1-2-3 List 1B	heavy soil, sometimes serpentine, in grassland and coastal scrub	ALA CCA MNT MRN SBT SCL SFO SMT SOL SON
Grindelia camporum var. *parviflora* Great Valley gumplant	None	None	1-1-3 List 4	grassland	ALA CCA MRN RIV SBT SFO SMT
Madia radiata showy madia	None	None	?-?-3 List 3	grassland and woodland, often gypsum soils	CCA FRE KNG KRN MNT SBT SJQ SLO
Malacothamnus aboriginum Indian Valley bush mallow	None	None	1-1-3 List 4	chaparral (often after fire), woodland, Diablan sage scrub	FRE MNT SBT SDG
Malacothamnus hallii Hall's bush mallow	None	None	1-1-3 List 4	rocky slopes in chaparral	ALA CCA SCL
Plagiobothrys glaber hairless popcornflower	Cat. 2	None	?-?-3 List 3	alkaline meadows, salt marshes	ALA MER MRN SBT SCL
Plagiobothrys myosotoides forget-me-not popcornflower	None	None	1-1-1 List 3	chaparral	FRE SCL TUL; Chile, Peru
Plagiobothrys unciniatus Salinas Valley popcornflower	Cat. 2	None	?-?-3 List 3	chaparral, grassland, woodland	MNT SBT
Quercus lobata valley oak	None	None	1-2-3 List 4	deep soils of valley bottoms, alluvial terraces, slopes	most central CA cos., S to VEN, LAX
Ranunculus lobbii Lobb's aquatic buttercup	None	None	1-2-3 List 4	vernal pools, vernally wet areas	ALA CCA MRN NAP SCL SOL SON
Trichostema rubisepalum Hernandez bluecurls	None	None	1-1-3 List 4	dry places, chaparral and woodland, often serpentine	MPA NAP SBT TUO
Trifolium amoenum showy Indian clover	Cat. 2	None	None List 1A	moist areas in grassland	ALA* MEN* MRN* SCL* SOL* SON* NAP*

Table 2.2 Status, distribution, and habitat of rare plants with potential to occur in the vicinity of the proposed San Juan Valley Project (cont.).

Scientific Name Common Name[1]	USFWS Listing[2]	State Status[3]	CNPS Status[4]	Habitat Type[5]	Distribution by County[4]
Trifolium grayi Gray's clover	None	None	?-?-3 List 3	wet meadows	MEN MNT MRN SCR SLO SMT SOL SON
Tropidocarpum capparideum caper-fruited tropidocarpum	Cat. 2	None	None List 1A	alkaline soils in grassland	ALA* CCA* GLE* SCL* SJQ* MNT*

Notes:
1. Nomenclature corresponds to Munz and Keck (1968).
2. Cat. 1 (Under review, sufficient information to justify listing).
   Cat. 2 (Under review, insufficient information).
   Cat. 3c (Not presently threatened) (USFWS 1990).
3. Section 1904, California Fish and Game Code (January 1989 listing) (CDFG 1989).
4. Smith and Berg (1988). Top line: CNPS R-E-D (Rarity-Endangerment-Distribution)code. Rarity: 1=Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time; 2=Occurrence confined to several populations or to one extended population; 3=Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported. Endangerment: 1=Not endangered; 2=Endangered in a portion of its range; 3=Endangered throughout its range. Distribution: 1=More or less widespread outside California; 2=Rare outside California; 3=Endemic to California.
   Bottom Line: CNPS List. List 1A: Presumed extinct in California. List 1B: Rare, Threatened, or Endangered in California and elsewhere. List 2: Rare, Threatened, or Endangered in California, more common elsewhere. List 3: Need more information. List 4: Plants of limited distribution.
5. Munz and Keck (1968), Smith and Berg (1988), other published sources, and unpublished information.
6. Smith and Berg (1988); counties abbreviated by a three-letter code; some county records from unpublished locality information.

* Plants presumed extinct in these counties.

2.2 FIELD SURVEYS

2.2.1 Kit Fox

Biologists conducted kit fox field surveys from 14-21 May, in accordance with accepted state and federal survey methods. Emphasis was placed on determining the occurrence of San Joaquin kit foxes within the the proposed project area (Figure 2-1). We monitored scent stations and conducted walking transects (den and sign surveys) and night spotlighting surveys. In addition, an irrigation pipeline route west of the primary project area which will potentially be utilized to convey reclaimed water from the City of San Juan Bautista was surveyed for kit fox on 24 June 1992 (Figure 1-3). These methods are discussed below. We also evaluated habitat suitability to determine the potential for kit foxes to occur on the site. Habitat suitability was assessed by evaluating characteristics of the project area and surrounding vicinity. Evaluation attributes include vegetation type, topographic relief, land use, prey abundance, avalability of dens, human disturbance, and landscape features, such as position relative to known occupied kit fox habitat, barriers to movement, extent of contigious potential habitat.

Figure 2-1. San Juan Valley project area, kit fox survey area and scent station locations.

LEGEND

- Scent station
- Roads
- Project area boundary
- Wildlife survey area boundary
- Livestock pond with water
- Livestock pond without water

Scale 1" = 750'

Prepared by BioSystems Analysis, Inc.

2.2.1.1 Den and Sign Surveys

Systematic variable-width walking transects were performed in all areas. The distance between transects within grazed grasslands averaged 100 ft (30 m), depending on vegetation height and density and the degree of topographic relief; the distance between transects on agricultural lands averaged 75 ft (23 m). In addition to systematic transects, biologists searched smaller azonal habitats and special habitat elements that might be preferred by kit foxes. These included fence lines, roadsides, drainages, washes or arroyos, berms, and culverts. Careful attention was given to ground squirrel burrows that often are used as dens by kit foxes. Ground surveys were conducted by two biologists on five days.

We classified dens on the site according to categories accepted by the U.S. Fish and Wildlife Service (USFWS), and the CDGF Region 4 guidelines (see Table 2.3). Dens are identified by evaluating a combination of factors such as the size and shape of the entrance and the presence of tracks, scats, and prey remains at the entrance. Den entrances are examined with a flashlight or mirror, and measured with rulers. If den openings range from approximately 4 to 8 in. (11 to 21 cm) in diameter at the narrowest measurable width and are either slightly higher than wide or somewhat circular, they are considered suitable for kit foxes. Openings larger than this are unsuitable, as they do not provide adequate cover for escape from large mammalian predators. Suitably-sized dens with direct evidence or strong circumstantial evidence of past or present use by kit foxes are classified as known kit fox dens. Such evidence includes historical records, spotlighting data, or kit fox sign at the den entrance such as scats, tracks, prey remains, or evidence of fresh digging. Kit foxes often change dens so the status of a given den may change frequently. For this reason, the USFWS d"scourages use of the terms "active" and "inactive" when referring to any kit fox den, preferring instead to call both active and inactive kit fox dens "known" dens.

Pupping or natal dens, subcategories of known dens, can be distinguished from other dens by the greater evidence of activity. Often, they have multiple entrances and show evidence of pupping activity such as small scats, matted vegetation, and an abundance of prey remains.

Burrows with no sign of use but of suitable size and shape are called "potential" kit fox dens. Dens in the northern portion of the kit fox's range (e.g., the San Juan Valley Project site) may not have the obvious identifying characteristics of those in the southern San Joaquin Valley floor (Orloff et al. 1986; Orloff 1992). Active kit fox dens in the northern portions of their range often show no sign of activity (tracks, scats, or physical disturbance) (Hall 1983a), making a determination of "known" kit fox den more difficult. The difficulty is further increased because kit fox dens are frequently used by other animals such as ground squirrels, and residency may shift between squirrels and foxes within days. Therefore, describing dens as potential for kit foxes, if they are, is important not only because kit foxes could be using them but also because they provide burrows for future use.

Table 2.3. San Joaquin kit fox den classification criteria (USFWS 1989).

Classification	Definition
Known	Any existing natural den or man-made structure for which conclusive evidence or strong circumstantial evidence can be shown that the den is used or has been used at any time in the past by the San Joaquin kit fox. Conclusive evidence of use may include reliable historical records, past or current radio-telemetry or spotlighting data, or any other appropriate data that, in the judgement of a qualified biologist, is reasonable proof that a given den is or has been used by the kit fox. Circumstantial evidence may include kit fox sign, such as tracks, scats, prey remains, or kit fox remains, or any other appropriate circumstantial evidence that, in the judgement of a qualified biologist, leads to the conclusion that a given den is or has been used by the kit fox. Because kit foxes change dens often, with the result that the status of a given den may change abruptly and frequently, the USFWS now discourages use of the terms "active" and inactive" when referring to any kit fox den.
Natal/Pupping	Any known San Joaquin kit fox den (as defined above) used by kit foxes to whelp and/or rear their pups. Pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults, and usually have denser concentrations of kit fox tracks, scat, and prey remains in the vicinity of the den, and entrances surrounded by a broader apron of matted vegetation. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two; therefore, unless whelping inside a den can be confirmed, any den known to shelter pups should be considered a pupping den.
Potential	Any natural den or burrow within the species' range that has entrances of appropriate dimensions to accommodate San Joaquin kit foxes for which, however, there is little to no evidence of kit fox use. Potential dens shall include the following: (1) any suitable unused den; (2) any den or burrow of another species (e.g., ground squirrel) that otherwise has appropriate characteristics for kit fox use; or (3) any suitable den for which available evidence, in the judgement of a qualified biologist, is insufficient to conclude that it is or has been used by the kit fox.
Atypical	Any known San Joaquin kit fox den that has been established in or in association with a man-made structure. Dens of this type include pipes, culverts, and diggings beneath concrete slabs and buildings.

An additional classification of "possible" kit fox den is used when known fox dens are located which cannot be identified to species. At these dens there is evidence of use by some fox species, but overlap in scat sizes and den opening dimensions makes it difficult to determine which species used the site. These dens are usually used by either red foxes or kit foxes.

When a large mammal burrow was discovered on our field surveys, biologists determined whether it was a known, potential, or possible kit fox den or a den of another species. All dens identified during our surveys were mapped. Pertinent information about each was recorded, including type of den; its location, slope, and number of entrances; measurements of the den entrance; elevation; major vegetation association; soil type; and presence of any sign. Fox scats and tracks found away from dens were also mapped. The occurrence and distribution of prey

species were noted, and scent station locations and the spotlighting route were planned so that areas of high prey density were given thorough coverage.

2.2.1.2 Night Spotlighting

To detect the presence of kit foxes, we conducted 24 hours of spotlighting surveys on six nights (14 to 19 May 1991), along routes throughout and surrounding the study area (Figure 1-2). The route was varied each night, as was the time of night any given area was surveyed. All portions of the project area were surveyed at least two times per night.

Two biologists, each with a high-beam spotlight (400,000 candlepower), surveyed from a medium-sized truck driving between 5 and 10 MPH along all available roads within the study area. Because the home range of a kit fox could extend outside the San Juan Valley project area, adjacent areas up to 2 miles from the site were also searched on spotlighting surveys. When an animal's eyeshine was observed in the spotlight, biologists stopped the vehicle, identified the animal with the aid of binoculars, and recorded the time and whether it was seen on site or off. Weather conditions and cloud cover were also recorded. Predator calling was used to draw an animal in when it was too far out of range to make a positive identification.

2.2.1.3 Scent Stations

Scent stations detect an animal's presence by recording its footprints in a tracking medium as it comes to investigate a scent (food and/or commercial lure). A 1 x 1 m aluminum plate, heavily smoked with a kerosene flame, was used as the tracking medium. The attractant (cat food) was elevated on a block at the center of the station.

Eleven scent stations were placed in appropriate locations throughout the study area, situated to optimize detection of kit foxes (Figure 2-1). Stations were checked daily from 15 to 20 May 1991, for animal visitation. They were re-baited each time and replaced with fresh plates or re-sooted when necessary. Animals leaving tracks at a station were identified using Murie (1954), and the data were recorded on data sheets. Questionable or noteworthy tracks were lifted from the aluminum plates with a piece of wide transparent tape and placed in notebooks. Sixty-six scent station-nights (i.e., one scented and functioning station per night) were completed.

SUMMARY OF KIT FOX SURVEY RESULTS

No kit foxes or evidence of kit foxes were observed during our survey of the project and study area. Nineteen "potential" kit fox dens (ground squirrel burrows) of suitable size but with no sign of kit fox use, were found within the broad study area, with nine of the nineteen being within the project site. These "potential" dens were the only type of classified dens identified at the project site and study area. No "known," "natal/pupping," or "atypical" dens were identified.

2.2.2 Special Status Wildlife

The occurrence of most special status wildlife species and their habitat was assessed incidental to kit fox surveys. Information on observations were recorded in field notebooks during all phases of field work. The presence of burrowing owls in the project area was assessed in conjunction with kit fox den surveys. During these surveys all potential habitat was searched for owls and their sign. In addition the vicinity around fences and other typical perch sites was searched for owl dropping and pellets. Our procedures represent the acceptable approach for a burrowing owl assessment.

An assessment for special status amphibians and reptiles was made by conducting focused searches to detect the occurrence of the species and by appraising the ability of the habitat to potentially support the species.

2.2.2.1 Amphibian and Reptile Surveys

Four sensitive species of amphibians have the potential to be found at the proposed San Juan project: the California tiger salamander, the yellow-legged frog, red-legged frog, and the western spadefoot.

<u>California Tiger Salamanders</u> - Seining is the most reliable technique for finding larval salamanders. The study was initiated too late in the year to conduct seining surveys for California tiger salamanders. We assessed the extent and quality of potential habitat for salamanders, as discussed below.

<u>Red-legged and Foothill Yellow-legged Frogs</u> - Adults of both species are closely tied to water and can be seen at the edge of ponds or streams during the spring and fall. Tadpoles of both species are easily caught in dip nets or seine nets. We visually searched water sources looking for adults. Dip nets were used to capture tadpoles. We also conducted a general assessment of the extent and quality of potential habitat for the species, as discussed below.

<u>Western Spadefoot</u> - We seined ponds for larval toads. Each pond was surveyed twice, two weeks apart. The timing of the surveys coincided with surveys for other sensitive amphibian species.

Habitat characteristics desirable for breeding include shallow, ephemeral ponds formed by heavy winter and spring rains in grasslands. The pools should contain water between January through April and should contain emergent vegetation or other small features such as submerged rocks to provide the toads with a surface for attaching their egg masses. We conducted a general assessment of the extent and quality of potential habitat for the species, as discussed below.

Two special status species of reptiles have the potential to be found at the proposed San Juan project:#the western pond turtle and coast horned lizard.

Western Pond Turtle - We searched for pond turtles in large permanent water sources on the property. Surveyors observed ponds from a distance with binoculars during early and late morning. We assessed the extent and quality of potential habitat for turtles, as discussed below.

Coast Horned Lizard - Areas were identified as possible horned lizard habitat during kit fox surveys and were revisited two times to search for lizards. All foot searches were conducted during the morning when lizards bask at the base of bushes and are the easiest to find. We assessed the extent and quality of potential habitat for the horned lizard, as discussed below.

2.2.2.2 Habitat Characterization

The number and location of ponds, streams and other sources of water were recorded during the initial BioSystems site reconnaissance. The suitability of habitat to each of the appropriate species was evaluated.

California Tiger Salamanders - Habitat suitability for California tiger salamanders was assessed using habitat characteristics suggested by Terry (1989) in a Habitat Suitability Model for the species, and more general information (Stebbins 1954; Zeiner et al. 1988). Potential habitat quality was based on the following criteria:

- Aquatic habitat (pond, stream, other)
- Terrestrial habitat (grassland, oak woodland, sparse shrub, tree or shrub habitat with canopy cover $\geq 50\%$)
- Persistence of water, in months (<3, 3 to ≤ 4, >4)
- Ambient water temperature, in degrees centigrade ($< 10°$, 10 to $\leq 21°$, $>21°$)
- Percentage of the water surface covered by submergent and emergent vegetation ($<40\%$, 40 to $\leq 75\%$, $>75\%$)
- Average water depth of pools, in meters (<0.3, 0.3 to ≤ 2.0 >2)
- Abundance and pattern of terrestial cover i.e., large woody material, burrows (low abundance, moderate abundance and scattered throughout, high abundance and scattered throughout)
- Predators, introduced fish (e.g., sunfish, carp, catfish, etc.), and bullfrogs (present, absent)
- Site alteration (low, medium, high)

Red-legged and Foothill Yellow-legged Frogs - Habitat suitability for these species was qualitatively assessed using criteria outlined by Hayes and Jennings (1988), and Jennings (1988). Habitat quality was judged upon the following criteria:

- Aquatic habitat (pond, stream, other)

- Water regime (ephemeral, intermittent, permanent)
- Relative abundance of riverine habitats (pool, riffle, run)
- Relative abundance of riparian and shoreline vegetation ($\leq 10\%$, >10 to 30%, >30 to 60%, $>60\%$)
- Percentage of the water surface covered by submergent and emergent vegetation ($\leq 25\%$, >25 to 50%, >50 to 75%, $>75\%$)
- Predominate substrate type (mud, sand, gravel, cobble, boulders)
- Average water depth (<0.7m, ≥ 0.7m)
- Predators introduced fish (e.g., sunfish, carp, catfish, etc.) and bullfrogs (present, absent)
- Site alteration (low, medium, high)

<u>Western Spadefoot Toad</u> - Habitat suitability for western spadefoot toads was assessed using habitat characteristics suggested by USFWS (1985) in a Habitat Suitability Model for the species, and other general information (Stebbins 1954; Zeiner et al. 1988). Potential habitat quality was based on the following criteria:

- Aquatic habitat (pond, stream, other)
- Terrestrial habitat (grassland, oak woodland, sparse shrub, tree or shrub habitat with canopy cover $\geq 25\%$)
- Persistence of water, in months (<3, 3 to ≤ 4, >4)
- Percentage of the water surface covered by submergent and emergent vegetation ($<20\%$, 20 to $\leq 50\%$, $>50\%$)
- Abundance and pattern of terrestial cover within 500 feet i.e., large woody material and burrows (low abundance, moderate abundance and scattered throughout, high abundance and scattered throughout)

<u>Western Pond Turtle</u> - General habitat requirements for the southwestern pond turtle are indicated in the literature (Holland 1991; Brattstrom and Messer no date; Stebbins 1954; Bury 1986; Zeiner et al. 1988). Habitat suitability was appraised using the following characteristics:

- Aquatic habitat (pond, stream, other)
- Water regime (permanent, intermittent with permanent pools, not permanent)
- Relative abundance of basking sites (low, medium, high)

- Percentage of the water surface covered by submergent and emergent vegetation (<50%, 50 to ≤80%, >80%)

- Average water depth of pools, in meters (≤1, >1)

- Site alteration (low, medium, high)

Coast Horned Lizard – Habitat associations of the coast horned lizard are found in the general literature (Stebbins 1954; Zeiner et al. 1988) but specific habitat relationships for the species have not been studied. Extent and quality of habitat for the lizard was assessed using the following characteristics:

- Habitat (grassland, oak woodland, sparse shrub, tree or shrub habitat with canopy cover ≥50%)

- Substrate in washes (gravel, boulder, rock, clay, sand)

- Site alteration (low, medium, high)

2.2.3 Vegetation Communities and Rare Plants

We conducted a field survey for special status plant species, concurrent with the survey to characterize habitat types. As noted above, our survey was floristic in nature; all vascular plant species occurring in the study area were identified, regardless of regulatory status. The surveying was conducted on foot. In our judgment, most of the species listed in Table 2.2 would have been identifiable at the time the survey was conducted.

2.2.3.1 Characterization and Mapping of Vegetation/Habitat Types

We conducted a field survey to characterize and map the vegetation/habitat types of the San Juan Valley study area. Our characterization of habitat types was based on the plant community classification scheme of Cheatham and Haller (1975), as modified by Holland (1986), which provides a general classification for California habitat types based on floristic, physiognomic, and ecological criteria as well as geographic and elevational distribution. Our final classification and characterization of the habitat types of the study area was based on field observations.

BioSystems botanist Roy Buck conducted a field survey of the study area on 14 and 19-20 May 1992. A follow-up visit was conducted on 24 July 1992 to survey the route of a proposed irrigation pipeline to transport reclaimed water from the City of San Juan Bautista to the project site. The area surveyed was the area of the proposed golf course, as shown on maps supplied by Silver Creek Valley and prepared by Gene Bates and Associates, Inc., golf course architects, as well as an area northwest of the proposed golf course which is proposed for the irrigation pipeline to convey reclaimed water. We recorded data on physiognomy, dominant and characteristic species, topographic position, slope, aspect, and substrate conditions for each habitat type within the study area. We mapped the boundaries of each habitat type in the field on the maps supplied by Silver Creek Valley. We mapped habitat types and the locations of

valley oak (*Quercus lobata*) trees in areas immediately adjacent to the study area, although we did not survey those areas in detail.

We identified all vascular plant taxa found in the study area which were identifiable at the time our survey was conducted to species or infraspecific taxon using standard manuals for the region (Abrams 1923, 1944, 1951; Abrams and Ferris 1960; Munz and Keck 1973). Most species occurring or likely to occur on the study area were identifiable at the time our survey was conducted. Scientific nomenclature used for plant species in this report follows Kartesz and Kartesz (1980). Nomenclature for special status plant species in Table 2.2 follows Smith and Berg (1988). Common names are taken from Abrams (1923, 1944, 1951) and Abrams and Ferris (1960); common names in Table 2.2 are from Smith and Berg (1988).

2.2.3.2 Rare Plants

Concurrent with our survey to characterize habitat types within the study area, we conducted a survey for special status plant species. Special status species include species listed as endangered, threatened, or rare by the USFWS (1990) or by the State of California (CDFG 1992b). Also included in this category are species listed in the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Smith and Berg 1988).

3.0 RESULTS

3.1 LITERATURE REVIEW

3.1.1 Kit Fox

The extent of the range of kit fox from Alameda County south along the eastern edge of the Santa Clara Valley and into the Hollister area has been subject to some disagreement. Because of the lack of updated sightings, several professional publications in recent years have not included this entire thin band of the kit fox distribution (CDFG 1983). However, recent sightings have been recorded near the town of Coyote in Santa Clara County (Steve Foreman, pers. comm., WESCO 1983), approximately 30 miles north of Hollister. In addition, a road-killed kit fox was recorded in the Pinnacles area of southern San Benito County.

Until recently, the last confirmed occurrences of kit fox in the Hollister area of San Benito County were in the late 1960s and early 1970s (Jensen 1972; Morrell 1975). Den sites were also identified in the Tres Pinos area by Jensen (1972) in 1979 and Don Pine (CDFG pers. comm.) in the early 1970s. More recently, several kit fox were sighted by a professional wildlife biologist about 2.5 miles to the southeast of the study area (Harvey and Stanley Associates 1987). Another confirmed occurrence was along the San Ardro transmission lines just outside of Hollister (H. Wesler, pers. comm.). Bruce Elliot, wildlife biologist and CDFG District Supervisor, found a road-killed kit fox along Shore Road near Frazer Lake Road, northeast of Hollister (Thomas Reid and Associates 1992).

Kit fox densities in non-core portions of their range are probably extremely low (Orloff et al. 1986). Previous studies have demonstrated the difficulty in verifying kit fox occurrence in areas of low density (Hall 1983a, Orloff et al. 1986). For example, over six months of live-trapping and spotlighting surveys were conducted before kit foxes were detected during a CDFG study for the Los Vaqueros Reservoir project (CDFG 1983).

3.1.1.1 Habitat Conservation Plan

San Benito County's projected growth and conflicts with species of concern has prompted the county to pursue a Habitat Conservation Plan (HCP) and Section 10(a) permit. This permit will provide an exemption to the Endangered Species Act for disturbance of endangered species if mitigation on a regional basis is provided. Without this permit developers must take action to mitigate impacts on a piecemeal basis which is more costly and time consuming. At the same time, developing and following an HCP will provide for protection of threatened and endangered species pursuant to the Endangered Species Act.

The exact plan area boundaries have not yet been determined. The range of San Joaquin kit fox, the primary species of concern, has been recently updated for the new kit fox recovery plan, and encompasses approximately 300 square miles, including the Panoche area of the county.

3.1.2 Special Status Wildlife

Literature on the wildlife of the region, including their status, habitat affinities and management recommendations was collected and reviewed (Remsen 1978; Verner and Boss 1980; Barrett 1980; Verner 1980; Brownell et al. 1988; BioSystems 1988; Stebbins 1954; Williams 1986; Walsh 1987; Zeiner et al. 1988; Zeiner et al. 1990a and 1990b). We conducted a search of the CNDDB, 1 December 1991 edition. Eight USGS 7.5 minute quadrangles were searched including, Hollister, San Juan Bautista, Tres Pinos, San Felipe, Mt. Harlan, Three Sisters, Paicines, and Chittenden.

Our initial list of special status wildlife species with potential to occur in the project area is shown in Table 2.1 (see Section 3.2.2 below).

3.1.3 Vegetation Communities and Rare Plants

Our initial list of special status plant species with potential to occur in the project area is shown in Table 2.2 (see Section 3.2.3 below).

3.2 FIELD SURVEYS

3.2.1 Kit Fox

3.2.1.1 Den and Sign Surveys

As stated previously, no "known" kit fox dens were found or kit fox observed during BioSystems' field surveys of the San Juan Valley project area. We did locate 19 potential dens, 9 within the project area boundary and 10 outside of the boundary (Figure 3-1). All of these potential dens appeared to be active ground squirrel burrows with no sign of kit fox activity. The number of potential dens in the San Juan Valley project area is probably related to the abundance of ground squirrels. Ground squirrel burrows are a common source of potential dens for kit foxes (Orloff et al. 1986; Orloff 1992). Small rodent burrows seemed scarce, as did the number of black-tailed hares and brush rabbits seen on spotlighting surveys. Together these factors indicate the prey base in the study area is relativity low but may be adequate to sustain kit fox.

We found no kit fox scats. We found several stripped skunk and gray fox scats mainly associated with the eastern section of the north boundary diversion channel and several drainage culverts scattered throughout the site. Coyote scats appeared to be concentrated along roads in the southwestern portion of the project area. Several mountain lion scats were found on the roads in the southwestern section of the project area.

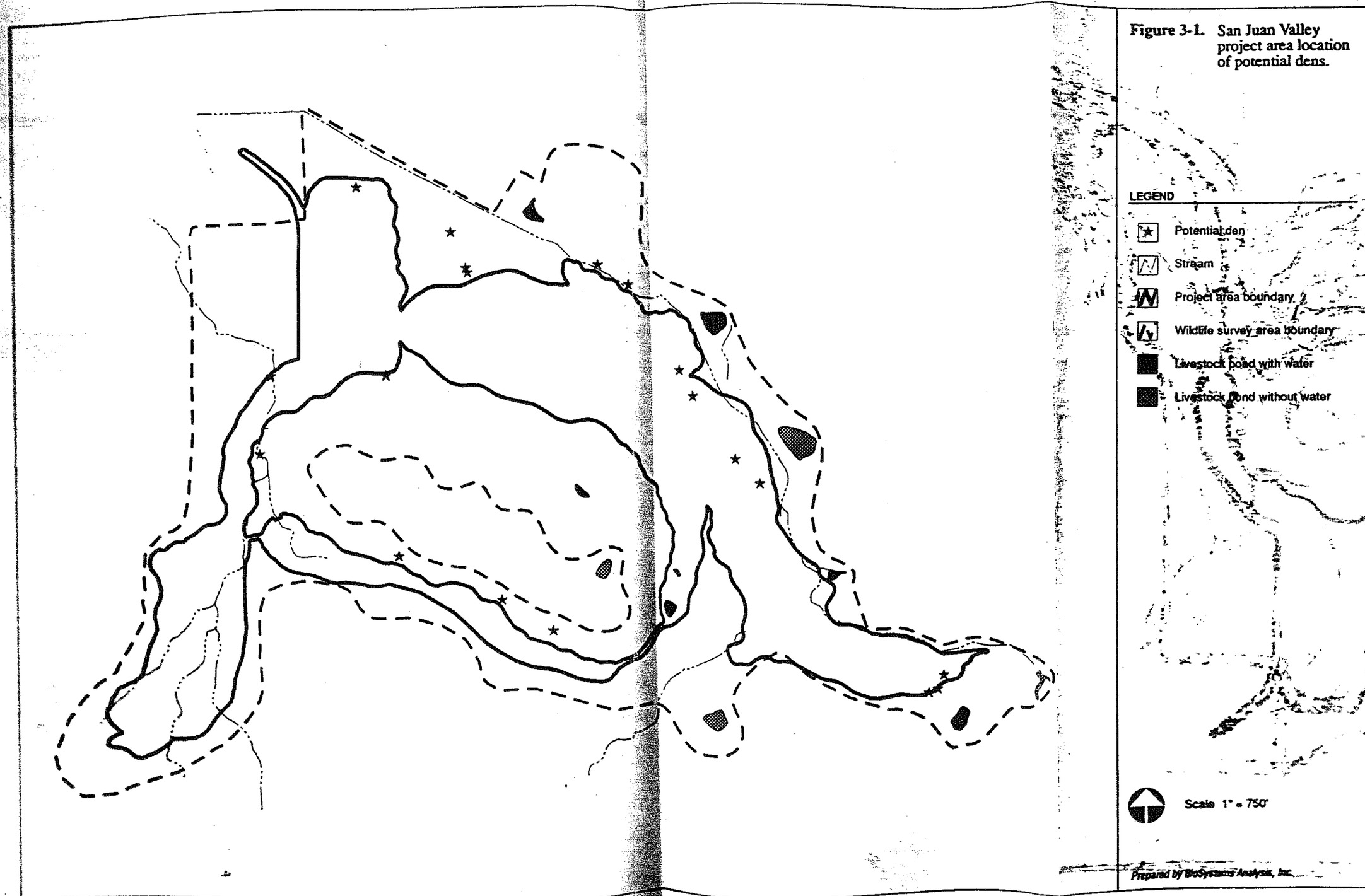

Figure 3-1. San Juan Valley project area location of potential dens.

3.2.1.2 Night Spotlighting

Biologists did not observe kit fox during the spotlighting surveys. Black-tailed deer (*Odocoileus hemionus*) and black-tailed hare (*Lepus californicus*) accounted for 80 percent of all the mammals observed (37 of 46 mammal observations) and about 26 percent of of all the observations (Table 3.1). Western toads (*Bufo boreas*) were the most abundant species observed, accounting for about 43 percent of all observations. Other species observed included, common barn owl (*Tyto alba*), striped skunks (*Mephitis mephitis*), and great horned owl (*Bubo virginianus*). None of the species observed are special status species.

Table 3.1. Species and numbers of individuals observed during night spotlighting surveys.

Species	May						Total	Frequency Occurrence[1]
	14	15	16	17	18	19		
Western toad	2	12	15	14	18	1	62	100
Common barn owl	4	7	6	2	3	4	26	100
Great horned owl	2	2	1	1	1	2	9	100
Unidentified canid		1					1	17
Striped skunk	1	2	1		1	3	8	83
Black-tailed hare	2	3	4	3	2	5	19	100
Black-tailed deer	3	1	1	5	3	5	18	100
Total sightings	**14**	**28**	**28**	**25**	**28**	**20**		

[1] Frequency of occurrence = (number of nights a species was observed ÷ total number of nights of spotlighting) × 100.

3.2.1.3 Scent Stations

No kit fox tracks were identified at our scent stations. Coyote (*Canis latrans*) and gray fox (*Urocyon cinereoargenteus*) were recorded (Table 3.2).

3.2.2 Special Status Wildlife

The San Juan Valley study area does not provide potential suitable habitat for most special status species, except perhaps the coast horned lizard, California tiger salamander, red-legged frog, burrowing owl, California horned lark, loggerhead shrike, American badger, San Joaquin kit fox, and foraging habitat for the prairie falcons, northern harriers, black-shouldered kites and golden eagles. Although adequate surveys were completed, none of the special status wildlife species listed in Table 2.1 were observed on site, except California horned lark and loggerhead shrike, both of which were observed within the adjacent broad study area, but outside the project area. Field studies to determine the presence of California tiger salamander were not completed but are scheduled for spring 1993, with results to be presented in an Addendum to this report.

Table 3.2. Scent station survey results: number of stations visited by a species.

Species	May						Total Visits	Visitation Rate[1]
	15	16	17	18	19	20		
Unidentified reptile			1			1	2	3
Black-billed magpie		2	2	3	2	3	12	18
Great blue heron	1						1	2
California ground squirrel	2	4	6	4	2	4	22	33
Unidentified small rodent		2	1	2	1		6	9
Striped skunk	4	1	1	2	1		9	14
Gray fox	1			1			2	3
Coyote				1			1	2
Domestic bovid				2	1	2	5	8
Total visits	**8**	**9**	**11**	**15**	**7**	**10**		
Total stations	**11**	**11**	**11**	**11**	**11**	**11**		

[1] Visitation rate is a measure of the number of stations visited by a species over the survey period and is calculated: (number of visits ÷ total number of scent station-nights) × 100; total scent station-nights was 66.

No burrowing owls or their sign, were observed in the project area or the adjacent study area. The closest known sites inhabited by owls are in the Flint hills to the north, and along Santa Ana Road to the east of the city of Hollister (M. Schauss, pers. comm.).

California horned lark is a recent addition to the category 2 list. The species was observed on several occasions moving along the road sides and fences in the far western portion of the study area. Loggerhead shrikes were observed in the tall weeds and the cyclone fence surrounding the tennis courts near the northern entrance of the adjacent study area. Loggerhead shrikes were recently placed on the category 2 list. Both the shrike and the horned lark are relativity common species in San Benito County.

3.2.2.1 Amphibian and Reptile Surveys

Four sensitive species of amphibians have the potential to be found at the proposed San Juan project: the California tiger salamander, the foothill yellow-legged frog, red-legged frog, and the western spadefoot toad.

<u>California Tiger Salamanders</u> – California tiger salamanders range from Sonoma County south to the Santa Rita Hills in Santa Barbara County and east to the foothills of the Sierras (Stebbins 1954). They breed in quiet murky water of small ephemeral ponds and pools in low hills and valleys dominated by grassland or open oak woodland (Stebbins 1954). They have also been found in larger permanent reservoirs and quiet streams if predatory fish are absent (R. Fisher,

pers. comm.). Most of the year is spent in burrows, sometimes as far as 1 mile from freshwater sources (Stebbins 1954). Adults emerge at night after the first heavy fall rains and migrate to ponds to breed. Successful breeding ponds must contain water long enough for larvae to transform (roughly 20 weeks) (CDFG 1989). Eggs are laid in February, and by early April the larvae are big enough to be caught in 1/8 in. seining nets. Adult salamanders may not breed in the same ponds every year.

No California tiger salamander adults or tadpoles were observed in the San Juan Valley study area. Field studies for the San Juan Valley project were initiated too late to conduct seining net surveys for the species. The extent and quality of potential habitat for the species is discussed below.

California Red-legged Frog - The California red-legged frog is a category 2 candidate for listing by the USFWS and a California species of special concern. Historically, this frog ranged from Mendocino County south to Baja California, and from California's coastal counties east to the Sierran crest (Jennings 1988). Populations of this species on the floor of the Central Valley are extinct (Hayes and Jennings 1988). As with the yellow-legged frog, habitat destruction and alteration as well as predation by non-native bullfrogs and fishes have contributed to population decline (Hayes and Jennings 1988). Commercial collection of red-legged frogs for human consumption prior to 1900 may have precipitated its decline. This nocturnal frog prefers permanent ponds of water, although it is not as highly aquatic as similar species. Red-legged frogs are known to travel overland (especially during rainy weather) and non-breeding adults and dispersing juveniles may be found in moist habitats as much as 300 yards from standing water. Key habitat requirements for red-legged frogs include pools with water greater than 0.7 meters deep, dense emergent or shoreline vegetation, and the absence of bullfrogs (Hayes and Jennings 1988). These frogs may occur in intermittent streams or ephemeral pools if the water remains long enough for breeding and development of young (approximately 20 weeks). Breeding takes place during a two-week period between December and April, and depends upon the timing of winter rains. Adult red-legged frogs feed on aquatic and terrestrial invertebrates and small vertebrates.

No red-legged frog adults or tadpoles were observed in the San Juan Valley project area. The extent and quality of potential habitat for the species is discussed below.

Foothill Yellow-Legged Frogs - The foothill yellow-legged frog is a category 2 candidate for listing by the USFWS and a California species of special concern. Population declines of this frog are attributed to habitat destruction and alteration, and to predation by introduced bullfrogs and centrachid fishes (Verner and Boss 1980; Hayes and Jennings 1988). Yellow-legged frogs inhabit the coastal mountains of California from the Oregon border south to the San Gabriel River in Los Angeles County and the foothills of the Sierra (Stebbins 1954) up to 6000 feet in elevation. Yellow-legged frogs live in or near permanent freshwater streams and rivers within chaparral, woodlands, forest, or wet meadow habitats (Zeiner et al. 1988). They are known to occur in ponds, although they prefer streams with cobble substrate, water less than 0.6 meters deep, and fast flowing water with riffles (Hayes and Jennings 1988). This diurnal frog feeds on

aquatic and terrestrial invertebrates. Breeding takes place during a two-week period after spring flooding between March and May.

No foothill yellow-legged frog adults or tadpoles were observed in the San Juan Valley project area. The extent and quality of potential habitat for the species is discussed below.

Western Spadefoot - The western spadefoot toad, a California Species of Special Concern, ranges throughout the Central Valley and adjacent foothills, and is usually quite common where it occurs. This toad is rarely found on the surface, except while breeding. Most of the year is spent in underground burrows constructed by the toads themselves, using their feet to dig with a circular motion. Some individuals also use small mammal burrows. Rainfall is important for forming breeding ponds. Most of the toad's surface activities are associated with rain or high humidity at night. During dry periods, the moist soils inside the toad's burrow provides water for absorption through the skin. Breeding and egg laying occur almost exclusively in shallow, temporary pools formed by heavy winter rains. Egg masses are attached to plant material, or the upper surfaces of small submerged rocks. Breeding activity begins in January and is usually over by April. Tadpoles transform during late spring and disperse after spending a few hours or days near pond margins. The females lay numerous small, irregular clusters containing 10 to 42 eggs. They may lay more than 500 eggs in one season. The eggs hatch rapidly, normally within two weeks. Recently metamorphosed juveniles seek refuge in the immediate vicinity of the pond from which they were bred. They hide in drying mud cracks, under logs and other surface objects.

No western spadefoot adults or tadpoles were observed in the San Juan Valley project area. The extent and quality of potential habitat for the species generally coincides with habitat for the California tiger salamander and is discussed below.

Two sensitive species of reptiles have the potential to occur in the proposed San Juan project area: the western pond turtle, and coast horned lizard.

Western Pond Turtle - Two subspecies of the western pond turtle (*Clemmys marmorata*) are recognized: the northwestern pond turtle (*C. m. marmorata*), a federal category 2 species, and the southwestern pond turtle (*C. m. pallida*), a federal category 2 species. The San Juan Valley project area is within a large zone where the two subspecies probably hybridize.

The northwestern pond turtle is a category 2 candidate for listing by the USFWS and a California species of special concern. The historic range of this reptile extends from San Francisco Bay to northern Oregon and from the coast east to the Cascade and Sierran Ranges, up to 6,000 feet in elevation (Stebbins 1954). The southwestern pond turtle ranges from central California south into northwest Baja California, mostly west of the Cascade- Sierran crest. Declines in populations of the northwestern pond turtle caused by agriculture and urban development, however, has prompted recent efforts to list the entire species as threatened (D. Reese, pers. comm.). Habitat destruction and alteration are the most probable causes for the population decline of the northwestern pond turtle. However, competition and predation from introduced non-native turtle species and fish, as well as the collection of pond turtles by humans

for pets, have also negatively impacted this species. Pond turtles are found in perennial ponds, marshes, rivers, streams, irrigation ditches, and ephemeral pools. They inhabit long, deep pools which feature vegetative and structural cover both above and below water (Brattstrom and Messer, no date). Suitable turtle habitat typically has rocks, logs or protected banks used for basking sites and is close (within 325 feet) to sandy soils where female turtles can lay their eggs. Breeding pond turtles prefer to feed on live prey such as fish and frogs but also forage on aquatic vegetation (Zeiner et al. 1988).

No western pond turtles were observed in the San Juan Valley project area. The extent and quality of potential habitat for the species is discussed below.

Coast Horned Lizard – Coast horned lizards range throughout most of California west of the desert. They are most common in lowland areas with scattered bushes and sandy soils, but are found in brushland and broadleaf and coniferous forests. Sandy washes with scattered bushes and other areas identified as possible horned lizard habitat were searched.

No coast horned lizards were observed in the San Juan Valley project area. The best quality potential habitat in the project area is concentrated in the bottoms of the three sandy stream channels, and the old swale that once bisected the ruderal fields. The southwest channel provides very little potential habitat because it is more mesic and relativly narrow. Sections of the north boundary diversion channel and southeast drainage probably provide the most extensive habitat because of the fairly broad deposition of sand and other material.

3.2.2.2 Habitat Characterization

The number and location of stock ponds and streams were recorded during the initial BioSystems Analysis habitat surveys (Figure 1-2). Habitat suitability for special status species was qualitatively assessed.

- **Stock Pond #1** Outside project area boundary, Livestock storage pond with water, water is pumped into and out of this pond, appears to be the most permanent water source in the vicinity, >2 m in depth with abundant emergent vegetation, abundant western toad larvae and Pacific tree frog larvae and adults present.

  California tiger salamander - moderate quality habitat
  California red-legged frog - low to moderate quality habitat
  Foothill yellow-legged frog - marginal quality habitat
  Western spadefoot toad - low to moderate quality habitat
  Western pond turtle - good quality habitat

- **Stock Pond #2** Outside project area boundary, livestock pond with water, temporary water regime depending on livestock management practices, with some potential for ephemeral storage from runoff during very wet rainy seasons, water depth 0.5 to 1.5 m with no submergent, emergent or shoreline vegetation, and thick mat of algae, ±4 m wide margin bare soil surrounding the pond, abundant mosquito fish present.

California tiger salamander - marginal quality habitat
California red-legged frog - marginal quality habitat
Foothill yellow-legged frog - no suitable habitat
Western spadefoot toad - marginal quality habitat
Western pond turtle - no suitable habitat

- **Stock Pond #3** Outside project area boundary, livestock pond without water, temporary water regime depending on livestock management practices, with some potential for ephemeral storage from runoff during very wet rainy seasons, no submergent, emergent or shoreline vegetation, several decadent willows present.

  California tiger salamander - marginal to poor quality habitat
  California red-legged frog - marginal to poor quality habitat
  Foothill yellow-legged frog - no suitable habitat
  Western spadefoot toad - poor quality habitat
  Western pond turtle - no suitable habitat

- **Stock Pond #4** Outside project area boundary, livestock pond with water, temporary water regime and seasonal storage from runoff during rainy season and apparently from a spring, water depth is less than 0.25 m, very limited emergent and shoreline vegetation, thick algae mat, ±2.5 m wide margin bare soil surrounding the pond, one decadent willow present.

  California tiger salamander - marginal quality habitat
  California red-legged frog - marginal quality habitat
  Foothill yellow-legged frog - no suitable habitat
  Western spadefoot toad - poor to moderate quality habitat
  Western pond turtle - no suitable habitat

- **Stock Pond #5** Outside project area boundary, livestock pond without water, located near the top of low hills, ephemeral water regime depending on livestock management practices, almost no potential for ephemeral storage from runoff even during very wet rainy seasons, no submergent, emergent or shoreline vegetation.

  California tiger salamander - no suitable habitat
  California red-legged frog - no suitable habitat
  Foothill yellow-legged frog - no suitable habitat
  Western spadefoot toad - no suitable habitat
  Western pond turtle - no suitable habitat

- **Stock Pond #6** Inside project area boundary, livestock pond without water, located just downslope from pond #8, ephemeral water regime depending on livestock management practices, almost no potential for ephemeral storage from runoff even during very wet rainy seasons, no submergent, emergent or shoreline vegetation.

  Note: This stock pond, located near the large ranch house on the property, was removed as part of the overall livestock management for the ranch; other existing stock ponds on the ranch continue to provide water for ranch cattle. The stock pond was removed only after the survey determined that the pond provided no suitable habitat for special status species.

California tiger salamander - no suitable habitat
California red-legged frog - no suitable habitat
Foothill yellow-legged frog - no suitable habitat
Western spadefoot toad - no suitable habitat
Western pond turtle - no suitable habitat

- **Stock Pond #7** Outside project area boundary, livestock pond with water, temporary water regime depending on livestock management practices, with some potential for ephemeral storage from runoff during very wet rainy seasons, water depth 0.25 to 0.5 m with no submergent, emergent or shoreline vegetation, and water turbidity very high, visibility ±3 cm, ±6 m wide margin bare soil surrounding the pond.

  California tiger salamander - marginal quality habitat
  California red-legged frog - marginal quality habitat
  Foothill yellow-legged frog - no suitable habitat
  Western spadefoot toad - marginal quality habitat
  Western pond turtle - no suitable habitat

- **Stock Pond #8** Inside project area boundary, livestock pond without water, located just upslope from pond #6, ephemeral water regime depending on livestock management practices, almost no potential for ephemeral storage from runoff even during very wet rainy seasons, no submergent, emergent or shoreline vegetation.

  Note: This stock pond, located near the large ranch house on the property, was removed as part of the overall livestock management for the ranch; other existing stock ponds on the ranch continue to provide water for ranch cattle. The stock pond was removed only after the survey determined that the pond provided no suitable habitat for special status species.

  California tiger salamander - no suitable habitat
  California red-legged frog - no suitable habitat
  Foothill yellow-legged frog - no suitable habitat
  Western spadefoot toad - no suitable habitat
  Western pond turtle - no suitable habitat

- **Stock Pond #9** Outside project area boundary and outside the property area boundary, water diversion structure, located near the base of a small drainage east of the project area, good potential for seasonal storage from runoff during "average" rainy season, no submergent, emergent or shoreline vegetation, site is graded and highly modified with riprap.

  Note: This water diversion basin is located outside of the property boundary, but was considered because it is adjacent to the proposed project area.

  California tiger salamander - poor to moderate quality habitat
  California red-legged frog - poor quality habitat
  Foothill yellow-legged frog - no suitable habitat
  Western spadefoot toad - poor quality habitat
  Western pond turtle - no suitable habitat

- **Stock Pond #10** Outside project area boundary, livestock pond without water, also a historic diversion structure, located near the base of a small drainage in the southeastern portion of the project area, and just east of a larger channel draining from the south, with good potential for seasonal storage from runoff during "average" rainy season, temporary water regime depending on livestock management practices, no submergent, emergent or shoreline vegetation, several decadent willows present.

  California tiger salamander - moderate to good quality habitat
  California red-legged frog - moderate to good quality habitat
  Foothill yellow-legged frog - no suitable habitat
  Western spadefoot toad - moderate to good quality habitat
  Western pond turtle - no suitable habitat

- **Stock Pond #11** Outside the project area boundary, livestock pond without water, also a historic diversion structure, located near the base of a small drainage along the eastern boundary of the project area, with good potential for seasonal storage from runoff during "average" rainy season, temporary water regime depending on livestock management practices, no submergent, emergent or shoreline vegetation, several decadent willows present.

  California tiger salamander - moderate to good quality habitat
  California red-legged frog - moderate to good quality habitat
  Foothill yellow-legged frog - no suitable habitat
  Western spadefoot toad - moderate to good quality habitat
  Western pond turtle - no suitable habitat

- **North Boundary Diversion Channel** The majority of this feature is outside project area boundary, there is no water in this very eroded channel that was constructed many years ago to diverts water from its original course. The historic route was located somwhere down the middle of the ruderal and cultivated sections of the project site. Woody vegetation in the diversion channel is dominated by black locust and tree tobacco, although there are a few willows growing in the channel between ponds 2, 3 and 7.

  California tiger salamander - no suitable habitat
  California red-legged frog - no suitable habitat
  Foothill yellow-legged frog - no suitable habitat
  Western spadefoot toad - no suitable habitat
  Western pond turtle - no suitable habitat

- **Southeast Drainage** Majority of this feature is outside project area boundary, there is no running water is this drainage although there is a well and two wet areas cased by a broken pipe. The well and adjacent livestock water trough are well outside the project area. Depressions in this drainage area probably catch and hold seasonal runoff. Woody vegetation is dominated by sycamore, willow, and California bay. The main concentration of western toads were observed in the vicinity of this drainage.

  California tiger salamander - poor to moderate quality habitat
  California red-legged frog - poor quality habitat
  Foothill yellow-legged frog - no suitable habitat
  Western spadefoot toad - poor to moderate quality habitat
  Western pond turtle - no suitable habitat

- <u>Southwest Drainage</u> Feature intersects project area several times, there is no running water is this drainage. There is a spring outside the project area that supplies a livestock tank. The overflow from the livestock tank forms a small linear marsh area that intersects the drainage 250 m downslope. There are also several small pools located along the stream course, the most permanent of these coincides with a patch of arroyo willow riparian habitat (Figure 3-2). Stream bed depressions along this drainage probably catch and hold seasonal runoff. Woody vegetation is dominated by willow, live oak, California bay, and sycamore. The main concentration of Pacific tree frogs were observed breeding in the livestock tank and marsh.

  California tiger salamander - moderate to good quality habitat
  California red-legged frog - moderate quality habitat
  Foothill yellow-legged frog - not suitable habitat
  Western spadefoot toad - poor to moderate quality habitat
  Western pond turtle - marginal quality habitat

SUMMARY OF AMPHIBIAN AND REPTILE HABITAT CHARACTERIZATION

No special status species were observed in the project site nor the broad study area. While no direct evidence of the existence of special status species was found, some of the stock ponds within the broad study area provide low to moderate quality habitat for certain special status species. However, all of these ponds are outside the project area and based on the design of the proposed golf course will not be impacted by the proposed project. The two stock ponds which existed within the project site boundaries provided no suitable habitat for special status species.

The North Boundary Diversion Channel provides no suitable habitat for special status species. While the Southeast and Southwest Drainage features provide poor to moderate quality habitat, the design of the proposed golf course and adoption of recommended mitigation measures below will maintain and/or enhance the quality of the habitat in these drainage areas. The spring and seep areas noted above are all outside the project area and will not be impacted by the proposed golf course. Mitigation measures are proposed to protect these sensitive areas during construction of the project.

3.2.3 Vegetation Communities and Rare Plants

3.2.3.1 Vegetation/Habitat Types

The study area mostly occupies the level to gently sloping bottoms of San Juan Valley and two broad tributary canyons entering the valley. Also included in the study area is a small, narrow, west-northwest-draining canyon entering the valley near the mouth of one of the larger tributary canyons. The floor of the northwest-draining tributary canyon (the larger of the two large tributary canyons) has been cultivated for many years, and its drainage is diverted to an artificial channel running along the northeast edge of the canyon floor. The floor of San Juan Valley is a patchwork of grazed but uncultivated areas, hayfields, and fields of row crops. The floor of the north-northeast-draining tributary canyon has not been cultivated and is incised by three drainages which converge near the canyon's mouth. The small west-northwest-draining canyon is grazed but has not otherwise been disturbed. A series of fenced corrals is located at the edge

of San Juan Valley near the mouth of the north-northeast-draining tributary canyon. A developed area with houses, barns, and other outbuildings is located in the northwest-draining tributary canyon. The barns are in a state of disrepair and were in the process of being removed when we initiated our study. All barn removal work was halted during our study period.

We identified a total of 88 species of vascular plants occurring within the study area (Appendix A). Forty-nine of these are native species; the remaining 39 species are introduced or naturalized in the study area. We recognize three habitat types within the project area which are not primarily associated with heavy, ongoing or repeated disturbance: non-native grassland, mixed riparian forest, and coast live oak woodland. In addition two sensitive habitat type, Central Coast Arroyo Willow Riparian, and freshwater seep are within the broad study area but outside the project site boundary. Although this classification is based on the generalized classification scheme of Cheatham and Haller (1975) and Holland (1986), this scheme was inadequate for characterization of the mixed riparian forest habitat type, as discussed below. Four additional habitat types within the study area are associated with disturbance: ruderal, developed, hayfield, and agricultural. Brief descriptions of each habitat type are presented below. Figure 3-2 shows the distribution of habitat types within the study area. The relative composition of the vegetation/habitat types in the project area and the project study area are given in Table 3.3.

Table 3.3. Composition of vegetation/habitat types in the proposed San Juan Valley Project area, San Benito County, California.

VEGETATION/HABITAT TYPE	ACRES OF HABITAT WITHIN *PROJECT AREA* [1] BOUNDARY	ACRES OF HABITAT WITHIN *STUDY AREA* [2] BOUNDARY
Mixed riparian forest	4.95	8.01
Central Coast arroyo willow riparian forest	0.27	0.27
Coast live oak woodland	0.14	0.30
Freshwater seep	0.10	0.29
Non-native grassland	56.70	264.36
Hayfields	0.01	2.51
Ruderal	118.47	187.69
Developed	8.01	9.72
Total	**188.64**	**473.15**

[1]Project area indicates the area where the proposed project (golf course) will be developed. The values indicate the relative composition of habitats in the area and not the amount of habitat converted.
[2]Study area indicates the area where biological field studies were conducted and includes the project area.

Non-native grassland - The non-native grassland habitat type is a grassland largely dominated by annual, non-native grasses. This habitat type has mostly replaced the original grasslands of California, which were dominated by native perennial bunchgrasses, largely due to long-term overgrazing (Heady 1977; Heady et. al. 1977). Despite the fact that the dominant grass species in this habitat type are not native, this habitat type is not associated with disturbance other than grazing. Dominant grasses in this habitat type include wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), ripgut grass (*Bromus diandrus*), Italian rye grass (*Lolium multiflorum*), and Mediterranean barley (*Hordeum geniculatum*). These grasses are all non-native, and all except Italian rye grass are annuals. The height, density, and species composition of the grass cover vary considerably within the study area, largely depending on the intensity of grazing in recent years. However, all of the non-native grassland within the study area is of low species diversity, with few associated herb species, indicating a long history of heavy grazing. Associated herbs include filaree (*Erodium botrys*, *E. brachycarpum*, *E. cicutarium*), field bindweed (*Convolvulus arvensis*), and bur-clover (*Medicago polymorpha*), all non-natives, and blow-wives (*Achrychaena mollis*), shining pepper-grass (*Lepidium nitidum*), and turkey mullein (*Eremocarpus setigerus*), species which are native, but frequently found in heavily grazed grasslands. Scattered individual trees or small groups of trees of valley oak occur in the non-native grassland, indicating a transition to the valley oak woodland habitat type, stands of which occur on lower slopes adjacent to the western portion of the study area. The native perennial bunchgrass, purple needlegrass (*Stipa pulchra*), is occasional and widely scattered in this habitat type. This grass is a remnant of the original perennial bunchgrass grassland of the study area. The largest concentrations of purple needlegrass within the study area are located in the inter-drainage areas in the north-northeast-draining tributary canyon; however, nowhere is the cover of purple needlegrass high enough that the habitat could be described as a perennial bunchgrass habitat type. Non-native grassland occupies the inter-drainage areas in the western portion of the study area, the small west-northwest-draining canyon, and the ridge north of that canyon. A portion of the irrigation pipeline area west of the main study area is also mapped as non-native grassland; this area is heavily grazed by cattle.

Mixed riparian forest - This habitat type is developed in narrow strips along drainages, where the water table is not far below the ground surface and can be reached by tree roots. The mixed riparian forest is dominated by a moderately dense cover of large trees, including valley oak, coast live oak (*Quercus agrifolia*), and polished willow (*Salix laevigata*). In one stand, occupying the lower portion of a small canyon entering the northwest-draining tributary canyon from the south, California sycamore (*Platanus racemosa*) is also one of the dominant trees. The treelike shrub arroyo willow (*Salix lasiolepis*) is also locally dominant. Other shrubs are scattered in the understory and include poison-oak (*Toxicodendron diversilobum*), southwestern elderberry (*Sambucus mexicana*), common snowberry (*Symphoricarpos albus* var. *laevigatus*), creeping snowberry (*Symphoricarpos mollis*), and California rose (*Rosa californica*). The woody vine, Pacific blackberry (*Rubus ursinus*), is also locally abundant in the understory. Herb cover is patchy and generally sparse in this habitat type, but a number of herb species characteristic of moist forest and woodland habitats are scattered, including Pacific sanicle (*Sanicula crassicaulis* var. *crassicaulis*), Douglas' mugwort (*Artemisia douglasiana*), California hedge-nettle (*Stachys bullata*), miner's lettuce (*Claytonia perfoliata*), California bee-plant (*Scrophularia californica*), and hoary nettle (*Urtica dioica* ssp. *gracilis* var. *holosericea*). This habitat type

does not closely correspond to any of the riparian forest habitat types described by Holland (1986). It is perhaps best described as intermediate between Holland's central coast cottonwood-sycamore riparian forest and central coast live oak riparian forest, but with elements of two Central Valley riparian forest types: Great Valley mixed riparian forest and Great Valley valley oak riparian forest. Most of the mixed riparian forest within the study area is located along the drainages in and draining from the north-northeast-draining tributary canyon. A single stand is located in the small canyon draining into the northwest-draining tributary canyon from the south.

Central Coast arroyo willow riparian forest - This habitat type, located outside the project area, is a dense, closed-canopy riparian forest dominated by arroyo willow. Only one small area of this habitat type occurs within the study area, near the mouth of the north-northeast-draining tributary canyon. The shrubs poison-oak, California rose, and common snowberry and the woody vine Pacific blackberry are scattered in the understory of this habitat type. The understory has been considerably degraded due to trampling by cattle and much bare ground is present, but the herb species California hedge-nettle, climbing bedstraw (*Galium porrigens*), and Douglas' baccharis (*Baccharis douglasii*) are scattered.

Coast live oak woodland - Only one small area of this habitat type occurs in the study area, on a terrace adjacent to a drainage in one of the forks of the north-northeast-draining tributary canyon near the southwest corner of the study area. This habitat type consists of a stand of coast live oak with moderate canopy cover. No shrubs, and only a few grasses and herbs, are associated with the oaks on this site.

Freshwater seep - This habitat type, located just outside the project area, is dependent on permanent groundwater seepage and is developed around a spring located at the edge of the study area in the north-northeast-draining tributary canyon. The characteristic species in this habitat type are mostly annual and perennial herbs associated with wet areas and include the native species prairie bulrush (*Scirpus robustus*), western rush (*Juncus tenuis* var. *congestus*), low club-rush (*Scirpus cernuus* var. *californicus*), common toad rush (*Juncus bufonius*), yerba mansa (*Anemopsis californica*), northern barley (*Hordeum brachyantherum*), and hyssop loosestrife (*Lythrum hyssopifolia*), and the non-native species water-cress (*Nasturtium officinale*), annual beard-grass (*Polypogon monspeliensis*), Indian melilot (*Melilotus indica*), Italian rye grass, and Mediterranean barley.

Ruderal - This habitat type is developed on sites which have been cultivated or otherwise heavily disturbed. It is characterized by a mostly dense cover of grasses and herbs, most of them weedy non-native species, including ripgut grass, soft chess, wild oat, Italian rye grass, rattail fescue (*Vulpia myuros*), Mediterranean barley, wall barley (*Hordeum leporinum*), mayweed (*Anthemis cotula*), yellow star-thistle (*Centaurea solstitialis*), wild mustard (*Brassica nigra*, *B. rapa* ssp. *olifera*), common chickweed (*Stellaria media*), poison-hemlock (*Conium maculatum*), field bindweed, bur-clover, filaree, curly dock (*Rumex crispus*), and scarlet pimpernel (*Anagallis arvensis*). The few native species in this habitat type are mostly species which often colonize highly disturbed sites, including turkey mullein, western six-weeks' fescue (*Vulpia megalura*), common fiddleneck (*Amsinckia intermedia*), and Lindley's annual lupine (*Lupinus bicolor*). A few valley oaks, remnants of the pre-disturbance vegetation, occur in the

APPENDIX A

ruderal habitat type. Within the study area, this habitat type occupies nearly all of the bottom of the northwest-draining tributary canyon, extending beyond the mouth of the canyon into San Juan Valley proper.

Ruderal habitat is characterized by and is a product of intensive land use practices. In the project area ruderal sites have been subjected to dryland and irrigated farming and at times irrigated pasture operations for at least the past 10 years. Management practices consist of plowing the area each November, applying a broadleaf herbicide in January or February, and cutting the hay crop in May. If the crop yield is very good the site is thrashed, usually in July. These ruderal areas are occasionally irrigated to increase yields.

Developed - This habitat type includes buildings and associated landscaped areas. Vegetation in developed areas is largely confined to landscaping plants and some weedy grasses and herbs. A number of large valley oaks grow around the developed area in the northwest-draining tributary canyon. These may have been planted, or may be remnants of the original vegetation. This area and the area around the main ranch house, south of this canyon, are the only developed sites within or adjacent to the study area.

Hayfield - This habitat type consists of a field planted with a mixture of grasses and herbs which are harvested for hay. It is located within the irrigation pipeline area. A single valley oak grows in this hayfield.

3.2.3.2 Sensitive Habitats

We recognize the following two habitats within the project area as sensitive habitats: mixed riparian forest and coast live oak woodland. In addition, we recognize the following two habitats outside the project area but within the study area as sensitive habitats: central coast arroyo willow riparian forest and freshwater seep. Central coast arroyo willow riparian forest and freshwater seep, both outside the project area, are designated "high priority" habitats by the CNDDB. As discussed above, the mixed riparian forest does not correspond exactly to any of the riparian forest types described in Cheatham and Haller (1975) and Holland (1986), upon which the CNDDB list of "high priority" habitats is based. However, all the riparian forest types of Holland (1986) which this habitat type most closely resembles (see discussion above) are designated "high priority" habitats by CNDDB.

Riparian habitats are sensitive habitats because they have declined greatly due to such large-scale disturbances as urbanization, stream channelization, and agricultural conversion (Warner and Hendrix 1984). Riparian habitats are also sensitive because they are important wildlife habitats.

The freshwater seep habitat type is a sensitive habitat type because it is generally a wetland habitat. This habitat type is also a sensitive habitat type because it is a regionally restricted habitat type, occupying a very small total area within the region. It also supports several native plant species, including prairie bulrush, low club-rush, and yerba mansa, which are of limited distribution in the region (although none are special status species).

As noted above, the freshwater seep habitat lies just outside the project area and will not be directly impacted by the proposed golf course. Thus, we did not undertake a formal wetland delineation of this habitat type but noted its general location and recommended mitigation measures (below) to protect this habitat type from indirect impacts during project construction.

The coast live oak woodland, while not designated a "high priority" habitat type by the CNDDB, is a habitat of special concern because coast live oak is a species of general public interest and high scenic value. It is also of high value to wildlife for shelter, browse, and mast (acorns).

3.2.3.3 Rare Plants

Only one special status plant species, valley oak (*Quercus lobata*) occurs within the study area. Valley oak is listed on List 4 (Plants of Limited Distribution) in the CNPS Inventory (Smith and Berg 1988). It does not fall under any state or federal regulatory authority. Although valley oak is a familiar and widespread tree throughout much of lower-elevation cismontane California, it is considered threatened in many areas because numerous studies have found that its reproduction is poor or nearly nonexistent at many extant localities. The reasons for the decline in reproduction of this species are not fully understood, but heavy grazing, seedling competition with aggressive, weedy, non-native grasses and herbs, changes in natural fire regimes, deer browsing, and alterations of habitat associated with agricultural and urban land use are believed to be contributing factors. Some of the largest and best-developed stands in the Sacramento and San Joaquin Valleys and elsewhere have been eliminated by agricultural conversion or urban development. Land use changes which have left large trees of valley oak in place have often rendered the habitat unsuitable for reproduction. Because valley oak is a long-lived tree, its present abundance masks the underlying threat to its survival posed by poor reproduction. Within the study area, valley oak is most abundant in the mixed riparian habitat type and adjacent non-native grassland in the north-northeast-draining tributary canyon. Individual trees and small groups of trees are scattered throughout most of the remainder of the study area. Relatively large stands of open valley oak woodland occur on the slopes above the north-northeast-draining tributary canyon, near but outside the boundaries of the study area. We observed very few seedlings or saplings of valley oak in the study area, indicating that the species is reproducing poorly in this area. The development of the golf course and subsequent reduction of grazing and other agricultural impacts within the project area, together with the recommended mitigation measures below, could improve the reproductive capability of the valley oaks in the project area.

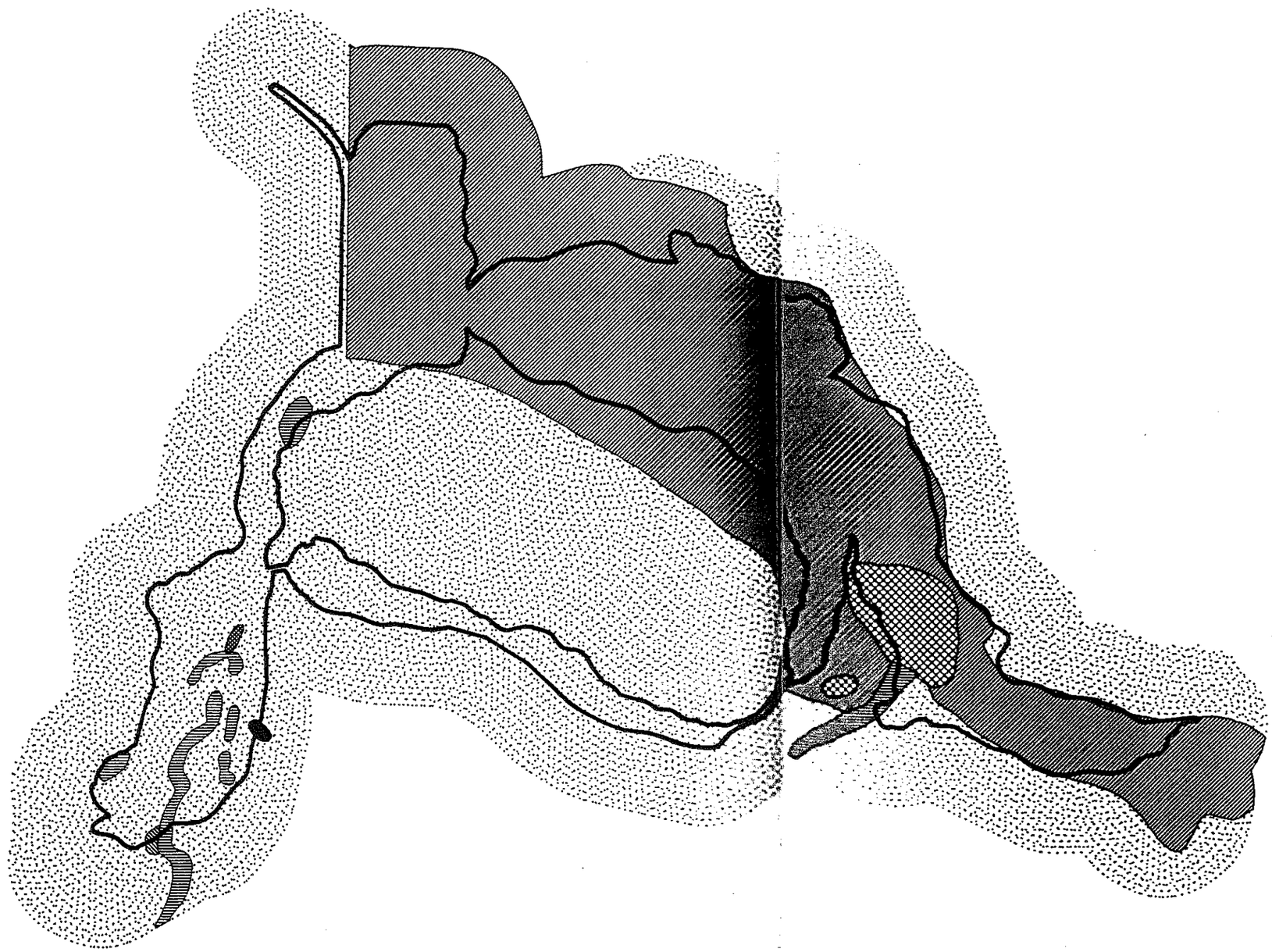

Figure 3-2. Vegetation / habitat map of the San Juan Valley project area.

LEGEND

- Mixed riparian
- Freshwater seep
- C. C. arroyo willow riparian
- Coast live oak
- Ruderal
- Non-native grassland
- Developed
- Project area boundary

Scale 1" = 750'

Prepared by BioSystems Analysis, Inc.

Figure 3-3. San Juan Valley project area locations of rare plants.

LEGEND

Valley oak

Project area boundary

Scale 1" = 750'

Prepared by BioSystems Analysis, Inc.

4.0 CONCLUSIONS

4.1 KIT FOX OCCURRENCE AND HABITAT POTENTIAL AT THE SAN JUAN VALLEY PROJECT AREA

We did not observe any direct or indirect evidence that kit fox use the San Juan Valley project area. We located 9 potential dens inside the project area and 10 potential dens outside the area. Potential den and prey availability, and an appropriate combination of vegetation and topography indicate that most of the project area is potentially suitable habitat for the San Joaquin kit fox. The flat non-native grassland terrain is probably moderate quality habitat and adjacent ruderal areas somewhat lower quality habitat.

Our best professional judgment suggests that presently kit fox occurrence in the San Juan Valley is very unlikely. While survey information indicates that kit fox were not using the project area during our survey, this point-in-time effort does not prove that the species is absent. Previous studies have demonstrated the difficulty of verifying kit fox occurrence in areas of low kit fox density (Hall 1983a; Orloff et al. 1986; Taylor Peterson, Thomas Reid Associates, pers. comm., personal observation).

Factors that limit the occurrence of kit foxes in the northern portion of their range include inadequate prey base, availability of den sites, and competitive exclusion and predation by other canids, especially coyotes (Morrell 1975; O'Farrell 1983; Orloff et al. 1986). Because kit foxes rely so heavily on ground squirrels for both food and dens, squirrel densities may be a critical determinant in kit fox occupation of a site in this part of their range. Overall the San Juan Valley project site appeared to have a relatively low density of ground squirrels.
It should be noted that in comparison to more intensive land uses such as residential housing, golf courses are not necessarily incompatible with kit fox populations. The development of the proposed golf course should not prevent kit foxes from foraging in the vicinity or moving through the area in the future.

4.2 POTENTIAL IMPACTS OF DEVELOPMENT IN KIT FOX RANGE

4.2.1 Potential Direct Impacts

In areas where kit foxes are present, construction activities have the potential to directly affect kit foxes by causing death or injury, by removing or degrading habitat, or by disrupting the prey base. Kit foxes are occasionally attracted to areas of human disturbance (Orloff et al. 1986) and this exposes them to hazards that might result in injury or death. Clearing and modifying natural habitats could also reduce kit fox food supplies and the amount of available foraging habitat, as well as eliminating habitat and food for the small mammals on which they prey. Further, kit foxes forced to leave an area because of construction activity will probably not survive unless adjacent habitat is somehow enhanced, because the adjacent habitat is usually already at carrying capacity for foxes.

4.2.2 Potential Indirect Impacts

Kit foxes are relatively tolerant of moderate human disturbance and can coexist with some types of development; however, with an increase in human activities comes an increase in the number of domestic dogs and traffic that contribute to kit fox mortality. Road kills represent a major cause of kit fox mortality, and the potential for road kills increases proportionally with traffic volume (Morrell 1975; O'Farrell 1983). Many poisons used to control rodents can affect non-target animals such as kit foxes, and kit fox prey species may be reduced in number (Swick 1973; Schitoskey 1975; Wallace 1976; Hegdal et al. 1986). Illegal shooting also contributes to kit fox mortality.

4.3 GENERAL KIT FOX MITIGATION MEASURES

Although we found no evidence of kit fox and we do not believe that kit foxes currently occupy the project site, the San Juan Valley project area is considered potential kit fox habitat, so the following mitigation plan should be considered before development begins. Many of the recommendations listed below are only applicable if known kit fox dens are discovered on pre-construction surveys.

Specific recommended mitigation measures for avoiding, minimizing, and offsetting impacts to kit fox, are provided in the following sections. Many of these guidelines follow *Standardized Recommendations for Protection of the San Joaquin Kit Fox* (USFWS April 1989) and Rado (In Press).

4.3.1 Before Construction

(1) Because kit foxes could occupy dens within the project area in the future, pre-construction surveys for kit foxes should be initiated within 45 to 60 days before construction begins. Surveys should be aimed at locating known or potential kit fox dens not found during other surveys. All known or potential dens should be monitored for signs of kit fox activity. Projects should be modified to avoid or reduce anticipated impacts to kit foxes based on all survey results.

(2) To the extent possible, destruction of known kit fox dens should be avoided. All dens which will be unavoidably lost within the construction site should be properly excavated. Excavation of a den thought to be active should not take place during the early pupping season (January 1 to June 1) when it may be difficult to determine if newborn pups are present. Excavation must be done under the direct supervision of a wildlife biologist (subject to USFWS approval). The destruction of a known kit fox den is considered "take" as defined under Section 3 of the Endangered Species Act and is prohibited under Section 9 of the same act. Appropriate permitting and compensatory mitigation must be developed in advance in cooperation with the USFWS.

(3) If pre-construction surveys identify kit fox dens outside the area of immediate disturbance, protective "buffers" of sufficient size (typically 50 to 300 ft) should be created around known kit fox dens to prevent accidental loss of animals. Permanent

protective barriers should be placed around such sites if the disturbance is permanent, but they need only be flagged if the disturbance is short-term.

(4) Locate parking, storage, construction, and other activities on previously disturbed areas.

(5) Stake or otherwise clearly mark project boundaries to minimize disturbance of habitats not included in the immediate area of disturbance.

(6) Develop and implement an endangered species compliance program for project employees.

4.3.2 During Construction

(7) If known kit fox dens are discovered during pre-construction surveys, one or more biologists should be present during construction activities to provide assistance. Construction activities should be restricted around den areas between January and June (especially for projects near an active pupping den).

(8) Limit the number of vehicles and pieces of equipment to the minimum necessary to accomplish project tasks.

(9) Maximize the use of existing roads and trails.

(10) Construct and maintain gates, barricades, and signs to restrict unauthorized vehicle use.

(11) Keep steep-walled holes or trenches covered at night so that animals cannot accidentally fall in and injure themselves or be unable to escape. Escape ramps may also be constructed to allow animals to escape. Regularly inspect open pits or trenches for trapped wildlife. Minimize the length of time trenches remain open (typically to one week).

(12) Limit speeds on secondary dirt roads to, from, and within the project site to 20 MPH.

(13) Promptly contain and remove trash to minimize attracting wildlife to the project site.

4.3.3 After Construction

(14) Remove flagging, trash, and unnecessary equipment from the project site within 60 days after completion. Contain and remove contaminants from the project area for safe off-site disposal.

(15) Use only zinc phosphide as a rodenticide within a 1-mile radius of known kit fox dens.

(16) Revegetate temporarily disturbed areas upon completion of construction activities.

(17) If known kit fox dens are discovered during pre-construction surveys, restore off-site areas near the project site to offset non-mitigated on-site habitat and population loss.

(18) If known kit fox dens are discovered during during pre-construction surveys, construct artificial kit fox dens to offset such unavoidable on-site loss of known kit fox dens.

(19) Monitor revegetation and restoration success as long as necessary to ensure habitat quality is equal to pre-impact condition.

(20) Minimize off-road vehicle use during post-project monitoring and maintenance activities.

4.4 POTENTIAL IMPACTS AND MITIGATION FOR OTHER SPECIAL STATUS SPECIES

The proposed golf course design, as shown on maps provided by Silver Creek Valley and prepared by Gene Bates and Associates, Inc., for the project appears to maximize use of the natural features at the project site while minimizing the disturbance of sensitive habitats. Stock ponds, drainage courses, and existing woodland and riparian forest areas are either outside of the project site area or incorporated into the golf course design so as to minimize potential impacts. It is important that these design features be maintained so as to minimze direct and indirect modification and conversion of sensitive habitats. No evidence of red-legged frog, foothill yellow-legged frog, California tiger salamander, western spadefoot, western pond turtles or California horned lizard were found in the study area, and the golf course design does not encroach on those stock ponds and stream courses which have the potential to provide some suitable habitat for such species. The preservation of these design features and implementation of the specific mitigation measures outlined below will prevent significant increased sedimentation from run-off into small riparian zones or water impoundments could reduce the water quality and threaten breeding and larval habitat, as well as preventing significant removal or modification of the vegetation (already at a minimum) in the stream courses and impoundments which otherwise could reduce the suitability of habitat for adults.

California horned lark and loggerhead shrike, both candidate 2 species, were observed within the broad adjacent study area, but not within the project area during our study. The proposed project will not impact either of these species.

Overall project mitigation measures consist of pre-construction surveys, avoidance of known and potentally sensitive areas, enhancement and resoration of existing sites, and operational practices that maintain and strengthen conditions conducive to site specific and regional biological diversity. Implementation of the mitigation measures discussed in this document (see sections 4.3, 4.4.1, and 4.7) will reduce impacts to an acceptable level and potentially increase the value of the area for many special status species.

4.4.1 Recommended Mitigation Measures

Except for the California horned lark and loggerhead shrike, we found no evidence of special status species occurring in the study area. Although our survey found no evidence that burrowing owls inhabit the site, the San Juan Valley project area is considered potential habitat for burrowing owls so the following mitigation measures should be considered before development begins.

(1) Surveys to identify use of the project area by burrowing owls should be initiated within 60 days before construction begins. The general survey and mitigation approach should follow the procedures outlined in Burrowing Owl Survey Protocol and Mitigation Guidelines (1993). Specific survey protocol and mitigation actions will be developed in cooperation with California Department of Fish and Game personnel.

4.5 POTENTIAL IMPACTS AND MITIGATION FOR VEGETATION AND RARE PLANTS

Construction of the proposed golf course and irrigation pipeline will have substantial direct impacts to the vegetation of the study area. Direct impacts include removal of vegetation for construction of fairways, access roads and pathways, a clubhouse, maintenance buildings, the irrigation pipeline, and irrigation lines for irrigation of turf. Ancillary impacts of construction, such as operation of construction vehicles and storage of materials in laydown areas, also constitute possible direct impacts.

A proportion of the ruderal and non-native grassland habitat types within the study area will be removed by the proposed construction. However, these impacts will not be significant from a biological because these habitats are not sensitive habitat types.

The plans for the proposed golf course do not entail any substantial encroachment on the mixed riparian forest, central coast arroyo willow riparian forest, or coast live oak woodland for installation of turf, or any substantial alterations to the stock to stock ponds or to drainages that support the two riparian forest habitat types. The mitigation measures below are designed to ensure that there is minimal disturbance of these sensitive habitat types. The freshwater seep habitat type lies just outside the area to be developed for the golf course and will not be impacted by the proposed development itself; however, addtional mitigation measures are recommended below to protect this habitat from construction vehicles and activities during the actual construction of the golf course.

Mitigation measures are also proposed to protect sensitive habitat from sustaining significant indirect impacts as a result of the proposed construction. Particular attention is given to hydrology of the area, and to minimizing increased runoff and erosion in the drainages supporting the two riparian forest habitat types. Landscape buffers are recommended to reduce encroachment of exotic species on the sensitive habitat types of the study area which could inhibit reproduction of the native species in those habitat types through allelopathic interactions (production of growth-inhibiting chemicals). Irrigation controls are recommended to prevent herbicides from being carried into adjacent sensitive habitat types by runoff and to prevent irrigation water from degrading or altering the riparian forest habitat types by creating an unnatural moisture regime.

Measures are also recommended to mitigate potential direct and indirect impacts to the special status species valley oak. The golf course design generally integrates and preserves the existing areas of valley oaks. There is however always the potential of removal of Valley Oaks for construction of greens and fairways, access roads and paths, irrigation lines, or the irrigation pipeline. Without proper mitigation, all of the indirect impacts discussed below could also adversely affect valley oaks within the study area. Measures are proposed to mitigate and/or minimize the potential effects of soil compaction due to movement of construction vehicles, placement of roads and paths, or foot and golf cart traffic on the health of mature valley oaks. Measures are also proposed to maintain the suitability of the study area for valley oak reproduction.

4.6 POTENTIAL IMPACTS FROM THE USE OF RECLAIMED WASTEWATER AT THE PROJECT SITE

As noted above, Silver Creek Valley has the potential of receiving secondarily treated reclaimed wastewater from the City of San Juan Bautista's treatment plant as one source of golf course irrigation. Our study included the route of the reclaimed water irrigation pipeline on Silver Creek Valley's property.

The use of secondarily treated reclaimed water on the project site and/or the surrounding study area will not cause significant adverse impacts on special status wildlife and plant species so long as all applicable wastewater discharge regulations and requirements are observed and the mitigation measures recommended below are adopted and adhered to.

Secondarily treated reclaimed water is used throughout the State of California for pasture and golf course irrigation. It is also utilized for wildlife habitat and wetlands enhancement.

The proper use of the increased irrigation of the project site for the golf course, including San Juan Bautista's reclaimed water, has the potential to enhance habitat within the project site and broader study area.

4.7 RECOMMENDED MITIGATION MEASURES

To mitigate or minimize the impacts discussed in the above sections to the maximum extent possible, we recommend the following measures:

(1) The final design of the proposed golf course will be such that the removal of areas of mixed riparian forest, central coast arroyo willow riparian forest, and coast live oak woodland is minimized and confined to narrow corridors. The landscaping plan for the proposed golf course will emphasize integrating these native habitat types into the landscaping. The natural courses of the drainages supporting the riparian forest habitat types will not be altered, except that they may be extended as shown on the golf course plans.

(2) All turf areas, roadways, and paths in the vicinity of the riparian forest habitat types will be carefully engineered so that excess runoff is not diverted into the drainages supporting these habitat types (also see Irrigation report).

(3) Twenty-five foot buffer zones of undisturbed non-native grassland will be established between the edges of all turf areas and the upper bank of the drainages supporting the riparian forest habitat types. These buffer zones will serve to minimize impacts due to excess runoff, runoff containing herbicides, and creation of an unnatural moisture regime from irrigation runoff. Roads and paths within these buffer zones will be oriented perpendicular to, not parallel to, the drainages containing riparian forest habitat types.

(4) Drought-resistant native plant species will be used for decorative landscaping. Use of non-native species, particularly species with the potential to become invasive or known to be allelopathic (e.g., eucalyptus), or species requiring extensive irrigation, will be avoided.

(5) Turf areas will be engineered, and grass species for planting selected, so as to minimize the amount of irrigation that will be necessary for their maintenance. If possible, irrigation runoff will be channeled away from sensitive habitat types (also see the Design report).

(6) Use of herbicides will be confined to the absolute minimum necessary for turf area maintenance. Under no circumstances will herbicides be used within any sensitive habitat type or within buffer zones.

(7) Operation of construction vehicles within areas of sensitive habitat types will be prohibited, except within limited areas to be cleared for roads and paths or to provide open fairways.

(8) To the maximum extent possible, construction laydown areas will be established within areas to be developed for greens or roads. Under no circumstances will construction laydown areas be permitted to encroach on sensitive habitat types.

(9) As stated, the freshwater seep habitat is just outside the project area. However during construction of the project, all impacts to the freshwater seep habitat type will be avoided. Off project construction roads, paths, and irrigation lines will not be routed through the area. Encroachment on this area by construction vehicles will not be permitted, and the area will be fenced during construction to prevent accidental encroachment.

(10) The proposed golf course and irrigation pipeline will be designed so that the number of valley oaks to be removed is minimized.

(11) All valley oaks removed will be replaced by planting valley oak seedlings in suitable habitat in the vicinity, as determined by a qualified botanist. Replacement will be at a 5:1 ratio of seedlings planted to trees removed, to allow for mortality of young trees as they mature. Seedlings will be hand irrigated for one year after planting, to maximize the likelihood of successful establishment. Seedlings which die during the one year period will be replaced and hand irrigated for one year after planting. Because it is likely that valley oaks from other areas are genetically distinct from valley oaks in the Hollister area, seedlings for replacement will be propagated from acorns collected from valley oaks within the study area or elsewhere in the Hollister area. To the maximum extent possible, acorns will be collected from any trees which are to be removed for the proposed construction.

(12) Encroachment by construction vehicles under the canopy of valley oaks or within 25 feet of the canopy will be prohibited where feasible. Valley oaks located where such encroachment is likely will be fenced or some other barrier erected. To the maximum extent feasible, roads and paths will not be placed within 25 feet of the canopy of valley oaks. Permanent fences or other natural barriers will be erected where necessary to prevent excessive foot or golf cart traffic in the vicinity of valley oaks. These natural barriers or fences could be of attractive design and need not prevent all access to the vicinity of the trees.

Implementation of the above mitigation measures will reduce any potential adverse environmental impacts to a level of insignificance.

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Appendix A. Checklist of vascular plant species observed in the San Juan Valley study area, San Benito County, California (cultivated and landscaping species not included, unless escaped).

ANGIOSPERMAE

DICOTS:

ANACARDIACEAE
- * *Schinus molle*
- *Toxicodendron diversilobum*

APIACEAE
- * *Anthriscus caucalis*
- * *Conium maculatum*
- *Sanicula crassicaulis* var. *crassicaulis*
- * *Torilis nodosa*

ASCLEPIADACEAE
- *Asclepias fascicularis*

ASTERACEAE
- *Achillea millefolium* var. *californica*
- *Achrychaena mollis*
- * *Anthemis cotula*
- *Artemisia douglasiana*
- *Baccharis douglasii*
- *Baccharis pilularis* ssp. *consanguinea*
- * *Centaurea solstitialis*
- * *Cirsium vulgare*
- * *Silybum marianum*

BORAGINACEAE
- *Amsinckia intermedia*
- *Heliotropium curassavicum* var. *oculatum*

BRASSICACEAE
- * *Brassica nigra*
- * *Brassica rapa* ssp. *olifera*
- *Lepidium nitidum*
- * *Nasturtium officinale*
- * *Sisymbrium officinale*

CAPRIFOLIACEAE
- *Sambucus mexicana*
- *Symphoricarpos albus* var. *laevigatus*
- *Symphoricarpos mollis*

CARYOPHYLLACEAE
- * *Stellaria media*

CONVOLVULACEAE
- * *Convolvulus arvensis*

EUPHORBIACEAE
- *Eremocarpus setigerus*

FABACEAE
- *Lupinus bicolor*
- *Lupinus subvexus*
- * *Medicago polymorpha*
- * *Melilotus indica*
- * *Robinia pseudo-acacia*

FAGACEAE
- *Quercus agrifolia*

Appendix A. Checklist of vascular plant species observed in the San Juan Valley study area, San Benito County, California (cultivated and landscaping species not included, unless escaped) (cont.).

Quercus lobata

GERANIACEAE
* *Erodium botrys*
* *Erodium brachycarpum*
* *Erodium cicutarium*

HIPPOCASTINACEAE
Aesculus californica

LAMIACEAE
* *Marrubium vulgare*
Stachys bullata

LORANTHACEAE
Phoradendron villosum ssp. *villosum*

LYTHRACEAE
Lythrum hyssopifolia

ONAGRACEAE
Clarkia purpurea

PLATANACEAE
Platanus racemosa

POLYGONACEAE
* *Rumex crispus*
* *Rumex pulcher*
Rumex salicifolius

PORTULACEAE
Claytonia perfoliata

PRIMULACEAE
* *Anagallis arvensis*

RANUNCULACEAE
Ranunculus californicus

ROSACEAE
Rosa californica
Rubus ursinus

RUBIACEAE
* *Galium aparine*
Galium porrigens

SALICACEAE
Salix laevigata
Salix lasiolepis

SAURURACEAE
Anemopsis californica

SAXIFRAGACEAE
Ribes californicum

SCROPHULARIACEAE
* *Bellardia trixago*
Mimulus aurantiacus
Scrophularia californica

SOLANACEAE
* *Nicotiana glauca*

Appendix A. Checklist of vascular plant species observed in the San Juan Valley study area, San Benito County, California (cultivated and landscaping species not included, unless escaped) (cont.).

URTICACEAE
- *Urtica dioica* ssp. *gracilis* var. *holosericea*
- * *Urtica urens*

VERBENACEAE
- *Verbena robusta*

MONOCOTS:

CYPERACEAE
- *Scirpus cernuus* var. *californicus*
- *Scirpus robustus*

JUNCACEAE
- *Juncus bufonius*
- *Juncus tenuis* var. *congestus*

LILIACEAE
- *Brodiaea elegans*
- *Chlorogalum pomeridianum*

POACEAE
- * *Avena fatua*
- * *Bromus diandrus*
- * *Bromus hordeaceus*
- * *Bromus rubens*
- *Elymus triticoides*
- *Hordeum brachyantherum*
- * *Hordeum geniculatum*
- * *Hordeum leporinum*
- * *Hordeum vulgare*
- * *Lolium multiflorum*
- * *Polypogon interruptus*
- * *Polypogon monspeliensis*
- *Stipa pulchra*
- *Vulpia megalura*
- * *Vulpia myuros*

* = species introduced or naturalized in the study area.

California Tiger Salamander Surveys and Mitigation Plan for the Proposed San Juan Valley Golf Course San Benito County, California

Final Report
January 1994

BioSystems

CALIFORNIA TIGER SALAMANDER SURVEYS AND MITIGATION PLAN FOR THE PROPOSED SAN JUAN VALLEY GOLF COURSE SAN BENITO COUNTY, CALIFORNIA

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January 1994

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SUMMARY

BioSystems Analysis, Inc. (BioSystems) was contracted by Silver Creek Valley, a California limited partnership, to conduct biological surveys for the proposed San Juan Valley Project. The proposed project consists of an 18 hole golf course, club house, and practice area and is situated on approximately 160 acres of a 1260 acre property. Our studies concentrated on surveys to determine the presence and habitat suitability for the California tiger salamander (*Ambystoma tigrium californiense*).

Field surveys were conducted on 14 through 21 May and on 23 and 24 July 1992, and supplemental surveys were conducted from 8-9 April and again on 28-29 April 1993 (BioSystems Analysis 1993). BioSystems studied the actual project boundaries for the proposed golf course, the route (on Silver Creek Valley's property) of a potential reclaimed water irrigation pipeline, and an adjacent broad study area around the actual project and irrigation pipeline boundaries.

We sampled eight stock ponds in the project area for tiger salamanders and documented larvae in five breeding ponds. The availability of upland habitat for salamanders was assessed based on vegetation/habitat type, land use practices, and availability of retreat sites within ¼ mile of each breeding pond. Retreat site availability was estimated by plotting the distribution of ground squirrel burrows within ¼ mile of each pond and estimating the density of burrows within these areas.

We assessed potential impacts from the development, maintenance, and operation of the golf course on the tiger salamander. Because all of the stock ponds on the property, including all those in which we documented the existence of larvae, are located outside the boundaries of the proposed golf course, none of the ponds will be directly impacted by construction or will be disturbed by golfers while playing the course. All of the ponds are above the elevation of the golf course and will not receive irrigation water or other run-off from the proposed golf course.

The proposed golf course will impact 8.9 acres of upland habitat within ¼ mile of the breeding ponds. The remainder of the acreage occupied by the golf course within ¼ mile of the ponds is not suitable upland habitat for tiger salamanders because it is intensively farmed and grazed year-round. Plowing and planting, applying herbicides and fertilizers, and cutting and/or thrashing of the crop repeatedly destroy burrows and other cover, making these areas unavailable to over-summering tiger salamanders.

The 8.9 acres of impacted upland habitat does not constitute a significant impact to California tiger salamanders for the following reasons:

1. There are 340 acres of suitable upland habitat available within ¼ mile of all breeding ponds. These 340 acres will be left undisturbed by the construction and operation of the proposed golf course.

2. There are abundant rodent burrows and other cover for tiger salamanders within ¼ mile of each of the breeding ponds in the area left undisturbed by the proposed project.

3. No breeding ponds will be impacted by the construction and operation of the proposed project.

We conclude that development and operation of the proposed golf course will not have a significant impact on the tiger salamander population on the property. We propose mitigation measures at the end of this report to ensure that salamander migration to and from breeding ponds will not be impeded, the quality of upland habitat within ¼ mile of all ponds will not be degraded, and that individual salamanders in the 8.9 acres of impacted upland habitat will not be killed during construction.

1.0 INTRODUCTION

1.1 BACKGROUND AND PROJECT AREA

BioSystems Analysis, Inc. (BioSystems) was contracted by Silver Creek Valley to conduct biological surveys for the proposed San Juan Valley golf course project. Studies conducted from 14 May through 21 May 1992 and on 23 and 24 July 1992 concentrated on surveys to determine the presence of and habitat suitability for several special status wildlife and plant species with potential to occur in the proposed project area (BioSystems 1993). These field studies were initiated too late in 1992 to conduct the appropriate seining surveys for California tiger salamanders. Therefore, additional field surveys, including seining, were conducted on 8-9 April and again on 28-29 April 1993 to determine the presence of the tiger salamander.

From a regional perspective, the project area is situated in a transitional belt between hilly oak woodland/chaparral communities to the south and the flat valley bottom grassland communities to the north. Most historic grasslands in the region have been converted to intensely managed irrigated row cropland, and to a lesser extent to dryland cultivation. The proposed project area (Figure 1-1) lies south of irrigated cropland, and occupies the level to gently sloping bottoms of the San Juan Valley, two broad tributary canyons entering the valley (Figure 1-2), and a small, narrow, west-northwest-draining canyon entering the valley near the mouth of the larger tributary canyon. The larger tributary canyon runs northwest and its drainage lies along the northeast edge of the canyon floor.

Intensive land use practices prevail in much of the study area. The proposed project area is currently used for cattle grazing, dryland farming, and irrigated pasture. Ruderal habitat has been subjected to dryland and irrigated farming operations for at least 10 years. Farming practices consist of plowing, planting, and fertilizing the area each November, applying a broadleaf herbicide in January or February, and cutting the crop in May. These fields are occasionally irrigated and they are subjected to intensive cattle grazing each year.

This document supplements BioSystems' 1993 report by describing results of field surveys for California tiger salamanders (*Ambystoma californiense*) and recommending mitigation to minimize impacts to tiger salamander populations during construction and operation of the proposed golf course.

1.2 PROPOSED PROJECT

The proposed project consists of an 18-hole golf course, club house, and practice area. The proposed development will also include the addition of several irrigation ponds and a natural drainage swale. The golf course will not directly impact any of the existing stock ponds in the study area. All of the existing ponds on the property are above the elevation of the golf course and will not receive any irrigation water or other runoff from the proposed development. The

only access roads for the facility are located at the far northwest end of the project area, at least ½ mile west of any of the ponds where salamanders were located.

1.3 PROJECT AREA VEGETATION/HABITAT TYPES

The following vegetation/habitat descriptions from our previous report (BioSystems 1993) are included to provide a detailed portrait of the site. The relative composition of the vegetation/ habitat types in the project area and the project study area are given in Table 1.1.

The study area occupies the San Juan Valley and three tributary canyons entering the valley. The floor of San Juan Valley is a patchwork of grazed uncultivated areas, hayfields, and fields of row crops. The largest tributary canyon, which drains northwest, has been cultivated for many years, and its drainage is diverted to an artificial channel running along the northeast edge of the canyon floor. A developed area with houses, barns, and other outbuildings is located in the canyon. The barns are in a state of disrepair and were in the process of being removed when we initiated our study. All barn removal work was halted during our study period. The north-northeast-draining tributary canyon has not been cultivated and is incised by three drainages which converge near the canyon's mouth. A series of fenced corrals is located near the canyon mouth. The small west-northwest-draining canyon is grazed but has not otherwise been disturbed.

We identified three habitat types within the project area that are not primarily associated with heavy, ongoing or repeated disturbance: non-native grassland, mixed riparian forest, and coast live oak woodland. In addition, two sensitive habitat types, central coast arroyo willow riparian and freshwater seep, occur within the study area but are outside the project boundary. Although this classification is based on the generalized classification scheme of Cheatham and Haller (1975) and Holland (1986), this scheme was inadequate for characterization of the mixed riparian forest habitat type, as discussed below. Three additional habitat types within the study area are associated with disturbance: ruderal, developed, and hayfield. Brief descriptions of each habitat type are presented below.

1.3.1 Non-native Grassland

The non-native grassland habitat type is a grassland largely dominated by annual, non-native grasses. This habitat type has mostly replaced the original grasslands of California, which were dominated by native perennial bunchgrasses, largely due to long-term overgrazing (Heady 1977; Heady et. al. 1977). Despite the fact that the dominant grass species in this habitat type are not native, this habitat type is not associated with disturbance other than grazing. Dominant grasses in this habitat type include wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), ripgut grass (*Bromus diandrus*), Italian rye grass (*Lolium multiflorum*), and Mediterranean barley (*Hordeum geniculatum*). These grasses are all non-native, and all except Italian rye grass are annuals. The height, density, and species composition of the grass cover vary considerably within the study area, largely depending on the intensity of grazing in recent years. However, all of the non-native grassland within the study area is of low species diversity, with few associated herb

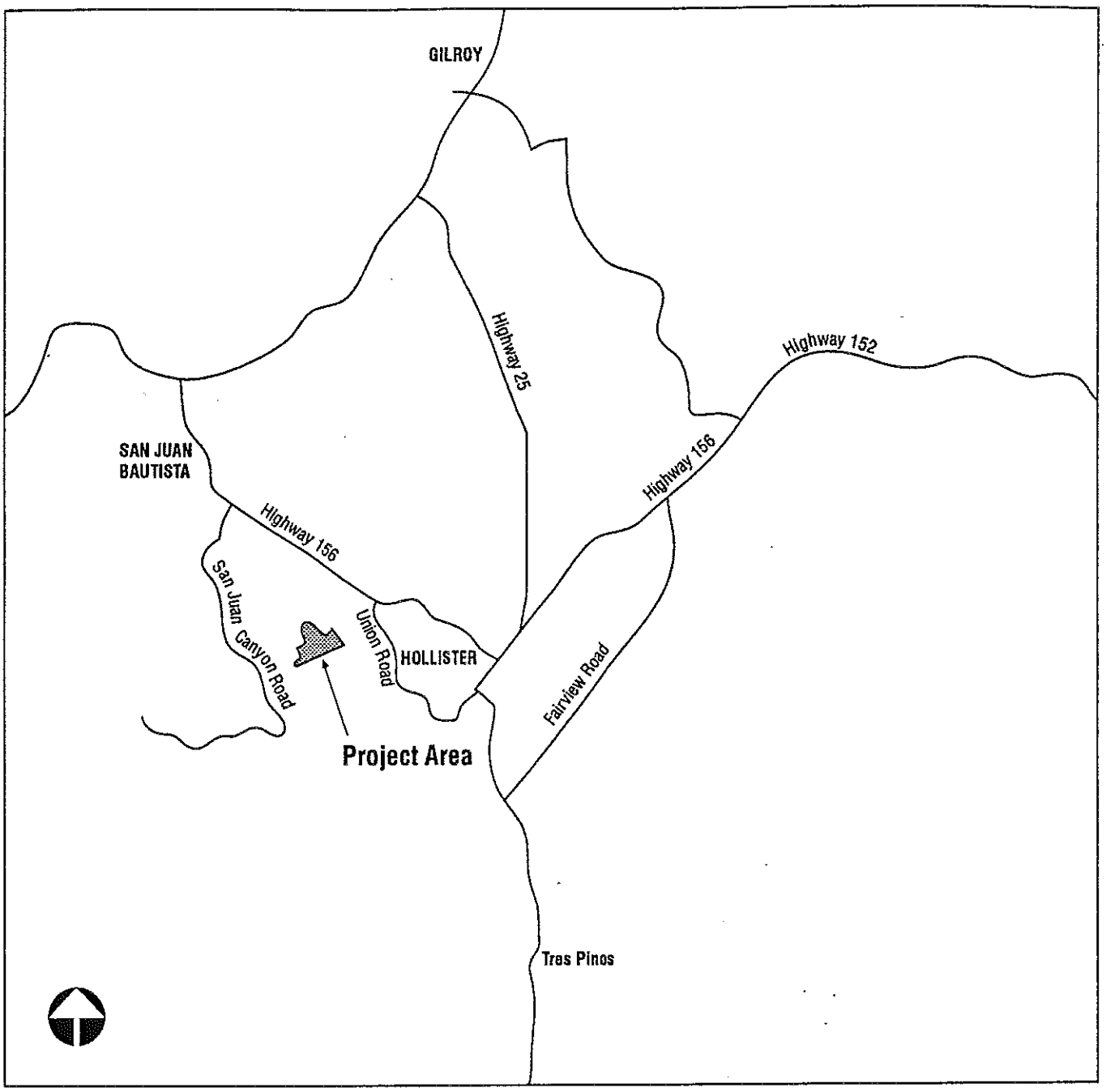

Figure 1-1. San Juan Valley project area location map.

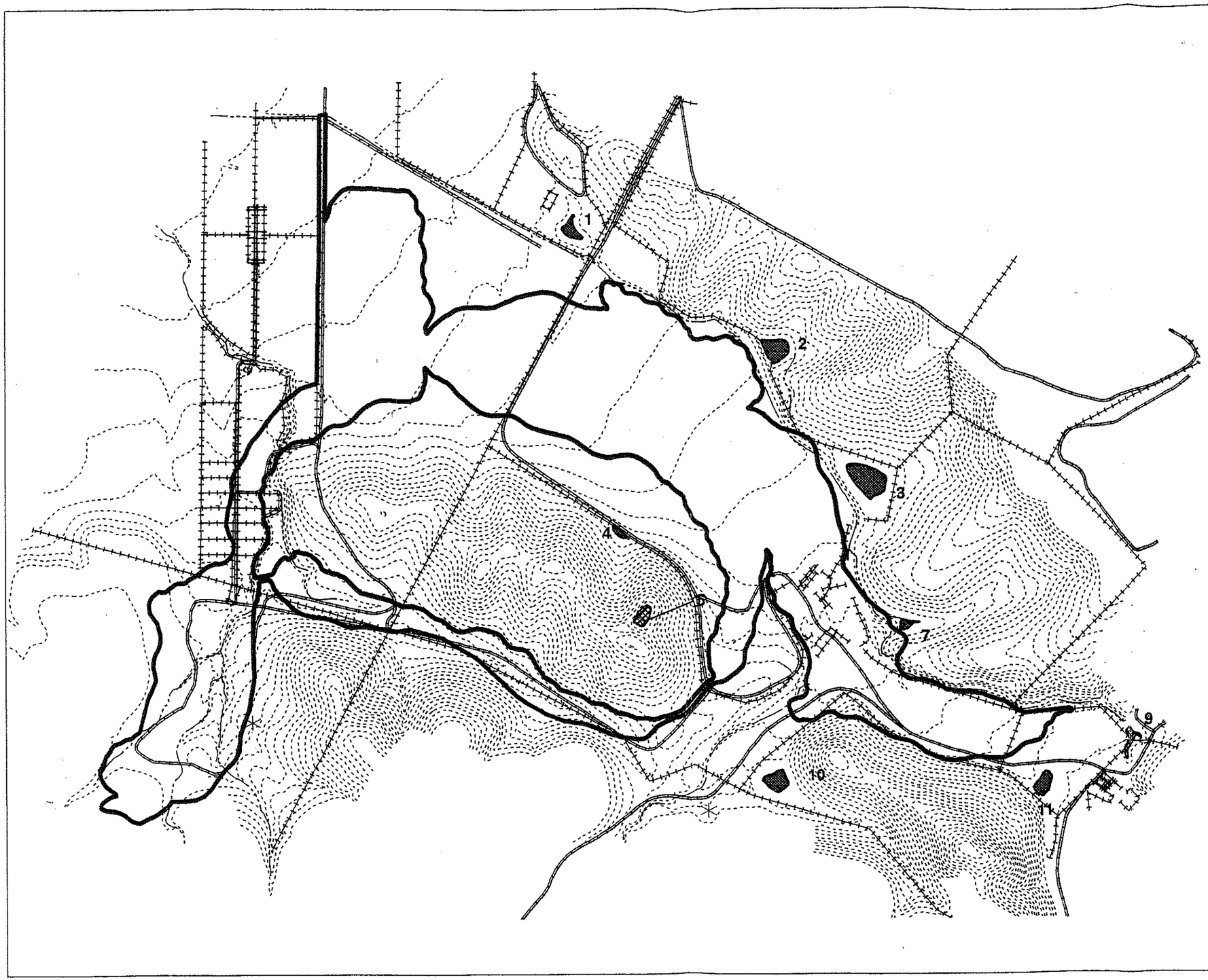

Figure 1-2. San Juan Valley project area physical features.

LEGEND

- 10 foot contours
- Roads
- Streams
- Fences
- Project area boundary
- Livestock pond with water
- Livestock pond without water
- Springs

Scale 1" = 750'

Prepared by BioSystems Analysis, Inc.

species, indicating a long history of heavy grazing. Associated herbs include filaree (*Erodium botrys*, *E. brachycarpum*, *E. cicutarium*), field bindweed (*Convolvulus arvensis*), and bur-clover (*Medicago polymorpha*), all non-natives. Blow-wives (*Achrychaena mollis*), shining pepper-grass (*Lepidium nitidum*), and turkey mullein (*Eremocarpus setigerus*), are native species frequently found in heavily grazed grasslands. Scattered individual trees or small groups of trees of valley oak occur in the non-native grassland, indicating a transition to the valley oak woodland habitat type, stands of which occur on lower slopes adjacent to the western portion of the study area. The native perennial bunchgrass, purple needlegrass (*Stipa pulchra*), is occasional and widely scattered in this habitat type. This grass is a remnant of the original perennial bunchgrass grassland of the study area. The largest concentrations of purple needlegrass within the study area are located in the inter-drainage areas in the north-northeast-draining tributary canyon; however, nowhere is the cover of purple needlegrass high enough that the habitat could be described as a perennial bunchgrass habitat type. Non-native grassland occupies the inter-drainage areas in the western portion of the study area, the small west-northwest-draining canyon, and the ridge north of that canyon. A portion of the irrigation pipeline area west of the main study area is also mapped as non-native grassland; this area is heavily grazed by cattle.

Table 1.1. Composition of vegetation/habitat types in the proposed San Juan Valley Project area, San Benito County, California.

VEGETATION/HABITAT TYPE	ACRES OF HABITAT WITHIN *PROJECT AREA* [1] BOUNDARY	ACRES OF HABITAT WITHIN *STUDY AREA* [2] BOUNDARY
Mixed riparian forest	4.25	8.01
Central coast arroyo willow riparian forest	0.00	0.27
Coast live oak woodland	0.14	0.30
Freshwater seep	0.00	0.29
Non-native grassland	48.67	264.36
Hayfields	0.01	2.51
Ruderal	118.42	187.69
Developed	8.01	9.72
Total	**179.50**	**473.15**

1 This category only indicates the area where the proposed project (golf course) will be developed and is not intended to indicate disturbance of habitat types.
2 Study area indicates the larger adjacent area where biological field studies were conducted and includes the project area; again, this is not intended to indicate disturbance of habitat types.

1.3.2 Mixed Riparian Forest

This habitat type is developed in narrow strips along drainages where the water table is not far below the ground surface and can be reached by tree roots. The mixed riparian forest is dominated by a moderately dense cover of large trees, including valley oak, coast live oak (*Quercus agrifolia*), and polished willow (*Salix laevigata*). In one stand, occupying the lower portion of a small canyon entering the northwest-draining tributary canyon from the south, California sycamore (*Platanus racemosa*) is also one of the dominant trees. The treelike shrub arroyo willow (*Salix lasiolepis*) is also locally dominant. Other shrubs are scattered in the understory and include poison-oak (*Toxicodendron diversilobum*), southwestern elderberry (*Sambucus mexicana*), common snowberry (*Symphoricarpos albus* var. *laevigatus*), creeping snowberry (*Symphoricarpos mollis*), and California rose (*Rosa californica*). The woody vine, Pacific blackberry (*Rubus ursinus*), is also locally abundant in the understory. Herb cover is patchy and generally sparse in this habitat type, but a number of herb species characteristic of moist forest and woodland habitats are scattered, including Pacific sanicle (*Sanicula crassicaulis* var. *crassicaulis*), Douglas' mugwort (*Artemisia douglasiana*), California hedge-nettle (*Stachys bullata*), miner's lettuce (*Claytonia perfoliata*), California bee-plant (*Scrophularia californica*), and hoary nettle (*Urtica dioica* ssp. *gracilis* var. *holosericea*). This habitat type does not closely correspond to any of the riparian forest habitat types described by Holland (1986). It is perhaps best described as intermediate between Holland's central coast cottonwood-sycamore riparian forest and central coast live oak riparian forest, but with elements of two Central Valley riparian forest types: Great Valley mixed riparian forest and Great Valley valley oak riparian forest. Most of the mixed riparian forest within the study area is located along the drainages in and draining from the north-northeast-draining tributary canyon. A single stand is located in the small canyon draining into the northwest-draining tributary canyon from the south.

1.3.3 Central Coast Arroyo Willow Riparian Forest

This habitat type, located outside the project area, is a dense, closed-canopy riparian forest dominated by arroyo willow. Only one small area of this habitat type occurs within the study area, near the mouth of the north-northeast-draining tributary canyon. The shrubs poison-oak, California rose, and common snowberry and the woody vine, Pacific blackberry, are scattered in the understory of this habitat type. The understory has been considerably degraded due to trampling by cattle and much bare ground is present, but the herb species California hedge-nettle, climbing bedstraw (*Galium porrigens*), and Douglas' baccharis (*Baccharis douglasii*) are scattered.

1.3.4 Coast Live Oak Woodland

Only one small area of this habitat type occurs in the study area, on a terrace adjacent to a drainage in one of the forks of the north-northeast-draining tributary canyon near the southwest corner of the study area. This habitat type consists of a stand of coast live oak with moderate canopy cover. No shrubs, and only a few grasses and herbs, are associated with the oaks on this site.

1.3.5 Freshwater Seep

This habitat type, located just outside the project area, is dependent on permanent groundwater seepage and is developed around and below a spring located at the edge of the study area in the north-northeast-draining tributary canyon. The characteristic species in this habitat type are mostly annual and perennial herbs associated with wet areas and include the native species prairie bulrush (*Scirpus robustus*), western rush (*Juncus tenuis* var. *congestus*), low club-rush (*Scirpus cernuus* var. *californicus*), common toad rush (*Juncus bufonius*), yerba mansa (*Anemopsis californica*), northern barley (*Hordeum brachyantherum*), and hyssop loosestrife (*Lythrum hyssopifolia*), and the non-native species water-cress (*Nasturtium officinale*), annual beard-grass (*Polypogon monspeliensis*), Indian melilot (*Melilotus indica*), Italian rye grass, and Mediterranean barley.

1.3.6 Ruderal

This habitat type is developed on sites which have been cultivated or otherwise heavily disturbed. It is characterized by a mostly dense cover of grasses and herbs, most of them weedy non-native species, including ripgut grass, soft chess, wild oat, Italian rye grass, rattail fescue (*Vulpia myuros*), Mediterranean barley, wall barley (*Hordeum leporinum*), mayweed (*Anthemis cotula*), yellow star-thistle (*Centaurea solstitialis*), wild mustard (*Brassica nigra*, *B. rapa* ssp. *olifera*), common chickweed (*Stellaria media*), poison-hemlock (*Conium maculatum*), field bindweed, bur-clover, filaree, curly dock (*Rumex crispus*), and scarlet pimpernel (*Anagallis arvensis*). The few native species in this habitat type are mostly species which often colonize highly disturbed sites, including turkey mullein, western six-weeks' fescue (*Vulpia megalura*), common fiddleneck (*Amsinckia intermedia*), and Lindley's annual lupine (*Lupinus bicolor*). A few valley oaks, remnants of the pre-disturbance vegetation, occur in the ruderal habitat type. Within the study area, this habitat type occupies nearly all of the bottom of the northwest-draining tributary canyon, extending beyond the mouth of the canyon into San Juan Valley proper.

Ruderal habitat is characterized by and is a product of intensive land use practices. In the project area, ruderal sites have been subjected to dryland and irrigated farming operations for at least the past 10 years. Management practices consist of plowing, planting, and fertilizing the area each November, applying a broadleaf herbicide in January or February, and cutting the hay crop in May. If the crop yield is good the site is thrashed, usually in July. These ruderal areas are occasionally irrigated to increase yields.

1.3.7 Developed

This habitat type includes buildings and associated landscaped areas. Vegetation in developed areas is largely confined to landscaping plants and some weedy grasses and herbs. A number of large valley oaks grow around the developed area in the northwest-draining tributary canyon. These may have been planted, or may be remnants of the original vegetation. This area and the area around the main ranch house, south of this canyon, are the only developed sites within or adjacent to the study area.

1.3.8 Hayfield

This habitat type consists of a field planted with a mixture of grasses and herbs which are harvested for hay. The hayfield habitat is located within the irrigation pipeline area, outside of the project area. A single valley oak grows in this hayfield.

1.4 CALIFORNIA TIGER SALAMANDER NATURAL HISTORY

1.4.1 Legal Status

The federal Endangered Species Act (ESA) of 1973 declares that all federal departments and agencies shall utilize their authorities to conserve endangered and threatened plant and animal species. The California tiger salamander is neither listed nor proposed for listing as endangered or threatened under the ESA. The California tiger salamander is listed as a Category 2 candidate species by the U.S. Fish and Wildlife Service (USFWS). Category 2 candidates are species being considered for listing, but have not yet been formally proposed for listing and for which conclusive biological information to support federal listing is not complete. Private citizens recently petitioned the USFWS to list the California tiger salamander as threatened or endangered, but the USFWS has not yet reached a decision on whether to propose the species for listing. The California tiger salamanders' current status does not afford it any protection under the ESA. The California tiger salamander is neither listed nor proposed for listing under the California Endangered Species Act. The California Department of Fish and Game (CDFG) considers the tiger salamander a "species of special concern." This designation which is given by the CDFG to animal species whose state breeding populations may face extirpation, does not afford the California tiger salamander any specific legal protection.

1.4.2 Distribution

California tiger salamanders range from Sonoma County south to the Santa Rita Hills in Santa Barbara County and east to the foothills of the Sierras (Stebbins 1954). They breed in quiet murky water of small ephemeral ponds and pools in low hills and valleys dominated by grassland or open oak woodland (Stebbins 1954).

1.4.3 Background and Habitat Characteristics

California tiger salamanders frequent the quiet water of small ponds, temporary rain or vernal pools, and slow-moving streams. Adults spend much of their time in burrows dug by squirrels and other small mammals, sometimes as far as a mile from the source of fresh water, emerging for short periods at night to breed after the first heavy rains in late fall. Breeding pools are likely to be in annual grassland and oak woodland with a water temperature of between 10°C and 21°C and substantial terrestrial vegetative cover around the perimeter. Salamanders attach their eggs to submergent vegetation; the larvae develop and usually leave the pond by early May. Successful breeding ponds must contain water long enough for larvae to transform (roughly 20 weeks) (Zeiner et al. 1988). Eggs are laid in February, and by early April the larvae are big

enough to be caught in seining nets. Adult salamanders may not breed in the same ponds every year. Breeding failure may be caused by predatory fish or bullfrogs that consume eggs, larvae, and adult salamanders. California tiger salamanders also are vulnerable to degradation or disturbance of aquatic habitats and associated watersheds. Agriculture, urban developments, and extensive grazing have degraded or eliminated critical freshwater habitat for this salamander over much of its former range in California.

Habitat suitability for California tiger salamanders was assessed using the habitat characteristics suggested in a Habitat Suitability Model for the species (Terry 1989) and general information on natural history (Stebbins 1954, 1985; Zeiner et al. 1988). Results of the habitat assessment were discussed in BioSystems (1993).

2.0 METHODS

2.1 REVIEW OF LITERATURE

LSA Associates, Inc. (1992) documented California tiger salamander breeding in Farman Canyon Pond near the city of Gilroy, about 15 miles north of the project area. They also stated that there is undocumented evidence that salamanders may breed in Reservoir Canyon Pond in the same project area. Tiger salamanders were located in a pond in the proposed Lemmon Acres project area near the city of Hollister, about 6 miles to the east (San Benito County Planning Department, pers. comm.). Another breeding site, confirmed in 1991, is located about 6 miles west of the project area along Highway 156, 0.25 miles west of the San Juan Bautista turnoff just north of the highway (Shaffer and Stanley 1991). A search of the California Natural Diversity Data Base yielded a 1973 record of a tiger salamander along San Justo Road, about 1 mile north of San Juan Bautista.

2.2 METHODS

Field surveys were conducted to determine the presence of California tiger salamander in the proposed San Juan Valley golf course project and adjacent broad study areas. Surveys were conducted on 8-9 April and repeated on 28-29 April 1993. Nine ponds and three drainages were considered for surveys (Figure 1-2). In all ponds with water, we seined for larvae using a fine mesh net (1/16 inch). We followed the CDFG-recommended survey protocol by seining each pond twice, two weeks apart, in April when larvae are most likely to occur in ponds.

The quality of breeding and upland habitat were assessed using information collected during 1992 field studies and additional data gathered in 1993. This information was used to document existing habitat condition, assess potential impacts resulting from the proposed project, and guide mitigation actions to avoid impacts. The potential for each pond to support breeding salamanders is discussed in BioSystems (1993).

Suitable upland habitat for the tiger salamander was considered to include six vegetation/habitat types: non-native grassland, mixed riparian forest, coast live oak woodland, central coast arroyo willow riparian forest, freshwater seep, and hayfield. Two habitat types, ruderal and developed, were considered unsuitable as cover habitat for the tiger salamander. The quality of upland habitat for the salamander was assessed based on vegetation/habitat type, land use practices, and amount of cover in adjacent uplands. The amount of cover was estimated by plotting the distribution of ground squirrel burrows within ¼ mile of ponds where tiger salamander larvae were located.

When larvae were observed in a pond, we estimated the available upland habitat within a ¼ mile (1,320 ft) radius of the pond. We assumed that cover occurring within in this radius was important for maintaining tiger salamander populations at the site (J. Brode pers. comm.). While some anecdotal information suggests that tiger salamanders can move as much as 1 mile away from breeding ponds, upland areas within ¼ mile of breeding ponds include the highest densities of over-summering salamanders and can be managed effectively.

3.0 RESULTS

3.1 SURVEYS

No salamander breeding habitat was identified in any of the three drainages. Pond 5 did not contain water and had no potential to support breeding salamanders (BioSystems 1993). Of the eight remaining ponds, five contained tiger salamander larvae (Figure 3-1, Table 3.1). Larvae of three other amphibian species (none of which are special status species), the western toad (*Bufo boreas*), Pacific treefrog (*Hyla regilla*), and California newt (*Taricha torosa*), were also found in the ponds (Table 3.1).

Following is a brief description of the ponds sampled for California tiger salamander. All ponds are located outside of the project area boundary and indicated in Figure 1-2.

- **Stock Pond #1 No tiger salamander larvae were present.** Water is pumped in and out of this livestock storage pond and the pond appears to be the most permanent water source in the vicinity. In April, water depth was greater than 2 meters and emergent vegetation was extensive. Western toad larvae were abundant. Larvae and adults of Pacific treefrog and California newt were present. Mosquito fish were present.

- **Stock Pond #2 No tiger salamander larvae were present.** Occasionally, water is pumped into this livestock pond and it has some potential for ephemeral storage from runoff during very wet rainy seasons. Presence of water in this pond depends on livestock management practices. In April, water depth was 0.5 to 1.5 meters and a thick mat of algae floated on the surface. Approximately 4 meters of bare soil surrounded the pond and no submergent, emergent or shoreline vegetation was present. Western toad larvae were abundant. Larvae and adults of Pacific treefrog and California newt were present. Mosquito fish were abundant.

- **Stock Pond #3 California tiger salamander larvae were present.** This is the largest livestock pond on site and has potential for ephemeral storage from runoff during very wet rainy seasons. It contained water throughout 1993. In April, the water was more than 2 meters in depth. Submergent, emergent, and shoreline vegetation was fairly abundant and several decadent willows were present. Western toad larvae, larvae of Pacific treefrog, and larvae and adults of California newt were present. No mosquito fish present. About 70 percent of the terrestrial habitat within ¼ mile of the pond consists of non-native grasslands and is suitable upland habitat for tiger salamanders (Figure 3-2, Table 3.2). Many of the cover sites (rodent burrows) within the ¼ radius occur along the banks of the diversion canal (Figure 3-1).

- **Stock Pond #4 California tiger salamander larvae were present.** This livestock pond contained water and provides seasonal storage from runoff during the rainy season. In April, the water was less than 0.25 meters in depth and contained a thick algal mat. A margin of bare soil, approximately 2.5 meters wide, surrounded the pond

Table 3.1. Results of seining surveys (8-9 and 28-29 April 1993) for California tiger salamander in eight ponds in the proposed San Juan Valley Project area, San Benito County, California.

POND NO.	SIZE OF POND (AC)	PRESENCE OF AMPHIBIAN LARVAE				NOTES
		WESTERN TOAD	PACIFIC TREEFROG	CALIFORNIA NEWT	CALIFORNIA TIGER SALAMANDER	
1	0.30	•	•	•	—	mosquito fish
2	0.59	•	•	•	—	mosquito fish
3	1.11	•	•	•	•	
4	0.12	•	•	•	•	
7	0.14	•	•	•	•	mosquito fish
9	0.19	•	•	—	—	severe erosion
10	0.47	•	•	•	•	
11	0.37	•	•	•	•	

• = species present
— = species absent

Figure 3-1. Livestock ponds, 1/4 mile upland zones and squirrel concentration areas in the San Juan Vallley project area.

LEGEND

- Ponds
- Squirrel concentration areas
- Proposed project area boundary
- Quarter mile upland zones

Scale 1" = 750'

Prepared by BioSystems Analysis, Inc.

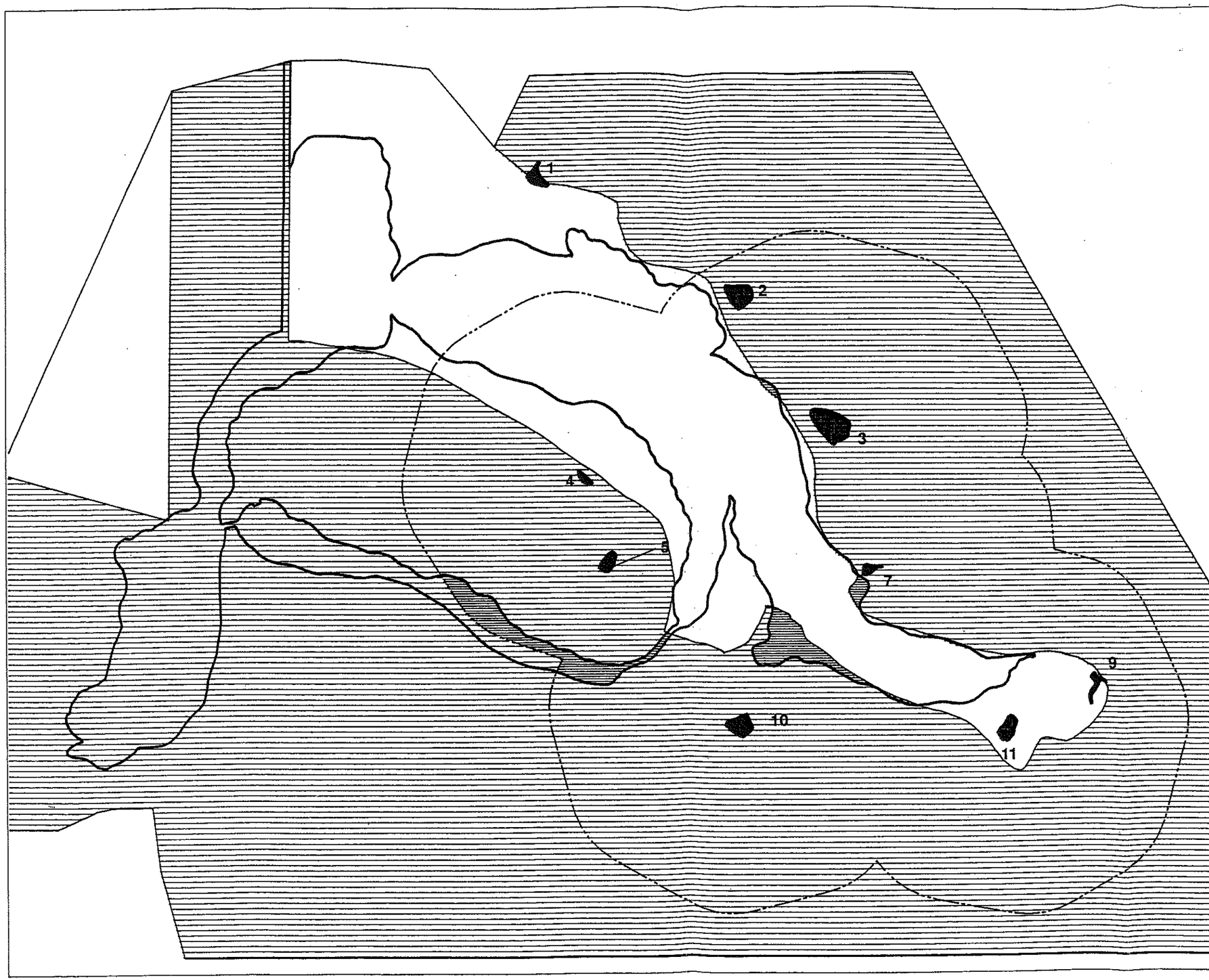

Figure 3-2. Distribution of suitable upland habitat, breeding ponds and 1/4 mile upland zones in San Juan Valley project area. Larvae were found in ponds 3, 4, 7, 10 and 11.

LEGEND

- Ponds
- Suitable habitat
- Unsuitable habitat
- Impacted habitat areas
- Proposed project area boundary
- Quarter mile upland zones

Scale 1" = 750'

Prepared by BioSystems Analysis, Inc.

and emergent and shoreline vegetation was very limited. One decadent willow was present. Western toad larvae, larvae of Pacific treefrog, and larvae and adults of California newt were present. No mosquito fish were present. California ground squirrel burrows were very abundant upslope of this pond, especially in the berms and other disturbed areas around dry pond number 5 (Figure 3-1).

- **Stock Pond #7 California tiger salamander larvae were present.** This livestock pond contained water from surface runoff and had some potential for ephemeral storage from surface runoff during very wet rainy seasons. The water was about 1 meter in depth and was very turbid (visibility approximately 3 cm). A wide margin (approximately 6 m) of bare soil surrounded the pond and no submergent, emergent or shoreline vegetation was present. Western toad larvae, larvae of Pacific treefrog, and larvae and adults of California newt were present. Mosquito fish were very abundant. About 30 percent of the terrestrial habitat within ¼ mile of the pond is unsuitable upland habitat for tiger salamanders and consists of non-native grasslands (Figure 3-2, Table 3.2). On 28 April during the second survey of the pond, about 30 tiger salamander larvae were observed floating on the surface of this pond, dead or dying. The water was extremely turbid and a mat of algae was growing over a portion of the ponds surface. The only disturbance in the area was from a herd of cattle that had just watered at the site.

- **Stock Pond #9 No tiger salamander larvae were present.** This water diversion basin is located near the base of a small drainage east of the project area and is outside of the property boundary. It has good potential for seasonal storage from runoff during an "average" rainy season. The basin is graded, has almost vertical banks, and is highly modified with riprap. One branch of the basin severely eroded this winter. Thick cattails grow in one branch of the structure. Western toad and Pacific treefrog larvae were present.

  Note: This water diversion basin is located outside of the property boundary on land not owned by Silver Creek Valley, but was considered because it is adjacent to the proposed project area. Water depth was about 2 feet in the narrow branch of the pond that contained water.

- **Stock Pond #10 California tiger salamanders were present.** This historic diversion structure contained water. The majority of the pond was at least 3 feet deep. The site is located near the base of a small drainage in the southeastern portion of the project area, just east of a larger channel draining from the south. This pond had good potential for seasonal storage from runoff during an "average" rainy season. Submergent, emergent and shoreline vegetation was absent, but several decadent willows were present. Western toad larvae, larvae of Pacific treefrog, and larvae and adults of California newt were present. This pond contained the highest relative abundance of California tiger salamander larvae of any pond surveyed. No mosquito fish were present. Suitable upland habitat within ¼ mile of the pond consists of a mixture of mixed riparian forest, oak woodland, and introduced annual grassland. Rodent burrows, downed woody debris, root masses, and rock piles are available as cover sites for salamanders within this area (Figure 3-2).

- **Stock Pond #11 California tiger salamander larvae were present.** This historic diversion structure, located near the base of a small drainage along the eastern boundary of the project area, also contained water and has good potential for seasonal storage from runoff during an

"average" rainy season. Submergent, emergent, and shoreline vegetation were absent. Several decadent willows were present. There appeared to be a lot of very fine to sandy sediment being deposited in this pond. Western toad larvae, larvae of Pacific treefrog, and larvae and adults of California newt were present. No mosquito fish were present. Upland habitat within ¼ mile of the pond is comprised of oak woodland and introduced annual grassland, with some mixed riparian forest. Because this pond is on the boundary of the property, some of the upland habitat is located offsite. Cover sites (rodent burrows) for salamanders occur along the road berm and adjacent (offsite) corrals (Figure 3-1). Downed woody debris, thick shrub cover, root masses, and rock piles also provide cover for salamanders.

The southern portion of the berm of this stock pond was washed out during the past winter. It has since been repaired and the golf course plan calls for future overflow to be directed to the existing drainage channel north of the pond, which is the historical flow of runoff in this area. This plan should improve pond conditions and maintain the integrity of the berm structure.

Table 3.2. Suitable upland habitat[1] within ¼ mile zone of ponds with California tiger salamander (#s 3, 4, 7, 10 and 11), and estimated potential impacts from habitat conversion resulting from the proposed San Juan Valley Golf Course, San Benito County, California.

POND NO.	SUITABLE UPLAND HABITAT IN ZONE (ac)	SUITABLE UPLAND HABITAT CONVERTED [2] (ac)	SUITABLE UPLAND HABITAT CONVERTED (%)
3	90.77	0.71	0.8%
4	60.69	3.38	5.6%
7	80.76	3.74	4.6%
10	108.01	5.47	5.1%
11	108.06	0.42	0.4%
Total for combined zones [3]	340.53	8.94	2.6%

1 Suitable upland habitat for the tiger salamander includes non-native grassland, mixed riparian forest, coast live oak woodland, Central Coast arroyo willow riparian forest, freshwater seep, and hayfield.

2 Suitable upland habitat converted is calculated on the quantity of habitat within ¼ mile zones of each pond without eliminating overlap of zones; there is a significant amount of overlap within the zones that results in the same acreage being counted more than once, distorting the true amount of habitat converted.

3 Total area is calculated based on the combined ¼ mile zones for all ponds eliminating overlap of zones. These values are a reasonable representation of habitat availability and evaluation of impacts from a project-wide perspective.

The amount of available cover was estimated by plotting the distribution of ground squirrel burrows around ponds where tiger salamander larvae were located (Figures 3-1 and 3-2). Only the highest concentration areas, closest to each pond were delineated. These colonies are

located around ponds, canals, drainages and roads, or sites receiving constant prolonged use by livestock such as watering areas and corrals. Although there appeared to be considerable variation in the number of actual burrows in close proximity to ponds, there did not seem to be any shortage at any of the five breeding sites (Figure 3-2). A rough estimate of the number of burrows ranges from around 500 burrows for pond number 4 to 100 for pond number 11.

The availability of upland habitat for the salamander was assessed based on vegetation/habitat type, land use practices and the amount of cover in adjacent uplands. Suitable upland habitat for tiger salamanders was considered to include six vegetation/habitat types: non-native grassland, mixed riparian forest, coast live oak woodland, central coast arroyo willow riparian forest, freshwater seep, and hayfield. Two habitat types, ruderal and developed, were considered unsuitable upland habitat for tiger salamanders. Developed areas often are subjected to severe ground disturbance during construction and no longer contain cover for salamanders. Ruderal habitat in the project area is defined by long-term, seasonally-intensive, land-use practices that preclude or severely limit suitable cover for tiger salamanders. Although rodent burrows periodically occur in ruderal habitat, they are uncommon due to ground squirrel control practices and are destroyed on a annual basis through farm management practices such as disking, planting, and irrigation. Tiger salamanders cannot successfully use these ephemeral burrows. They are susceptible to disturbance and destruction of burrows because they spend the dry season under cover and emerge only during winter rains to migrate to breeding ponds.

Migration or movement corridors in the project study area cannot be confidently identified. Almost no literature exists on what constitutes a movement corridor. Characteristics that could help define these locations include moist corridors, and areas that restrict, confine, or somehow direct movement across a landscape. There are no apparent barriers to tiger salamander movements or apparent travel corridors in the San Juan Valley project area.

4.0 POTENTIAL IMPACT ANALYSIS AND MITIGATION

In this section, we show that the potential impacts from the development, maintenance, and operation of the golf course will not have a significant impact on tiger salamander populations. The proposed project will convert a small portion of the available upland habitat. Through adoption of appropriate mitigation, the project will not contaminate or convert breeding ponds, cause deterioration of remaining upland habitat, kill salamanders, or impede salamander migration to or from breeding ponds (Table 4.1).

It should be noted that the proposed mitigation does not restrict upland areas on the property from further development. The proposed project leaves these areas undisturbed. If in the future a project is proposed that will impact either the breeding ponds or upland habitat, then at that time it should be determined what mitigation measures are appropriate, including the specific amount of acreage that might be restricted in order protect adequate suitable cover habitat.

4.1 CONVERSION OF UPLAND HABITAT

The proposed golf course will impact 8.9 acres of upland habitat within ¼ mile of the breeding ponds. The remainder of the acreage occupied by the golf course within a ¼ mile radius of each pond is not suitable upland habitat for tiger salamanders because it is intensively farmed and grazed year-round. Plowing and planting, applying herbicides and fertilizers, cutting and/or thrashing of the crop, repeatedly destroys burrows and other cover, making these areas unavailable to over-summering tiger salamanders.

The 8.9 acres of impacted habitat represents 2.6 percent of the available upland habitat within ¼ mile of breeding ponds (Figure 3-2). Over 340 acres of suitable upland habitat will remain undisturbed. Available cover within ¼ miles of each pond will not be significantly impacted. There are abundant rodent burrows and other cover for tiger salamanders within ¼ mile of each of the breeding ponds (Figure 3-1). The 8.9 acres of impacted habitat do not contain significant concentrations of ground squirrels (Figures 3-1 and 3-2).

Because the habitat to be impacted constitutes only a small portion of the available upland habitat and does not notably decrease available cover within the habitat, we conclude that the conversion of 8.9 acres of upland habitat to golf course use will not significantly impact tiger salamander populations in the area.

Because of the insignificant amount of upland habitat to be converted to golf course use by the proposed project, no mitigation is required. However, to compensate for upland habitat conversion (8.9 acres), we propose to improve the quality of breeding habitat of pond 11. The southern portion of the berm of this stock pond was washed out during the past winter. The golf course plan calls for future overflow to be directed to the existing drainage channel north of the pond, which is the historical flow of runoff in this area. This plan should maintain the integrity of the berm structure and insure the availability of this breeding site for tiger salamanders.

Table 4.1. Level of impact and proposed mitigation for the San Juan golf course project.

TYPE OF POTENTIAL IMPACT	DESCRIPTION OF POTENTIAL IMPACT	MITIGATION	AMOUNT OF IMPACT
Conversion of Upland Habitat	Only 8.9 acres (2.6%) of available upland habitat within ¼ mile of all ponds will be impacted. 340 acres of upland habitat will be left undisturbed.	None directly needed for upland habitat. In exchange for the conversion of 8.9 acres, improve quality of breeding pond 11 by stabilizing berm and diverting runoff into pre-existing channel.	Less than significant
Deterioration of Upland Habitat	Significant changes in ground squirrel control practices could decrease ground squirrel abundance, decreasing the available cover for salamanders.	No additional ground squirrel control program will be implemented in suitable upland habitat within ¼ mile zones of existing breeding ponds.	None with mitigation
Deterioration of Breeding Habitat	No ponds will be destroyed or altered during development or maintenance of the golf course.	None	None
Deterioration of Breeding Habitat	All ponds are above the elevation of the golf course and will not receive irrigation water or other runoff from the golf course.	No pesticides, herbicides, or fertilizers will be allowed in suitable upland habitat within ¼ mile zones of existing breeding ponds, unless mandated by government authorities.	None with mitigation
Mortality of Salamanders	Terrestrial juveniles and adults may be under cover objects or in burrows at time of grading. Mowing may kill individuals during migration. Introduced predators may eat eggs, larvae, and adults.	Prior to construction, ground squirrel burrows will be excavated in the 8.9 acres of upland habitat to be impacted. No mowing during rainy nights (>0.5 in.) in November and December. No mowing at night during late April or early May. No introduction of salamander predators, such as fish and bullfrogs, will be permitted by the landowner in any of the existing breeding ponds, unless mandated by government authorities.	None with mitigation
Impedance of Salamander Migration	Fences could restrict movements and access to breeding ponds. Almost all (97.4%) of the available upland habitat within ¼ mile of existing breeding ponds will remain undisturbed. The arrangement of existing breeding ponds in combination with the network of small drainages and other topographic features will permit unobstructed movements among existing breeding ponds, and from ponds to undisturbed upland habitat.	None	None

4.2 DETERIORATION OF UPLAND HABITAT

The proposed project will not cause deterioration of upland habitat. To insure that burrows are available as cover sites for tiger salamanders, no additional ground squirrel control programs will be implemented in suitable upland habitat within ¼ mile zones of existing breeding ponds.

4.3 DETERIORATION OF BREEDING HABITAT

The proposed project will not impact breeding ponds. Because all ponds are located outside the boundaries of the proposed golf course, none of the ponds will be directly impacted by construction or disturbed by golfers while playing the course. All of the ponds, including those in which we found tiger salamander larvae, are above the elevation of the golf course, and will not receive irrigation water or other run-off from the proposed golf course. To insure that run-off from hillsides will remain uncontaminated, pesticides, herbicides, or fertilizers will not be allowed in suitable upland habitat within ¼ mile zones of existing breeding ponds, unless mandated by government authorities.

4.4 MORTALITY OF SALAMANDERS

The proposed project will not increase mortality of terrestrial tiger salamanders. Access roads for the facility are located at the far northwest end of the project area, at least ½ mile west of any breeding pond and no adverse impact is anticipated. To insure that terrestrial juvenile and adult salamanders are not killed in burrows or under cover objects during golf course construction, all ground squirrel burrows in the 8.9 acres of impacted upland habitat will be hand-excavated prior to construction. To prevent salamanders from being killed by maintenance vehicles during migration to and from breeding ponds, mowing and other maintenance operations will not be conducted at night during or following a rainstorm that results in at least ½ inch of rain or at night during the last two weeks of April and the first two weeks of May. No known tiger salamander predators, such as bullfrogs and fish, will be permitted by the landowner in any of the existing breeding ponds, unless mandated by government authorities.

4.5 IMPEDANCE OF TERRESTRIAL SALAMANDERS DURING MIGRATION

The proposed project will permit unobstructed movements among existing breeding ponds and from ponds to undisturbed upland habitat. No barriers to tiger salamander movement or travel corridors were identified in the project area. Almost all (97.4%) of the available upland habitat within ¼ mile of existing breeding ponds will remain undisturbed. Furthermore, the arrangement of breeding ponds in combination with the network of small drainages and other topographic features will permit unobstructed movements among existing breeding ponds and from ponds to undisturbed upland habitat.

4.6 CONCLUSIONS

We conclude that the project will not have a significant impact on tiger salamander populations. Adoption of specific mitigation measures will insure that impacts to salamander populations are further minimized.

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SAN JUAN VALLEY GOLF COURSE
SANTA BENITO COUNTY, CALIFORNIA
IDENTIFICATION OF WATERS
OF THE UNITED STATES

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Project No. 800-02

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EXECUTIVE SUMMARY

H. T. Harvey and Associates surveyed the San Juan Valley Golf Course project site for areas which met the regulatory definition of Waters of the United States (jurisdictional waters). Development in areas identified as jurisdictional waters is subject to the permit requirements of the U.S. Army Corps of Engineers (USACE), under Section 404 of the Clean Water Act (1972). The purpose of these studies was to identify areas meeting the regulatory definition of jurisdictional waters, including wetlands, to delineate their boundaries using methods acceptable to the USACE, to prepare this technical report of findings and to have this delineation verified by representatives of the USACE.

Areas meeting the regulatory definition of jurisdictional waters under Section 404 of the Clean Water Act were identified within the study area. These areas included 0.56 acres of wetlands and 19,950 linear feet of seasonal drainage channels. The remainder of the site did not meet the regulatory definition of a jurisdictional water.

Proposed development plans at San Juan Valley Golf Course include construction of an 18-hole golf course, clubhouse, driving range, parking lot and access road. The golf course design emphasizes and maintains the natural features and topography of the site. The wetlands (0.56 acres) and majority of the seasonal drainage channels will not be impacted by the golf course project. Improvements include extension of three seasonal drainage channels to re-establish their approximate historic locations. In addition, a bridge is proposed to be constructed across one of the seasonal drainage channels for the entry roadway to the golf course.

INTRODUCTION

PROJECT AREA DESCRIPTION

H. T. Harvey surveyed approximately 250 acres including and surrounding the San Juan Valley Golf Course project site located at the north end of San Benito County, California (Fig. 1). Our survey included the entrance road to the proposed golf course (off Union Road), the well site for the golf course, and the proposed golf course project area. The site is situated within the foothills of the Gabilan Range of the coastal mountains and is adjacent to the southeastern end of the San Juan Valley. It is 3.0 miles southwest of the City of Hollister and is approximately 1.0 mile south of the intersection of Highway 156 and Union Road. The study area is on the U.S. Geological Survey Quadrangle, Hollister, California (Township 13, south; Range 5, east).

The topography of the property is characterized as gently rolling hills with a single broad valley. The elevation of the site varies from approximately 296 ft., national geodetic vertical datum (NGVD), in the northwest corner to 502 ft. NGVD in the central part of the site. The property is currently used for livestock grazing. Two dwelling sites exist on the study area.

The average annual rainfall for the Hollister area, the closest reporting weather station, is approximately 13.3 inches per year (Soil Conservation Service "SCS" 1969). The majority of this rainfall occurs between the months of October and April. During the rainfall season of 1992-1993 this portion of central California received approximately 150% of normal precipitation. Stormwater runoff occurs within the seasonal drainage channels on an ephemeral or intermittent basis during late winter and early spring. These channels are generally dry by late spring to early summer. Excess rainfall drains off the property via sheet flow and within the channels from southeast to northwest eventually entering the San Benito River. Mean maximum summer temperatures are usually between 79-83 degrees-Fahrenheit with several days in excess of 100 degrees-Fahrenheit. Mean minimum winter temperatures are between 37-44 degrees-Fahrenheit.

Seven soil types underlie the project site (Fig. 2). These soil phases include Clear Lake clay, Diablo clay, 9 to 15 % slopes, Diablo clay, 15 to 30% slopes, Salinas clay loam, 0 to 2% slopes, Salinas clay loam, 2 to 9% slopes, San Benito clay loam, 15 to 30% slopes, eroded and San Benito clay loam 30 to 50% slopes, eroded (SCS 1969).

PROJECT DESCRIPTION

Proposed development plans include construction of an 18-hole golf course on site. The proposed golf course will emphasize the natural terrain. This golf course would be accessed from a private road located off Union Rd. A clubhouse, parking lot and driving range would be located in the northwest corner of the site.

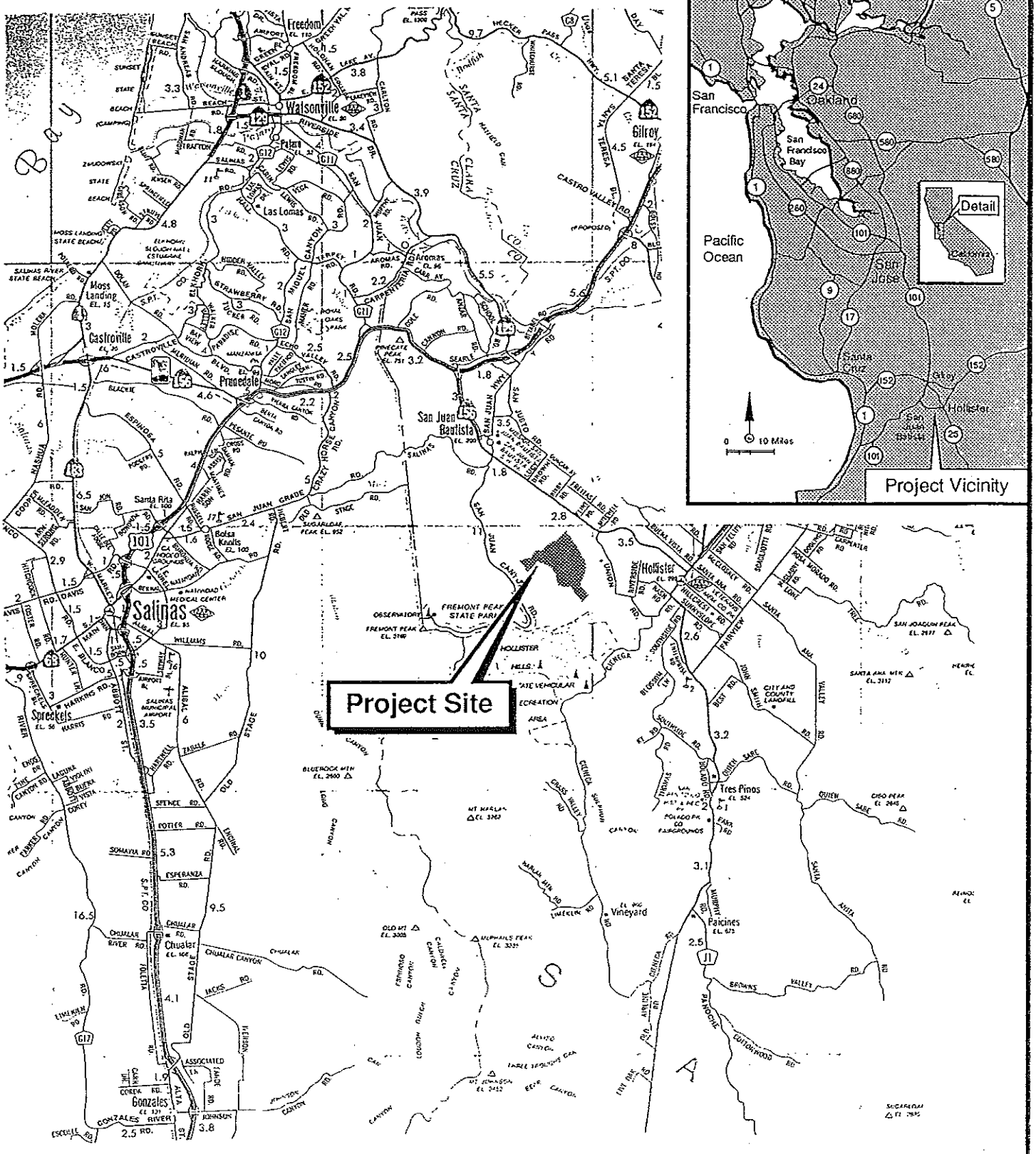
PURPOSE

H. T. Harvey and Associates surveyed the project site for areas which met the regulatory definition of Waters of the United States (jurisdictional waters). Development in areas identified as jurisdictional waters is subject to the permit requirements of the U.S. Army Corps of Engineers (USACE), under Section 404 of the Clean Water Act (1972). The purpose of these studies was to identify jurisdictional waters, including wetlands, to delineate their boundaries, to prepare this technical report of findings and to have the delineation verified by representatives of the USACE.

REGULATIONS OVERVIEW/DEFINITIONS

Areas meeting the regulatory definition of Waters of the United States are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). The USACE under provisions of Section 404 of the Clean Water Act (1972), has jurisdiction over "Waters of the United States" (jurisdictional waters). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, seasonal drainage channels, etc.), all impoundments of waters otherwise defined as "Waters of the U. S.", tributaries of waters otherwise defined as "Waters of the U. S.", the territorial seas, and wetlands adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions (51 Fed. Reg. 41, 217 1986).



SCALE

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San Juan Valley Golf Course: Site Map

File No.	800-02	Date	10/8/93	Figure	1

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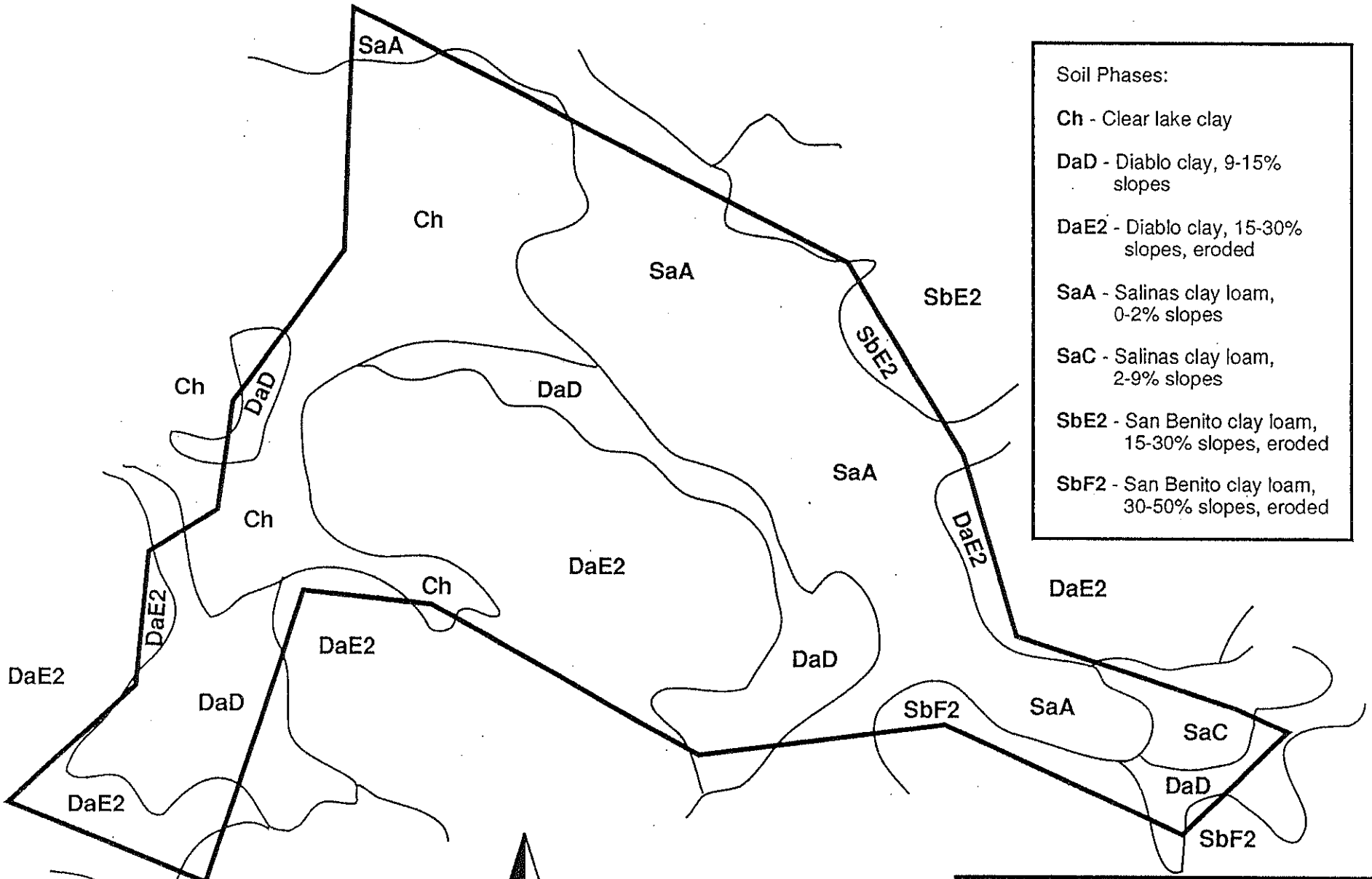

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San Juan Valley Golf Course: Soils Map

File No.	800-02	Date	11/2/93	Figure	2

SURVEY METHODS

Reconnaissance-level surveys were conducted on 12 July 1993 for areas meeting the regulatory definition of jurisdictional waters on the San Juan Valley Golf Course. Potential jurisdictional waters identified during this initial survey included wetlands and seasonal drainage channels. Additional surveys were conducted at an enhanced-level of effort on 7 October 1993 and 5 November 1993 to identify jurisdictional waters. Surveys methodologies are described below.

Topographic maps and aerial photographs of the study area were obtained from several sources and were reviewed prior to field surveys. These sources included U.S. Geological Survey Quadrangle maps for Hollister, CA (1971), aerial photographs contained in *Soil Surveys of San Benito County* (SCS 1969), U.S. Fish and Wildlife Service *National Wetland Inventory Map* and relatively recent (1992) aerial photograph and topographic map (Fig. 3, oversize) provided by the project proponent.

IDENTIFICATION OF JURISDICTIONAL WETLANDS (SPECIAL AQUATIC SITES)

Surveys were conducted within the project boundaries for areas which met the technical criteria of jurisdictional wetlands. The vegetation, soils, and hydrology of the site were examined following the guidelines outlined in the "Routine Determination Method" in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987).

The property was examined for topographic features, drainages, alterations to site hydrology and areas of significant recent disturbance. The site was hiked in a pattern which allowed visual observation of the entire study area. A determination was then made as to whether normal environmental conditions were present at the time of the field surveys. Vegetation, soils and hydrology were used to document which portions of the site were wetlands.

Vegetation. Plants observed at each of the sample sites were identified to species using standard floras appropriate for central California, wherever necessary. Such floras included *A California Flora and Supplement* (Munz and Keck 1973), *A Flora of the Marshes of California* (Mason 1969), *Manual of the Grasses of the United States* (Hitchcock 1971), and *Weeds of California* (Robbins, et al. 1970). The wetland indicator status of each species was obtained from the 1987 Wetland Plant List, California (Reed 1988). The names of plants

were generally not taken from *The Jepson Manual* (Hickman 1993) as these names are not totally consistent with scientific names used in the *1988 Wetland Plant List, California* (Reed 1988) and the *National List of Scientific Plant Names* (Smithsonian Inst. 1982). A list of species for each observation area was then compiled and an assessment of the dominant species made (Appendix C). It was then determined which of the observation areas supported wetland vegetation.

Wetland indicator species are so designated according to their frequency of occurrence in wetlands. For instance, a species with a presumed frequency of occurrence of 67% to 99% in wetlands is designated a facultative wetland indicator species. The wetland indicator category, category symbol and frequency of occurrence of species within each category are as follows:

INDICATOR CATEGORY	SYMBOL	FREQUENCY OF OCCURRENCE
OBLIGATE	OBL	greater than 99%
FACULTATIVE WETLAND	FACW	67% - 99%
FACULTATIVE	FAC	34% - 66%
FACULTATIVE UPLAND	FACU	1% - 33%
UPLAND	UPL	less than 1%

Obligate and facultative wetland indicator species are hydrophytes that occur "in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). Facultative indicator species may be considered wetland indicator species when found growing in hydric soils that experience periodic saturation. A complete list of the vascular plants of the project site, and their current indicator status has been provided in Appendix A.

Soils. Where possible, the top 22 inches of the soil profile was examined for hydric characteristics. Such characteristics include the presence of organic soils (Histisols), histic epipedons, aquic or peraquic moisture regime, presence of soil on hydric soil list, mottling indicated by the presence of gleyed or bright spots of colors (in the former case, blue grays; in the latter case, orange red, or red brown) within the soil horizons observed. Mottling of soils usually indicates poor aeration and lack of good drainage. Munsell Soil Notations (Munsell Soil Color Charts, Kollmorgen Instr. Corp. 1990) were recorded for the soil matrix for each soil sample. The last digit of the Munsell Soil Notation refers to the chroma of the sample. This notation consists of numbers beginning with 0 for neutral grays and increasing at equal intervals to a maximum of about 20. Chroma values of the soil matrix which are one (1) or less, or of two (2) or less when mottling is present, are typical of soils which have developed under anaerobic conditions.

In sandy soils, such as alluvial deposits in the bottom of drainage channels, hydric soil indicators include high organic matter content in the surface horizon and streaking of subsurface horizons by organic matter. All soil colors indicated in this report were taken under clear, sunny skies using moistened soil samples.

The soil survey, *Soil Survey of San Benito County, California* (Soil Conservation Service 1969) was consulted in order to determine which soil types have been mapped on the project site. Descriptions of soil mapping units and the list of hydric soils in San Benito County are included in Appendix B. A soils map of the project site is presented in figure 2.

Hydrology. Each of the sample sites was examined for positive field indicators of wetland hydrology. Such indicators might include visual observation of inundation and/or soil saturation, water marks, drift lines, water-borne sediment deposits, water-stained leaves, and drainage patterns within wetlands.

IDENTIFICATION OF SEASONAL DRAINAGE CHANNELS

Seasonal Drainage Channels. Seasonal drainage channels and their impoundments are generally under the regulatory jurisdiction of the USACE and extend to the ordinary high water (OHW) mark on opposing channel banks and pond banks. The OHW mark is typically indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in character of soil, destruction of vegetation, exposed roots on the bank, deposition of leaf litter and other debris materials or lower limit of moss growth on channel banks.

The width of seasonal drainage channels at the ordinary high water marks on opposing channel banks was measured approximately every 125 feet within channels on site. Information obtained in the field was drawn directly onto a blue-line topographic map of the property (1 in.: 200 ft.). A black and white aerial photograph (27 March 1992; 1 in.: 200 ft.) was used during field surveys.

SURVEY RESULTS

Areas meeting the regulatory definition of jurisdictional waters under Section 404 of the Clean Water Act were identified within the study area. These areas occupied approximately 5.74 acres of the study area (Fig. 3; oversize). Four discrete areas totaling 0.56 acres in size met the technical criteria of jurisdictional wetlands. The remaining 5.18 acres of jurisdictional waters were seasonal drainage channels (19,950 linear ft.). The remainder of the site did not meet the regulatory definition of a jurisdictional water, under Section 404 of the Clean Water Act.

AREAS MEETING THE REGULATORY DEFINITION OF JURISDICTIONAL WATERS

Identification of Jurisdictional Wetlands (Special Aquatic Sites)

Areas meeting the technical criteria of jurisdictional wetlands were observed at four locations within the study area. Wetlands are shown in figure 3 (oversize). Field characteristics of hydrophytic vegetation, hydric soils and wetland hydrology were obtained at sample location numbers 1, 4, 7 and 12 (Appendix C). These sites were located near the confluence of channels A1, A2 and A3, and within the seasonal stockpond (Fig. 3, oversize).

Wetland located at sample location number 1. The first area (0.16 acres), located at sample location number 1 was dominated by Baltic rush (*Juncus balticus*; OBL), yerba mansa (*Anemopsis californica*; OBL) and Bermuda grass (*Cynodon dactylon*; FAC). A freshwater spring which supplies water for the wetland has been used for stock watering for numerous years. A spring box was installed below ground within the wetland area. Water from the spring box is funneled through a pipe placed under ground to a trough situated downhill. The livestock trough is used for stock watering. Overflow from this trough enters channel A1 near its confluence with A2 and A3.

Potential wetland located at sample location number 4. The second potential wetland (0.08 acres), located at sample location number 4, occurs within the drainage channel including portions of A1, A2 and A3 (Fig. 3, oversize). Hydrophytes within the channel included rabbitfoot grass (*Polypogon monspeliensis*; FACW+), annual ryegrass (*Lolium multiflorum*; FAC) and arroyo willow (*Salix lasiolepis*; FACW).

Wetland located at sample location number 7. The third wetland (0.02 acres) was located within a separate drainage midway along channel A3 (Fig. 3, oversize) at sample location number 7. It was dominated by yerba mansa (OBL).

Hydrologic characteristics within wetlands included sediment deposits, drainage patterns within wetlands and visual observation of inundation for a minimum of four weeks. At the time of the survey (Oct-Nov) soil samples taken from the soil test pit were moist in the two wetland areas situated above the channel bottom (sample location number 1 and 7; Fig. 3). The soils from within these areas appear to remain saturated within a major portion of the root zone for greater than 14 days during the growing season. The wetland, located within the seasonal drainage channel (sample location number 4), was inundated with running water between 10 and 18 inches deep.

Hydric soil characteristics included soils of low chroma (10 YR 2/2), and presence of mottles and oxidized root channels (5 YR 5/8). In those areas where soils were inundated an aquic moisture regime was assumed to be present.

Wetland located at sample location number 12. A single hydrophytic plant, spiny cocklebur (*Xanthium spinosum*; FAC+), dominated the bottom of the seasonal stockpond (sample location number 12; Fig. 3, oversize). Based upon anecdotal information, this pond remains filled with water during the rainy season and early summer months. This basin was excavated years ago to be utilized as a stock watering pond and continues to be used for the purpose of providing water to cattle on the property. As the pond soil dries during the summer the bottom becomes dominated by spiny cocklebur. This species is a highly invasive weed which flowers from July through October. This seasonal stockpond has been identified on the U.S. Fish and Wildlife Services' *National Wetland Inventory Map* for Hollister as a palustrine, open water, saturated/semipermanent/seasonals waterbody (Fig. 4). The total size of this seasonal pond is approximately 0.3 acres.

Hydric soil characteristics included soils of low chroma (7.5 YR 3/2 and 7.5 YR 4/2), and presence of mottles and oxidized root channels (5 YR 5/8). In those areas where soils were saturated to the surface an aquic moisture regime was assumed to be present.

Three other depressions identified on the USFWS NWI map (Fig. 4) within the project boundaries were artificially-maintained water bodies used for stock watering. As part of overall livestock management for the property, two of these stockponds located in the area of seasonal drainage channel E1 (see Fig. 3, oversize) were removed. The third stockpond

is situated on top of a relatively small hill on site (Fig. 3, oversize). At one time water from an underground well was pumped up to this depression to allow it function as a stockpond; it is no longer maintained in that capacity.

Several stock ponds occur directly adjacent to, but outside of, the current project boundaries. These ponds are currently used for livestock watering (Fig. 3, oversize).

Identification of Seasonal Drainage Channels.

Seasonal Drainage Channels. Nine seasonal drainage channels occur within the study area (Fig. 3, oversize). The channels possessed clear physical characteristics of an ordinary high water mark (OHW) and did not support hydrophytic vegetation. The bottom of the channels generally comprised a mixture of alluvial deposits including sands, gravels and stones. The banks of the channels had exposed sandstone walls in many locations which was indicative of active erosion by water. Several of the seasonal drainage channels on site have been identified on the U.S. Fish and Wildlife Services' *National Wetland Inventory Map* for Hollister (1974) as riverine, intermittent, streambed, intermittently flooded/temporary (Fig. 4).

The length and width of the channels were measured in the field. Dimensions are as follows:

Channel	Length ft.	Average Width ft.	Area sq.ft.
A1 (south border to A2)	1800	6.1	10,952
A1 (A2 to A5)	1250	6.5	8087
A1 (A5 to north border)	1100	11.2	12,326
A2	1840	4.8	8,850
A3	860	6.4	5504
A4	240	1	240
A5	2600	8.1	20,944
B1	8400	14.0	117,702
C1	1200	26.5	31,764
D1	160	50	8000
E1	500	2.2	1,084
TOTAL	19,950		225,453

In several locations within the seasonal drainage channels arroyo willow, a FACW species, and black locust (*Robinia pseudoacacia*; FAC) occurred within the bed and bank of the seasonal drainage channels. These trees generally occurred as individuals or in scattered stands (in seasonal drainage channels A1 and B1). These species are phreatophytes capable of utilizing ground water at considerable depths from the ground surface. In these areas, herbaceous vegetation cover within the channels was extremely sparse. Duration of

inundation and/or saturation was not assessed in these channels, however, judging from the lack of herbaceous hydrophytic vegetation inundation/saturation is infrequent and relatively short-lived. Such areas are not special aquatic sites (wetlands). Overall, the quality of these channels is extremely low. Vegetation on the banks generally include non-native annual grasses and forbs. The channel bottoms are primarily devoid of vegetation. These areas have been over-grazed by livestock for many years.

Table 1. Summary of jurisdictional waters on the San Juan Valley Golf Course site.

WETLANDS		
	Sample location number 1	0.16 acres
	Sample location number 4	0.08 acres
	Sample location number 7	0.02 acres
	Sample location number 12	0.3 acres
	Total	0.56 acres
SEASONAL DRAINAGE CHANNELS		19,950 linear ft. (5.18 acres)

AREAS NOT MEETING THE REGULATORY DEFINITION OF JURISDICTIONAL WATERS

The majority of the study area did not contain hydrophytic vegetation, hydric soils nor wetland hydrology. Field data was collected at sample location numbers 2, 3, 5, 6, 8, 9, 10, 11, 14 and 15 (Fig. 3, oversize).

Upland plant communities dominated the remainder of the study area and included non-native annual grasslands and oak savannah. The annual grasslands was dominated by a mixture of non-native annual grasses and forbs including hairy wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus mollis*), farmer's foxtail (*Hordeum*

leporinum), black mustard (*Brassica nigra*), rush-leaved tarweed (*Hemizonia luzulaefolia*) and turkey mullein (*Eremocarpus setigerus*).

Scattered oaks occur with non-native annual grasses and forbs on upper slopes and in drainages of the site forming an oak savannah. Coast live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*) are the predominant tree species of this habitat. Other woody plants common in this community included Mexican elderberry (*Sambucus mexicana*), poison oak (*Toxicodendron diversilobum*), arroyo willow and snowberry (*Symphoricarpos rivularis*).

Upland plants observed at the sample locations included soft chess (FACU-), hairy wild oat (UPL), ripgut grass (UPL), rush-leaved tarweed (UPL), black mustard (UPL) and turkey mullein (UPL).

Field characteristics of wetland hydrology were entirely absent from these sample locations.

Soil colors were generally of low chroma (10 YR 2/2 and 10 YR 3/3), however, mottling and oxidized root channels were not observed. The entire site is composed of relatively dense clay soils.

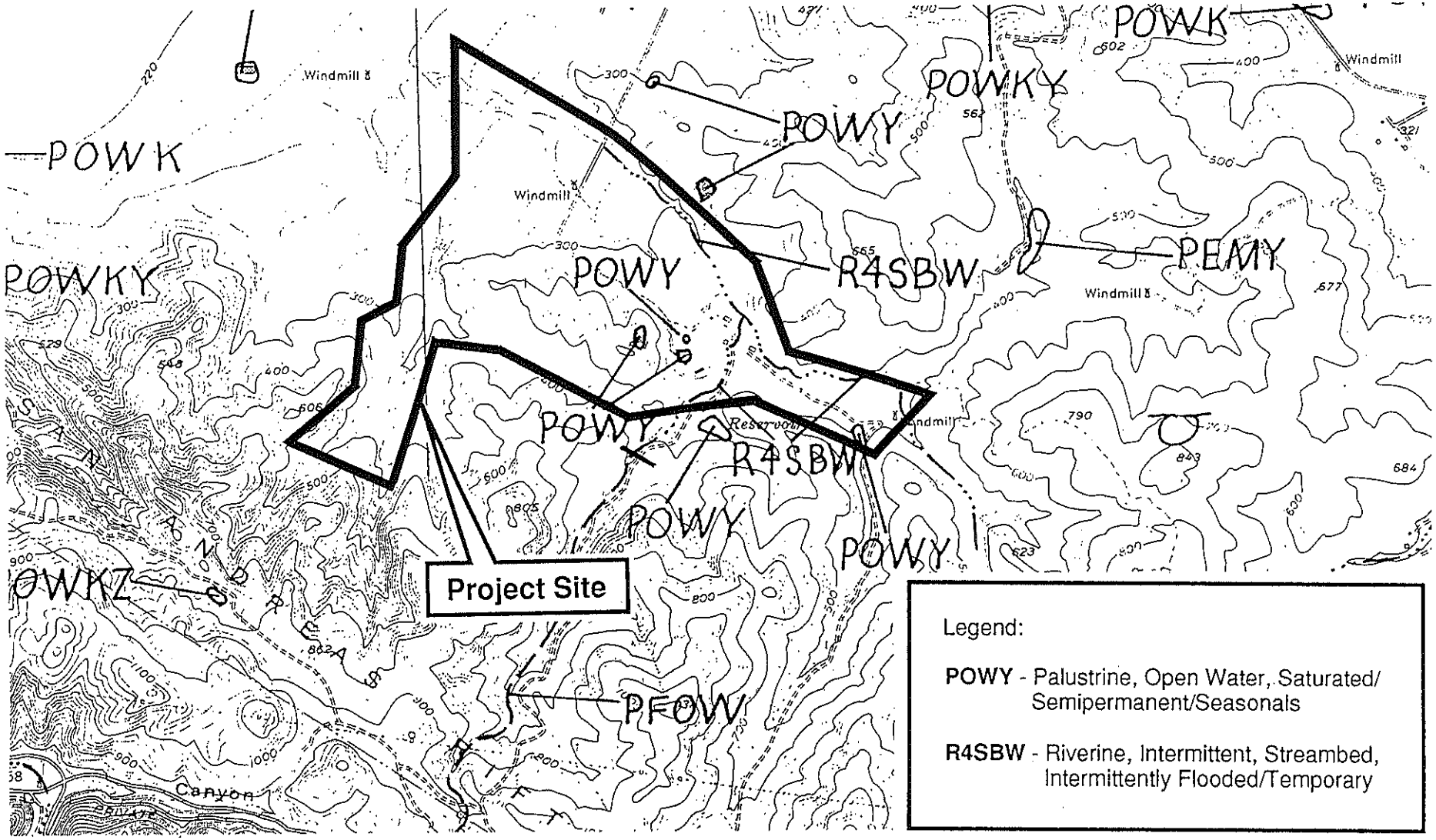
LAND USE HISTORY

The configuration of three seasonal drainage channels on site (B1, C1 and D1) were modified during the late 1960's or early 1970's. The original configurations can be observed on aerial photographs contained in the *Soil Survey of San Benito County* (SCS 1969). The aerial photographs of San Benito County were apparently prepared during flights in 1966 (Bruce Eisenman, SCS, Hollister Office). Topographic maps prepared by the U.S. Geological Survey (Hollister Quad) also reveal these drainages in their historic positions. Site aerial photography for these maps were originally taken in 1955; they were photo-revised in 1971. The current positioning of these drainages are shown on the National Wetland Inventory Map of the area which utilizes photographic information prepared in March 1973 (Fig. 4).

Telephone interviews conducted with past owners and lessors of the property has revealed that from the early-1970's until 1988 when Silver Creek Valley, the current owners of the site, purchased the land the property was leased by the Casillas Brothers from the previous owner, Mr. Nutting. The Casillas Brothers used the property primarily for livestock graz-

ing. Manual Casillas indicated that the current position of the seasonal drainages had been in place when they began leasing the property sometime in the early 1970's. A more definitive date for the drainage modifications was not possible as the original owner of the property during the 1960's and 1970's, and all known family members, are deceased.

In the area of seasonal drainage channel E1 two artificially-maintained stockponds were previously removed as part of overall livestock management practices on the property.



Scale:

0 1000 2000 3000 4000 ft.

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San Juan Valley Golf Course: National Wetland Inventory Map

File No. 800-02	Date 11/10/93	Figure 4

H. T. HARVEY & ASSOCIATES

DISCUSSION

The majority of the approximately 250 acre study area did not meet the regulatory definition of jurisdictional waters. Areas meeting the regulatory definition of jurisdictional waters located within the project boundaries included 0.56 acres of wetlands and 19,950 linear feet of seasonal drainage channels.

Proposed development plans at San Juan Valley Golf Course include construction of an 18-hole golf course, clubhouse, driving range, parking lot and access road. The golf course design emphasizes and maintains the natural features and topography of the site. The golf course layout avoids impacting the 0.56 acres of wetlands on the site and the seasonal drainage channels are integrated into the golf course design so that impacts to them will be minimal.

The golf course has been specifically designed to avoid all wetlands on site. The spring and wetlands, located at sample location numbers 1 and 7, will be fenced off and avoided during construction. No improvements are planned in these areas. Similarly, the wetland located within seasonal drainage channel A (sample location number 4) will not be impacted.

Golf cart paths will cross the seasonal drainage channels on site in several locations. In some locations, existing culvert crossings will be utilized. Where existing crossings do not exist or cannot be utilized, single span bridges will extend from top-of-bank to top-of-bank on opposing channel banks with no supporting structures placed within the channel thus avoiding any impacts to jurisdictional waters.

The golf course plans include extending and re-establishing the approximate historic location of three seasonal drainage channels which were altered over 20 years ago as part of the ranch operation at that time (B1, C1 and D1). Proposed improvements include extending seasonal drainage channel C1 across the broad valley, situated along the northern boundary of the property, to seasonal drainage channel B1 (Fig. 3, oversize). The proposed reconnection of these two drainages will occur without the placement of bank stabilization materials (sacked concrete, riprap etc.) or outfall structures within the existing channels.

The second proposed extension for a seasonal drainage channel includes diverting the overflow from the seasonal stockpond, located at sample location number 12, which is fed

by seasonal drainage channel D1, to seasonal drainage channel B1, thus, re-establishing their historic correction.

A section of seasonal drainage channel B1 is proposed to be re-directed out of its current channel, situated along the northern boundary of the project site, to its approximate historic location.

The only proposed fill to be placed within jurisdictional waters is a relatively minor portion (60 linear ft.) of seasonal drainage channel B1. The entrance road for the golf course is proposed to extend from Union Rd. into the northwest corner of the San Juan Valley Golf Course (Fig. 3, oversize). At the entrance road crossing of seasonal drainage channel B1 the channel banks will be stabilized to provide structural support for a bridge, or a culvert crossing will be installed. In either case, the total area of fill involved is approximately 600 sq.ft. (= 0.013 acres).

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APPENDIX A
PLANTS OF THE SAN JUAN VALLEY GOLF COURSE PROJECT SITE

Appendix A. Plants observed on San Juan Valley Golf Course.

FAMILY NAME	SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS
ANACARDIACEAE	*Toxicodendron diversilobum*	poison oak	UPL
ASCLEPIADACEAE	*Asclepias californica*	California milkweed	FAC
ASTERACEAE	*Artemisia californica*	California sagebrush	UPL
	Artemisia douglasiana	California mugwort	FACW
	Baccharis viminea	mulefat	FACW
	Baccharis pilularis		
	ssp. consanguinea	coyote brush	UPL
	Carduus pycnocephalus	Italian thistle	UPL
	Centaurea solstitialis	yellow star–thistle	UPL
	Chysopsis oregona	Oregon yellow aster	FACW?
	Gnaphalium sp.	everlasting	–
	Hemizonia luzulaefolia	rush–leaved tarweed	UPL
	Lactuca serriola	prickly lettuce	FAC
	Picris echioides	bristly ox–tongue	FAC
	Silybum marianum	milk thistle	UPL
	Sonchus asper	spiny sow thistle	FAC
	Sonchus oleraceus	common sow–thistle	NI
	Xanthium spinosum	spiny cocklebur	FAC+
	Xanthium strumarium	cocklebur	FAC+
BORAGINACEAE	*Heliotropium curassavicum*		
	ssp. oculatum	seaside heliotrope	OBL
BRASSICACEAE	*Brassica nigra*	black mustard	UPL
	Raphanus sativus	wild radish	UPL
	Rorripia nasturtium–aquaticum	watercress	OBL
CAPRIFOLIACEAE	*Sambucus mexicana*	Mexican elder	FAC
	Symphoricarpus rivularis	snowberry	FACU
CONVOLVULACEAE	*Convolvulus arvensis*	field bindweed	UPL
EUPHORBIACEAE	*Eremocarpus setigerus*	turkey mullein	UPL
FABACEAE	*Lotus corniculatus*	birdsfoot trefoil	FAC
	Medicago polymorpha	bur clover	UPL
	Robinia pseudoacacia	black locust	FAC
FAGACEAE	*Quercus lobata*	valley oak	FAC
	Quercus agrifolia	coast live oak	UPL
GERANIACEAE	*Erodium moschatum*	white–leaf filaree	UPL
	Geranium dissectum	cut–leaved geranium	UPL
JUNCACEAE	*Juncus balticus*	Baltic rush	OBL
	Juncus bufonius	toad rush	FACW+
LAMIACEAE	*Stachys sp.*	hedge–nettle	–
LEMNACEAE	*Lemna gibba*	duckweed	OBL
LYTHRACEAE	*Lythrum hyssopifolia*	hyssop loosestrife	FACW
MALVACEAE	*Malva parviflora*	cheese weed	UPL
ONAGRACEAE	*Epilobium paniculatum*	panicled willow–herb	UPL
PLANTAGINACEAE	*Plantago lanceolata*	English plantain	FAC–
PLATANACEAE	*Platanus racemosa*	California sycamore	FACW
POACEAE	*Avena barbata*	hairy wild oat	UPL
	Bromus diandrus	ripgut grass	UPL
	Bromus mollis	soft chess	FACU–

Appendix A. Continued.

POACEAE, Cont'd	*Bromus rubens*	foxtail brome grass	NI
	Crypsis schoenoides	swamp timothy	OBL
	Cynodon dactylon	Bermuda grass	FAC
	Elymus triticoides	creeping wild–rye	FAC+
	Hordeum leporinum	farmer's foxtail	NI
	Lolium multiflorum	annual ryegrass	FAC
	Polypogon monspeliensis	rabbitfoot grass	FACW+
	Vulpia myuros	rattail fescue	UPL
POLYGONACEAE	*Polygonum argyrocoleon*	silver–sheath knotweed	FAC+
	Rumex crispus	curly dock	FACW–
ROSACEAE	*Heteromeles arbutifolia*	toyon	upl
	Rosa californica	California rose	FAC
	Rubus procerus	Himalayan blackberry	FAC
SALICACEAE	*Salix laevigata*	red willow	FACW
	Salix lasiolepis	arroyo willow	FACW
SAURURACEAE	*Anemopsis californica*	yerba mansa	OBL
SCROPHULARIACEAE	*Bellardia trixago*	bellardia	UPL
SOLANACEAE	*Nicotiana glauca*	tree tobacco	FAC
	Solanum xantii	purple nightshade	FAC?
UMBELLIFERAE	*Foeniculum vulgare*	sweet fennel	FACU
URTICACEAE	*Urtica holosericea*	hoary nettle	FACW

The species are arranged alphabetically by family name for all vascular plants encountered during the plant survey. Plants are also listed alphabetically within each family. In some cases it was not possible to accurately identify a particular plant to the species level due to the absence of specific anatomic structures required for identification.

The wetland status of each species is based upon U.S. Fish and Wildlife Service wetland plant designations, and are indicated as follows:

OBL – Obligate
FACW – Facultative wetland
FAC – Facultative
FACU – Facultative upland
+/– Higher/lower end of category
NR – No review
NA – No agreement
NI – No investigation

APPENDIX B
SOILS OF THE SAN JUAN VALLEY GOLF COURSE PROJECT SITE

Issued November 1969

SOIL SURVEY
SAN BENITO COUNTY
California

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
UNIVERSITY OF CALIFORNIA
AGRICULTURAL EXPERIMENT STATION

H. T. HARVEY & ASSOCIATES

Cieneba gravelly sandy loam, 30 to 75 percent slopes, eroded (CgG2).—This soil is similar to Cieneba gravelly sandy loam, 15 to 75 percent slopes, severely eroded, but it is only moderately eroded and is 10 to 18 inches deep to weathered granite. It occupies narrow, pointed, winding ridges or very steep side slopes in areas of Sheridan soils. Slopes are dominantly 30 to 65 percent. Included with this soil are some slightly deeper soils that have slopes of 15 to 30 percent. Also included are a few small areas of limestone or marble in the mountains to the west of Cienega Road.

Available water holding capacity is 2 to 3 inches. Runoff is rapid to very rapid, and the hazard of erosion is severe to very severe.

This soil is used mostly for watershed, wildlife and recreation, but some areas provide limited grazing. Capability unit VIIe-4 (15); pasture and range site 3.

Clear Lake Series

The Clear Lake series consists of poorly drained soils that are clayey in most places and formed in alluvium that washed from sedimentary rocks. These soils are nearly level and occupy low-lying flood plains and valley bottoms. The vegetation is annual grasses and forbs. Clear Lake soils are 130 to 1,500 feet above sea level. Annual rainfall ranges from 12 to 16 inches, average annual temperature is about 60° F., and the frost-free period is about 250 days. The main associated soils are the Cropley, Pacheco, Sorrento, and Willows.

The surface layer is very dark gray to dark-gray clay or silty clay loam 24 to 40 inches thick. The next layer is light brownish-gray clay 10 to 20 inches thick. Below this is gray clay that is underlain by stratified calcareous alluvium in some places. The alluvium extends to depths greater than 5 feet. Most areas of Clear Lake soils show some degree of stratification in the underlying material. Many areas have one or more buried horizons at depths greater than 50 inches.

Clear Lake soils are used for irrigated vegetables, sugar beets, tomatoes, apricots, prunes, walnuts, and alfalfa and for dryland grain and pasture.

Clear Lake clay (0 to 2 percent slopes) (Ch).—This soil lies on valley bottoms on slopes of 1 percent or less.

Representative profile: On Vierra Ranch, 3 miles east of the junction of San Felipe Road and State Route 156; by fence in alfalfa field.

Ap—0 to 12 inches, very dark gray (2.5Y 3/0) clay, black (2.5Y 2/0) when moist; strong, fine, granular structure; very hard when dry, very firm when moist, very sticky and very plastic when wet; abundant very fine and fine roots, few medium roots; common, very fine and fine, interstitial pores; mildly alkaline; clear, smooth boundary.

A1—12 to 30 inches, dark-gray (10YR 4/1) clay, black (10YR 2/1) when moist; strong, medium, angular blocky structure; very hard when dry, very firm when moist, very sticky and very plastic when wet; plentiful very fine and fine roots; common, very fine and fine, tubular pores; many fine and medium slickensides; common, coarse, black (2.5Y 2/0) organic stainings on ped surfaces; moderately alkaline, slightly effervescent; clear, smooth boundary.

C1—30 to 40 inches, light brownish-gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) when moist; moderate, coarse, subangular blocky structure; very hard when dry, firm when moist, very sticky and very plastic when wet; many, very fine and fine, tubular pores; common, medium, very dark gray (2.5Y 3/0) organic stains on surfaces of peds and larger pores; moderately alkaline, slightly effervescent; clear, smooth boundary.

C2g—40 to 70 inches, gray (5Y 6/1) clay, gray (5Y 5/1) when moist; many, fine, distinct, light yellowish-brown (2.5Y 6/4) mottles, light olive brown (2.5Y 5/4) when moist; moderate, coarse, subangular blocky structure; very hard when dry, firm when moist, sticky and plastic when wet; many, very fine and fine, tubular pores; few, medium, very dark gray (2.5Y 3/0) organic stains on surfaces of peds and larger pores; moderately alkaline, strongly effervescent; clear, smooth boundary.

This soil is highly fertile. Available water holding capacity is about 8 to 10 inches. Permeability is slow, runoff is ponded to very slow, and the hazard of erosion is none to slight. The root zone is deep.

Most areas of this soil have been drained and are used for irrigated row crops and apricots. Dryland barley is grown in some areas. Capability unit IIs-5 (14).

Clear Lake clay, saline (0 to 2 percent slopes) (Ck).—This soil is similar to Clear Lake clay, but it contains slight to moderate amounts of salts and alkali. This soil occurs in low-lying valley bottoms. Included with this soil are some areas that have a dark-gray to dark grayish-brown heavy clay loam surface layer.

This soil is used for irrigated sugar beets and alfalfa and for dryland grain and pasture. Capability unit IIIw-5 (14); pasture and range site 11.

Clear Lake silty clay loam (0 to 2 percent slopes) (Cl).—This soil occurs in small valleys in the uplands or in small areas in the larger valleys. It has a calcareous silty clay loam surface layer and a seasonally high or continuously high water table. Included with this soil are soils that have a clay surface layer, soils that are somewhat poorly drained, and soils that have a grayish-brown surface layer.

The soil is used for dryland barley and incidental pasture. Capability unit IIIw-5 (15).

Climara Series

The Climara series consists of well-drained clayey soils underlain by serpentine or serpentinized rocks at a depth of about 3 to 4 feet. These soils are strongly sloping to steep and are on uplands. The vegetation is chiefly annual grasses and forbs, but the steeper slopes are covered by thin to moderately thick stands of oaks and Digger pines. Many eroded areas are covered with brush. Elevations range from 500 to 3,000 feet above sea level. Annual rainfall is 10 to 16 inches, average annual temperature is about 60° F., and the frost-free period is about 250 days. The main associated soils are the Vallecitos, Gazos, Henneke, and Montara.

The surface layer is gray clay 21 to 31 inches thick. The next layer is light yellowish-brown gravelly clay 7 to 12 inches thick. In most places weathered rock occurs at a depth of 28 and 43 inches.

Climara soils are used for dryland grain and pasture.

Climara clay, 9 to 15 percent slopes (CmD).—This soil occurs on rounded ridgetops within areas of steeper soils or in other small areas.

Representative profile: On Tully Ranch, 10 yards south of ranch road, three-quarter mile east of State Route 25.

This soil is used for irrigated fruits, nuts, grapes, alfalfa, sugar beets, and tomatoes and for dryland grain and incidental pasture. Capability unit IIs-5 (14).

Cropley silty clay loam, 2 to 9 percent slopes (CyC).—This soil is similar to Cropley clay, 2 to 9 percent slopes, but it has a silty clay loam surface layer. It occurs in the Bolsa Area on long slopes that are dominantly 3 to 5 percent in most places. Runoff is slow to medium, and the hazard of erosion is slight to moderate.

Included with this soil are soils that have a dark grayish-brown surface layer and soils that have a clay surface layer.

This soil is used for irrigated fruits, nuts, grapes, alfalfa, sugar beets, tomatoes, and vegetables and for incidental dryland pasture. Capability unit IIe-5 (14).

Diablo Series

The Diablo series consists of well-drained clayey soils that are underlain by calcareous soft sandstone and shale at depths greater than 30 inches. These soils are on hilly uplands and are strongly sloping to very steep. The vegetation consists of annual grasses and forbs and on the severely eroded slopes, scattered oaks and areas of brush. Elevations range from 400 to 2,000 feet. Annual rainfall is 12 to 16 inches, average annual temperature is 60° F., and the frost-free period is about 250 days. The main associated soils are the San Benito, Linne, and Soper.

In most places the surface layer is very dark gray clay 18 to 38 inches thick, but it ranges from clay to heavy clay loam (fig. 6). The next layer is dark grayish-brown to pale-olive clay 12 to 30 inches thick. Below this is stratified soft sediments or soft sandstone and shale. The depth to bedrock ranges from 30 to more than 60 inches. In some areas rock fragments, 2 to 10 inches in diameter, are interbedded between the lowest clay layer and the underlying sandstone.

These soils vary mainly in the amount of gravel and the content of lime in the profile. Because they crack deeply on drying, the upper part of the surface layer has granular structure.

The Diablo soils are used for dryland grain, chiefly barley, pasture, and range. A few small areas are irrigated and used for wine grapes.

Diablo clay, 15 to 30 percent slopes, eroded (DaE2).—This soil occurs on rounded hills and broad ridgetops.

Representative profile: On hillside to west of Cienega Road, at top of grade, 1 mile north of Bird Creek.

A11—0 to 8 inches, very dark gray (10YR 3/1) clay, black (10YR 2/1) when moist; strong, fine, granular structure; very hard when dry, very firm when moist, very sticky and very plastic when wet; abundant very fine and fine roots; many, very fine and fine, interstitial pores; moderately alkaline; gradual, smooth boundary.

A12—8 to 26 inches, very dark gray (10YR 3/1) clay, black (10YR 2/1) when moist; strong, very fine, angular blocky structure; very hard when dry, very firm when moist, very sticky and very plastic when wet; plentiful very fine and fine roots; few, very fine and fine, tubular pores; common fine slickensides; moderately alkaline, strongly effervescent; gradual, smooth boundary.

A13—26 to 38 inches, very dark gray (10YR 3/1) clay, black (10YR 2/1) when moist; common, coarse, distinct mottles of dark grayish-brown (2.5Y 4/2), very dark grayish brown (2.5Y 3/2) when moist; strong, fine, angular blocky structure; very hard when dry, very firm when moist, very sticky and very plastic when wet; plentiful very fine and fine roots; common, very fine and fine, tubular pores; roots oriented along ped surfaces; common soft masses of lime; many slickensides that are fine, medium, and coarse; moderately alkaline, strongly effervescent; gradual, smooth boundary.

C1—38 to 52 inches, dark grayish-brown (2.5Y 4/2) clay, very dark grayish brown (2.5Y 3/2) when moist; common, coarse, faint mottles of light olive brown (2.5Y 5/4), olive brown (2.5Y 4/4) when moist; strong, fine, angular blocky structure; very hard when dry, very firm when moist, very sticky and very plastic when wet; few very fine and fine roots; common, very fine and fine, tubular pores; common soft masses of lime; roots oriented along ped surfaces; many fine and medium slickensides; moderately alkaline, strongly effervescent; gradual, smooth boundary.

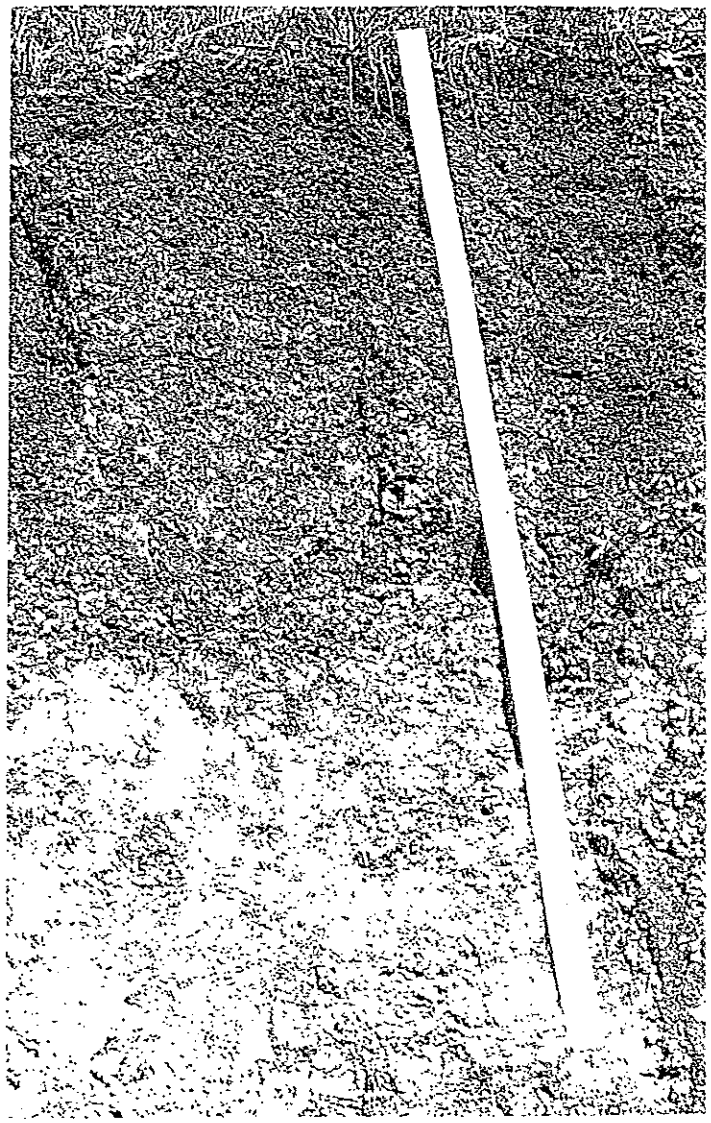

Figure 6.—**Diablo clay exposed in a road cut on Cienega Road, about 8 miles south of Hollister. A uniformly dark surface layer grades to lighter colored parent material at a depth of about 4½ feet.**

C2—52 to 68 inches, pale-olive (5Y 6/3) clay, olive (5Y 4/3) when moist; weak, fine, subangular blocky structure; hard when dry, firm when moist, very sticky and very plastic when wet; few, very fine and fine, tubular pores; common soft masses of lime and disseminated lime; moderately alkaline, strongly effervescent; gradual, smooth boundary.

R—68 inches, olive, highly weathered, calcareous, soft clay shale.

Under cultivation this soil is easily eroded and gullies form readily. Most areas are moderately eroded, but many of the steeper slopes are severely eroded, and a few areas are only slightly eroded.

Included with this soil are small areas of San Benito, Rincon, and Soper soils and of some soils that are calcareous throughout the profile. Also included are some large and many small Landslides.

This soil is highly fertile. Available water holding capacity is about 8 to 10 inches. Permeability is slow, runoff is rapid, and the hazard of erosion is severe. The root zone is deep to very deep.

The soil is used for dryland grain and pasture. Capability unit IVe-5 (15); pasture and range site 1.

Diablo clay, 9 to 15 percent slopes (DaD).—This soil is similar to Diablo clay, 15 to 30 percent slopes, eroded, but it has a thicker surface layer, is less sloping, and is only slightly eroded. It lies on low rolling hills or on toe slopes where the soil is somewhat thicker than typical. In a few areas, this soil has lime in the surface layer.

This soil has available water holding capacity of 10 to 12 inches. Runoff is medium, and the hazard of erosion is moderate. The root zone is very deep.

The soil is used for dryland grain and pastures. Capability unit IIIe-5 (15); pasture and range site 1.

Diablo clay, 30 to 50 percent slopes, eroded (DaF2).—This soil is similar to Diablo clay, 15 to 30 percent slopes, eroded, but it is steeper, has a thinner profile, and ranges from very dark gray to gray in the surface layer. This steep soil occurs in areas that are generally moderately steep and in more rugged areas that have narrow, winding ridgetops. Slopes are dominantly 45 to 50 percent. This soil is moderately eroded. Landslides are common, and the underlying material has been exposed by erosion in some areas, especially along drainageways and in areas of repeated slipping.

Included with this soil are small and large Landslides, some severely eroded areas, and Gullied land. Also included are small areas of San Benito soils.

Available water holding capacity is 6 to 8 inches. Runoff is rapid, and the hazard of erosion is severe. The root zone is moderately deep to deep.

This soil is used for dryland pasture and grain. Capability unit VIe-5 (15); pasture and range site 1.

Diablo clay, 50 to 75 percent slopes, severely eroded (DaG3).—This soil is similar to Diablo clay, 15 to 30 percent slopes, eroded, but it is steeper, has a thinner profile, and is severely eroded. Where the subsoil has been exposed by erosion, the color of the surface layer ranges from dark gray and grayish brown to yellowish brown. This soil occurs on hills where slopes are dominantly 60 percent. Rills and gullies are common.

Available water holding capacity is 4 to 6 inches. Runoff is very rapid, and the hazard of erosion is very severe. The root zone is moderately deep.

Range is the main use of this soil. Capability unit VIIe-5 (15); pasture and range site 1.

Diablo-Linne complex, 9 to 15 percent slopes (DlD).—This mapping unit is 60 percent Diablo clay, 9 to 15 percent slopes, and 40 percent Linne clay loam, 9 to 15 percent slopes. These soils occur on broad ridges that have strongly sloping side slopes. The Diablo soils generally occupy the gentle slopes, most of the north-facing slopes, and the saddles and drainageways. On these soils runoff is medium, and the hazard of erosion is moderate.

These soils are used mainly for pasture, but a few areas are in dryland grain. Capability unit IIIe-5 (15); pasture and range site 1.

Diablo-Linne complex, 15 to 30 percent slopes, eroded (DlE2).—This mapping unit generally is 50 percent Diablo clay, 15 to 30 percent slopes, eroded, and 50 percent Linne clay loam, 15 to 30 percent slopes, eroded. These soils occur on ridgetops or as areas of moderately steep soils. The Diablo soils generally occur on the more gentle slopes, the north-facing slopes, and around drainageways. Runoff is medium to rapid, and the hazard of erosion is moderate to severe.

Included in this complex are a few small Landslides and some severely eroded areas.

Pasture is the main use. Capability unit IVe-5 (15); pasture and range site 1.

Diablo-Linne complex, 30 to 50 percent slopes, eroded (DlF2).—This mapping unit is about 50 percent Diablo clay, 30 to 50 percent slopes, eroded, and 50 percent Linne clay loam, 30 to 50 percent slopes, eroded. These steep soils occur on side slopes, some of which are the side slopes of narrow, winding ridges. Dominant slopes range from 45 to 50 percent. Runoff is rapid, and the hazard of erosion is severe.

Included with this complex are small Landslides, severely eroded areas, and some outcrops of underlying material in very steep areas and on breaks. Also included are small areas of Shedd soils.

Pasture is the main use. Capability unit VIe-5 (15); pasture and range site 1.

Docas Series

The Docas series consists of well-drained, loamy soils that, at a depth of 4 to 5 feet, are underlain by stratified, calcareous silt loam alluvium. These soils are on flood plains and are nearly level to moderately sloping. Vegetation consists of annual grasses and forbs and a few oaks. Elevations range from 1,200 to 2,000 feet above sea level. Annual rainfall is 10 to 12 inches, average annual temperature is about 60° F., and the frost-free period is about 250 days. The main associated soils are the Panoche, Kettleman, Sorrento, and Shedd.

The surface layer is generally light-gray to light olive-gray silt loam or gray to dark-gray clay loam 10 to 16 inches thick. The next layer is gray to light-gray silt loam or clay loam 24 to 30 inches thick. It is underlain by light-gray silt loam that is stratified with thin lenses of sandy loam and clay loam.

Docas soils are used mostly for dryland pasture, but some small areas are used for dryland grain.

Docas silt loam, 0 to 2 percent slopes (DoA).—This soil occurs in upland valleys and along drainageways.

A1—12 to 23 inches, dark grayish-brown (10YR 4/2) silty clay loam, very dark brown (10YR 2/2) when moist; moderate, medium, subangular blocky structure; hard when dry, firm when moist, sticky and plastic when wet; plentiful very fine and fine roots; common, very fine and fine, tubular pores; few, fine and medium, interstitial pores; mildly alkaline; gradual, smooth boundary.

B21t—23 to 33 inches, brown (10YR 5/3) clay, dark brown (10YR 4/3) when moist; moderate, medium, angular blocky structure; very hard when dry, very firm when moist, very sticky and very plastic when wet; few very fine and fine roots; common, very fine and fine, tubular pores; few, thin, patchy clay films; few small slickensides; material from the A horizon in fine seams and on ped surfaces; mildly alkaline; gradual, smooth boundary.

B22t—33 to 45 inches, brown (10YR 5/3) clay, dark brown (10YR 4/3) when moist; strong, medium, angular blocky structure; very hard when dry, very firm when moist, very sticky and very plastic when wet; few very fine and fine roots; common, very fine and fine, tubular pores; many fine and medium slickensides; thin, patchy clay films on ped faces and on pores; lime in seams and soft masses; moderately alkaline; slightly effervescent; gradual, smooth boundary.

Cca—45 to 80 inches, light yellowish-brown (10YR 6/4) clay loam, dark brown (10YR 4/3) when moist; strong, medium, angular blocky structure; very hard when dry, firm when moist, sticky and plastic when wet; common, very fine and fine, tubular pores; brittle and compact in place; lime in seams and soft masses; moderately alkaline; strongly effervescent; gradual, smooth boundary.

Included in mapping were small areas of Cropley, atioch, and Pleasanton soils.

This soil is moderately fertile. The available water holding capacity is 8 to 10 inches. Permeability is slow, noff is very slow, and the erosion hazard is slight to me. A few areas may be ponded for short periods during the winter. The rooting depth is very deep.

This soil is used for irrigated fruit and nut trees, irri- ted alfalfa, grapes, and dryland grain and incidental sture. Capability unit IIs–5 (14).

Rincon silty clay loam, 2 to 9 percent slopes (RsC).—This soil is similar to Rincon silty clay loam, 0 to 2 per- at slopes, but is gently sloping to moderately sloping. occurs in small to medium-sized areas that generally have slopes of 3 to 6 percent. In a few areas fine to medi- m gravel is in all parts of the profile, but it generally akes up less than 10 percent of the soil mass by volume. anoff is slow to medium, and the hazard of erosion is slight to moderate.

This soil is used for irrigated alfalfa, apricots, grapes, alnuts, and prunes, and for dryland grain and inci- ntal pasture. Capability units IIe–5 (14) and IIIe–5 (15).

Rincon silty clay loam, 9 to 15 percent slopes, eroded (RsD2).—This soil is similar to Rincon silty clay loam, 0 to percent slopes, but has a thinner profile and is strongly sloping, and is more eroded. Areas are small to moderate size, and slopes generally range from 12 to 15 percent. some areas fine to medium-sized gravel is in all parts the profile.

Included in mapping were some small areas where here is less clay than normal in the subsoil and areas here the substratum is very firm. Also included were eas where erosion is only slight.

Runoff is medium to rapid, and the hazard of erosion moderate to high.

The soil is used for dryland pasture and grain. Capability unit IIIe–5 (15); pasture and range site 4.

Rincon loam, 0 to 2 percent slopes (RnA).—This soil is similar to Rincon silty clay loam, 0 to 2 percent slopes, but has a loam surface layer. It is nearly level and occurs in small areas on large terraces near the Comstock-Las Viboras Road and in a few other small areas. In most places the subsoil and substratum are gravelly. In some areas the surface layer contains fine gravel that generally makes up less than 5 percent of the soil mass by volume. Available water holding capacity is about 8 inches.

This soil is used for irrigated alfalfa, apricots, grapes, walnuts, and prunes, and for dryland grain and incidental pasture. Capability unit IIs–5 (14).

Rincon loam, 2 to 9 percent slopes (RnC).—This soil is similar to Rincon silty clay loam, 0 to 2 percent slopes, but is gently sloping to moderately sloping and has a loam surface layer. It occurs on small to medium-sized fans, generally along the larger drainageways. In some places fine to medium-sized gravel is in the profile. Dominant slopes are 3 to 6 percent. Available water holding capacity is about 8 inches. Runoff is slow to medium, and the erosion hazard is slight to moderate.

This soil is used for irrigated apricots, grapes, walnuts, and prunes, and for dryland grain and incidental pasture. Capability units IIIe–1 (14) and IIIe–3 (15).

Rincon loam, 9 to 15 percent slopes, eroded (RnD2).—This soil is similar to Rincon silty clay loam, 0 to 2 percent slopes, but is slightly thinner, has a loam surface layer, and is moderately eroded. It occurs throughout the survey area generally on small to medium-sized fans where slopes range from 12 to 15 percent. In some areas fine and medium-sized gravel occurs throughout the profile and makes up as much as 10 percent of the profile by volume. Available water holding capacity is about 8 inches. Runoff is medium to rapid, and the hazard of erosion is moderate to severe.

This soil is used mostly for dryland grain and pasture. Capability unit IVe–1 (15); pasture and range site 4.

Riverwash

Riverwash (Rw) consists of the coarse-textured materials—sands and gravels—that occur in the beds of the larger streams. The materials are generally covered by flowing water during the rainy season, which results in scouring and deposition. Many areas have little or no vegetation but some of the sandier, less gravelly areas are covered by grass, forbs, brush, willows, and cottonwoods. In general, these areas have little or no use for farming, though at times a few areas furnish limited grazing. A few areas on the larger streams are used for commercial production of sand and gravel. Capability unit VIIIw–4 (14).

Salinas Series

The Salinas series consists of well-drained, loamy soils that formed in alluvium derived from sandstone and shale. These nearly level to moderately sloping soils lie on flood plains and fans. The vegetation consists of annual grasses and forbs and a few scattered oaks. Elevations range from 150 to 2,000 feet above sea level. Annual rainfall is 12 to 14 inches. The average annual temperature

about 60° F., and the frost-free period is about 260 days. The main associated soils are the Hanford and Sorrento.

The surface layer is dark-gray to dark grayish-brown clay loam 20 to 26 inches thick. The next layer is brown to light yellowish-brown clay loam 24 to 36 inches thick. Below this is light yellowish-brown clay loam that extends to undetermined depths. In some areas these soils have gravel throughout the profile.

Salinas soils are used for irrigated grapes and other fruits, nuts, vegetables, and row crops, and for dryland grain and incidental pasture.

Salinas clay loam, 0 to 2 percent slopes (SaA).—This soil occurs on fans around San Juan Bautista and in Topo and Vallecitos Valleys.

Representative profile: 20 yards west of the New Idria Road, in Vallecitos Valley, on McDonald Ranch; 1 mile southeast of ranch house.

A11—0 to 8 inches, dark-gray (10YR 4/1) clay loam, black (10YR 2/1) when moist; moderate, fine, subangular blocky structure; hard when dry, friable when moist, sticky and plastic when wet; abundant very fine and fine roots; common, very fine and fine, tubular pores; neutral; clear, smooth boundary.

A12—8 to 25 inches, dark-gray (10YR 4/1) clay loam, very dark brown (10YR 2/2) when moist; moderate, medium, subangular blocky structure; hard when dry, friable when moist, sticky and plastic when wet; abundant very fine and fine roots; common, very fine and fine, tubular pores, few, medium, interstitial pores; neutral; gradual, smooth boundary.

C1—25 to 33 inches, brown (10YR 5/3) clay loam, dark brown (10YR 3/3) when moist; weak, medium, subangular blocky structure; slightly hard when dry, very friable when moist, sticky and plastic when wet; plentiful very fine and fine roots; common, very fine and fine, tubular pores; material from A horizon in seams and as films on ped surfaces; mildly alkaline, slightly effervescent; clear, smooth boundary.

C2ca—33 to 66 inches, light yellowish-brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) when moist; weak, medium, subangular blocky structure; slightly hard when dry, very friable when moist, slightly sticky and slightly plastic when wet; few very fine and fine roots; many, very fine and fine, tubular pores; many fine and medium seams of lime and many, small, soft masses of lime; moderately alkaline, violently effervescent; gradual, smooth boundary.

Included with this soil are some soils around San Juan Bautista that have a slightly thicker surface layer, less lime in the substratum and some alluvium derived from granitic rocks. Also included are small areas of Hanford and Sorrento soils and soils that have a loam surface layer.

This soil is moderately fertile. Available water holding capacity is about 10 to 12 inches. Permeability is moderately slow, runoff is very slow, and the hazard of erosion is slight to none.

This soil is used for irrigated grapes and other fruits, nuts, vegetables, row crops, and for dryfarmed grain and incidental pasture. Capability units I–1 (14) and IIIc–1 (15).

Salinas clay loam, 2 to 9 percent slopes (SaC).—This soil is similar to Salinas clay loam, 0 to 2 percent slopes, but it is more sloping. It generally occurs in small areas along the larger drainageways. Slopes are dominantly to 6 percent. In some areas small amounts of fine to medium gravel occur throughout the profile, but they are not more than a few percent, by volume.

Included with this soil are some soils that have a loam surface layer.

Runoff is slow to medium. The hazard of erosion is slight to moderate.

This soil is used for dryland grain and incidental pasture. Capability units IIe–5 (14) and IIIe–5 (15).

San Benito Series

The San Benito series consists of well-drained loamy soils that are underlain by calcareous, interbedded sandstone and shale at a depth of 24 to 48 inches. These soils occupy mountainous uplands and are rolling to steep. The vegetation consists chiefly of annual grasses and forbs, but a few areas are covered with oaks or brush. Elevations range from 400 to 3,500 feet. Annual rainfall is 12 to 18 inches, average annual temperature is 60° to 62° F., and the frost-free period is about 260 days. The Linne and Gazos soils are the main associated soils.

The surface layer is dark grayish-brown clay loam 20 to 32 inches thick. The next layer is light yellowish-brown clay loam 8 to 24 inches thick. It is slightly to moderately effervescent. Texture throughout the profile ranges from clay loam to silty clay loam but is clay loam in most places. The parent rock, at a depth of 24 to 48 inches is soft, calcareous, interbedded shale and medium-grained sandstone.

San Benito soils are used for dryland grain, pasture, and range. A few small areas are irrigated and are used for fruit and nut trees.

San Benito clay loam, 15 to 30 percent slopes, eroded (SbE2).—This soil occurs on moderately steep rounded hills or on ridgetops.

Representative profile: One-half mile west of Willow Creek Road, 5 miles north of San Benito; central part of section 8, T. 15 S., R. 8 E.

A11—0 to 10 inches, dark grayish-brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) when moist; moderate, fine, subangular blocky structure that breaks readily to moderate, fine, granular structure; very hard when dry, firm when moist, sticky and plastic when wet; abundant very fine roots; common, very fine, interstitial pores; neutral; clear, smooth boundary.

A12—10 to 28 inches, dark grayish-brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) when moist; moderate, medium, subangular blocky structure; very hard when dry, firm when moist, sticky and plastic when wet; plentiful very fine roots; few, very fine, interstitial and tubular pores; few, fine, pressure faces; neutral; gradual, smooth boundary.

C1ca—28 to 48 inches, light yellowish-brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) when moist; weak, medium, subangular blocky structure; hard when dry, friable when moist, sticky and plastic when wet; plentiful very fine roots; common, very fine and fine, tubular pores; lime is disseminated and occurs as coatings in pores and on some ped surfaces; moderately alkaline; gradual, smooth boundary.

C2—48 to 60 inches +, yellowish-brown (10YR 5/4), soft, calcareous sandy shale.

Included with this soil are small areas of Diablo, Gaviota, and Linne soils and outcrops of sandstone. Also included are soils that are shallow over bedrock.

This soil is moderately fertile. Available water holding capacity is 6 to 8 inches. Permeability is moderately slow,

runoff is rapid, and the hazard of erosion is severe. The root zone is deep.

This soil is used for dryland pasture. Capability unit VIe-5 (15); pasture and range site 5.

San Benito clay loam, 9 to 15 percent slopes (SbD).—This soil is similar to San Benito clay loam, 15 to 30 percent slopes, eroded, but it has a thicker profile, is less sloping, and is not more than slightly eroded. This soil generally occurs on low hills and broad ridges.

Included with this soil are small areas of Diablo and Cropley soils along drainageways and in saddles.

Available water holding capacity is 8 to 10 inches. Runoff is medium, and the hazard of erosion is moderate. The root zone is deep.

This soil is used for dryland grain and pasture. A few small areas are used for irrigated fruits and nuts. Capability unit IIIe-5 (15); pasture and range site 5.

San Benito clay loam, 30 to 50 percent slopes, eroded (SbF2).—This soil is similar to San Benito clay loam, 15 to 30 percent slopes, eroded, but is more sloping. It is steep and occurs on side slopes in areas of moderately steep soils or on narrow, winding ridgetops. Slopes are dominantly between 45 and 50 percent. This soil is darker and somewhat deeper on north-facing slopes than in other areas.

Included with this soil are areas of brown, fine-textured soils, of shallow soils, and of rock outcrops.

On this soil runoff is rapid to very rapid. The hazard of erosion is severe to very severe.

This soil is used for dryland pasture. Capability unit VIe-5 (15); pasture and range site 5.

San Benito clay loam, 30 to 50 percent slopes, severely eroded (SbF3).—This soil is similar to San Benito clay loam, 15 to 30 percent slopes, eroded, but it is more eroded, is steeper, and is only 24 to 36 inches deep to weathered bedrock. It is steep and occurs along the larger drainageways, on partly slipped areas, or in areas of accelerated geologic erosion (fig. 11). Some areas are barren and actively eroding, others have a thin cover of grass or brush or are covered by moderately thick stands of oaks and brush.

Included with this soil are small to moderate areas of shallow soils, Sedimentary rock land, gullied areas, and Landslides. The gullied areas are sources of silt and debris.

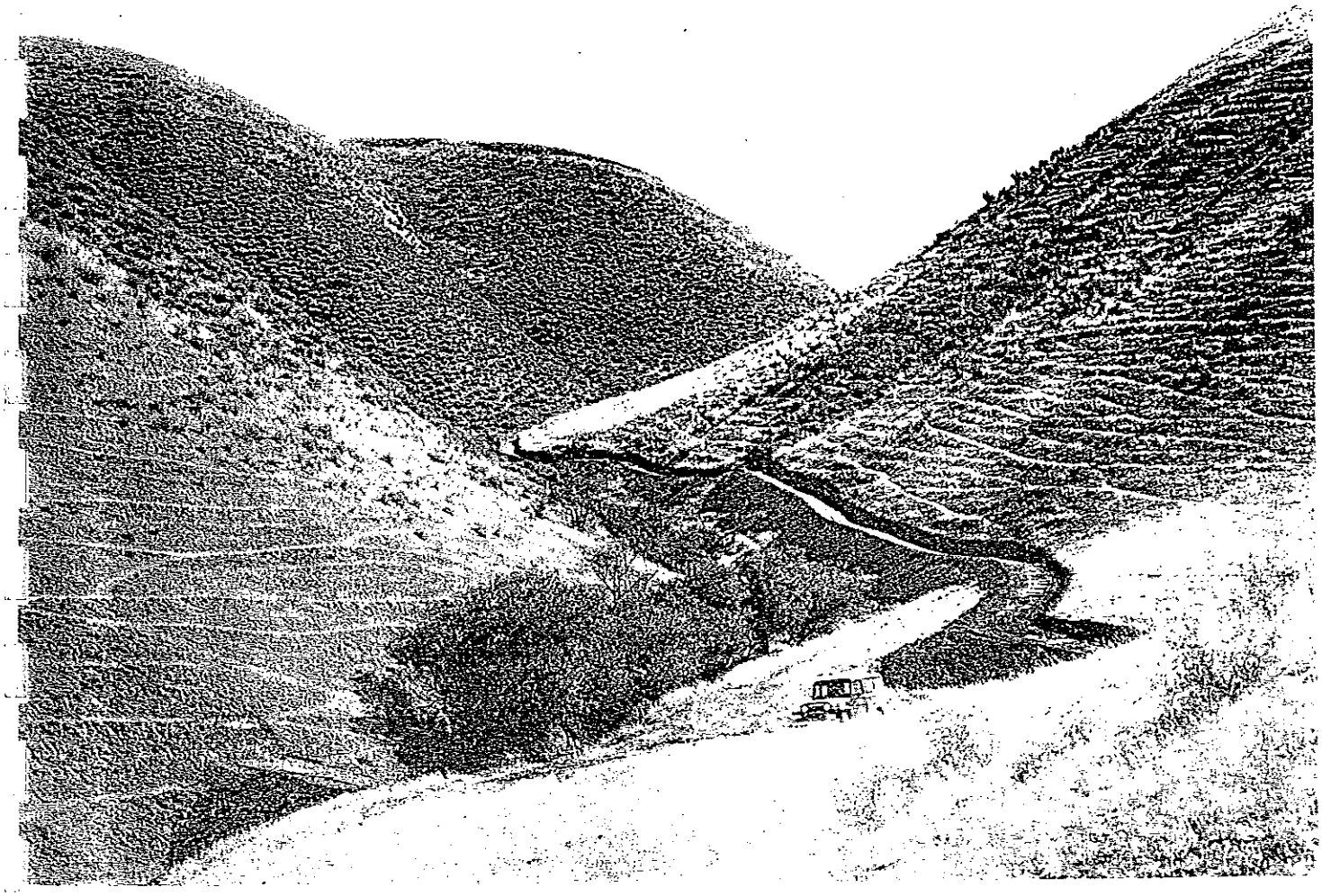

Figure 11.—San Benito clay loam, 30 to 50 percent slopes, severely eroded. Stock trails are very evident, and brush is intruding on overgrazed areas.

Available water holding capacity is 4 to 6 inches. Runoff is rapid to very rapid and the hazard of erosion is very severe. This soil has low fertility.

This soil is used for range. Capability unit VIIe–5 (15); pasture and range site 5.

Sandy Alluvial Land

Sandy alluvial land (Sc) lies along the lower courses of Pescadero, Stone, and Chalone Creeks and along a few of the small drainageways flowing from Gabilan Range. Slopes generally range from 1 to 4 percent, but a few areas are more sloping. Many of the areas are flooded occasionally and are subject to removal and deposition of material, but a few areas are above flood level.

Included with this land type, generally in the narrower heads of the valleys of the creeks, are a few gravelly and stony soils.

Fertility is low on this land. Available water holding capacity is 4 to 6 inches.

This land is used for limited grazing. Capability unit VIIw–4 (14).

Santa Lucia Series

The Santa Lucia series consists of somewhat excessively drained very shaly, loamy soils that are underlain by moderately hard, light-colored shale. These soils are moderately steep to very steep and occupy uplands underlain by shale. The vegetation consists of annual grasses and forbs and thin to moderately thick stands of oaks, Digger pine, and brush. Elevations range from 1,200 to 2,000 feet above sea level. Annual rainfall is 12 to 16 inches. Average annual temperature is about 58° F., and the frost-free period is about 250 days. The main associated soils are the Pinnacles, Laniger, Sheridan, and Gazos.

The surface layer is gray to very dark gray shaly loam 18 to 30 inches thick. The darker colored soils generally occur on north-facing slopes under moderately thick stands of oaks. The profile becomes more shaly as depth increases. Depth to shale is generally 20 to 30 inches, but it ranges from 8 to 40 inches. The underlying shale is generally moderately hard, light gray and pale brown, and highly fractured. These soils are medium acid in most places, but they are slightly acid in some places.

Santa Lucia soils are used for dryland pasture and range and for watersheds, wildlife, and recreation.

Santa Lucia shaly loam, 30 to 50 percent slopes, eroded (SdF2).—This soil occupies narrow, rounded ridges. It is 18 to 40 inches deep over shale.

Representative profile: On hillside, 30 yards west of State Route 25, on ranch road, 400 yards north of Jef Schmidt's house.

A11—0 to 4 inches, gray (10YR 5/1) shaly loam, very dark gray (10YR 3/1) when moist; moderate, fine, subangular blocky structure; slightly hard when dry, very friable when moist, slightly sticky and slightly plastic when wet; abundant very fine and fine roots; common, very fine and fine, tubular pores, few, very fine and fine, interstitial pores; medium acid; clear, smooth boundary.

A12—4 to 22 inches, gray (10YR 5/1) very shaly loam, very dark gray (10YR 3/1) when moist; weak, medium, subangular blocky structure; slightly hard when dry, very friable when moist, slightly sticky and slightly plastic when wet; abundant very fine and fine roots; common, very fine and fine, tubular pores, common, fine and medium, interstitial pores; medium acid; gradual, smooth boundary.

R—22 inches, pale-brown and light-gray, weathered, highly fractured, moderately hard, acid shale.

Included with this soil are some small areas of Gazos, San Benito, Laniger, and Pinnacles soils, of soils that are shallow over shale, of soils that are mildly alkaline, and of rock outcrops. Also included are small areas of Santa Lucia soils that are moderately steep and are slightly deeper over bedrock. Other included areas are severely eroded.

This soil has low fertility. Available water holding capacity is about 2 to 4 inches, permeability is moderately rapid, runoff is rapid to very rapid, and the hazard of erosion is severe to very severe. The root zone is moderately deep.

This soil is used for dryland pasture, range, wildlife, watersheds, and recreation. Capability unit VIe–1 (15); pasture and range site 2.

Santa Lucia shaly loam, 30 to 75 percent slopes, severely eroded (SdG3).—This soil is similar to Santa Lucia shaly loam, 30 to 50 percent slopes, eroded, but is more sloping, is severely eroded, and is only 8 to 18 inches deep over bedrock. It is covered with brush. Slopes are dominantly 55 to 60 percent.

Included with this soil are areas of shale rock outcrops and small areas of Laniger soils.

This soil has very low fertility. Available water holding capacity is 1 to 2 inches. Runoff is rapid to very rapid, and the hazard of erosion is very severe. The root zone is shallow.

This soil is used for watersheds, wildlife, and recreation and for range. Capability unit VIIe–1 (15); pasture and range site 2.

Sedimentary Rock Land

Sedimentary rock land (SeG) consists of outcrops of moderately hard sandstone and shale and areas of very thin soils. The rock outcrops generally make up 35 to 90 percent of the surface. The plant cover is sparse to moderately thick and consists of low brush, small areas of sparse grasses, and some scattered oaks and Digger pine. Drainage is excessive, and a moderate to large amount of silt is washed away.

Included with this land are small areas of shallow soils and surrounding soils that have a grass cover in some places.

This land is used for watersheds, wildlife, and recreation. Capability unit VIIIs–1 (15).

Shedd Series

The Shedd series consists of well-drained to somewhat excessively drained loamy soils that are underlain by soft, calcareous sandstone and shale generally at a depth of 20 to 40 inches. These soils are on uplands and are strongly sloping to steep. The vegetation consists of annual grasses and forbs, a few scattered oaks, and areas of low brush on the more eroded slopes. Elevations range from 1,000 to 2,000 feet above sea level. Annual rainfall is 12 to 14 inches. Average annual temperature is about

FIELD OFFICE OFFICIAL LIST OF HYDRIC SOIL MAP UNITS
FOR
SAN BENITO COUNTY, CALIFORNIA

Map Units are listed in alpha-numeric order by map unit symbol. The 'HYDRIC CRITERIA' column refers to criteria defined in 'Hydric Soils of the United States' (USDA Miscellaneous Publication No. 1491 June, 1991.) The 'FSA ITEMS' column contains information needed for Food Security Act determinations required by Section 512.11(h)(4) of the National Food Security Act Manual (August 1991).

March 11, 1992

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
AnA	ANTIOCH LOAM, 0 TO 2 PERCENT SLOPES					
	(C) ANTIOCH	N				
AnB	ANTIOCH LOAM, 2 TO 5 PERCENT SLOPES					
	(C) ANTIOCH	N				
AnC2	ANTIOCH LOAM, 5 TO 9 PERCENT SLOPES, ERODED					
	(C) ANTIOCH	N				
AoD2	ANTIOCH CLAY LOAM, 9 TO 15 PERCENT SLOPES, ERODED					
	(C) ANTIOCH	N				
ArC	ARGUELLO LOAM, 2 TO 9 PERCENT SLOPES					
	(C) ARGUELLO	N				
	(I) RIVERWASH	Y	4	Basin Floor	4,5	
AsD	ARGUELLO SHALY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) ARGUELLO	N				
AtD	ARNOLD LOAMY SAND, 9 TO 15 PERCENT SLOPES					
	(C) ARNOLD	N				
AtE2	ARNOLD LOAMY SAND, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) ARNOLD	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
AtF3	ARNOLD LOAMY SAND, 30 TO 50 PERCENT SLOPES, SEVERELY ERODED					
	(C) ARNOLD	N				
AuE	AUBERRY FINE SANDY LOAM, 15 TO 30 PERCENT SLOPES					
	(C) AUBERRY	N				
AuG2	AUBERRY FINE SANDY LOAM, 30 TO 75 PERCENT SLOPES, ERODE D					
	(C) AUBERRY	N				
BaG	BADLAND					
	(C) BADLAND	N				
BoA	BOTELLA LOAM, 0 TO 2 PERCENT SLOPES					
	(C) BOTELLA	N				
BoC	BOTELLA LOAM, 2 TO 9 PERCENT SLOPES					
	(C) BOTELLA	N				
CbF2	CIBO STONY CLAY, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) CIBO	N				
CcG2	CIBO ROCKY CLAY, SHALLOW, 15 TO 75 PERCENT SLOPES, EROD ED					
	(C) CIBO	N				
	(C) ROCK OUTCROP	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
CgG2	CIENEBA GRAVELLY SANDY LOAM, 30 TO 75 PERCENT SLOPES, E RODED					
	(C) CIENEBA	N				
CgG3	CIENEBA GRAVELLY SANDY LOAM, 15 TO 75 PERCENT SLOPES, S EVERELY ERODED					
	(C) CIENEBA	N				
Ch	CLEAR LAKE CLAY					
	(C) CLEAR LAKE	Y	2B3	Basin Floor	1,5	
Ck	CLEAR LAKE CLAY, SALINE					
	(C) CLEAR LAKE	Y	2B3	Basin Floor	1,5	
Cl	CLEAR LAKE SILTY CLAY LOAM					
	(C) CLEAR LAKE	Y	2B3	Basin Floor	1,5	
CmD	CLIMARA CLAY, 9 TO 15 PERCENT SLOPES					
	(C) CLIMARA	N				
CmF2	CLIMARA CLAY, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) CLIMARA	N				
CnD2	COMETA LOAM, 5 TO 15 PERCENT SLOPES, ERODED					
	(C) COMETA	N				
CoD2	COMETA SANDY LOAM, 5 TO 15 PERCENT SLOPES, ERODED					
	(C) COMETA	N				

Soil Survey Area No.: CA069
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Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
CpC	CONEJO CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) CONEJO	N				
CuC	CORRALITOS LOAMY SAND, 2 TO 9 PERCENT SLOPES					
	(C) CORRALITOS	N				
CvC	COTATI LOAM, 2 TO 9 PERCENT SLOPES					
	(C) COTATI	N				
CvD2	COTATI LOAM, 9 TO 15 PERCENT SLOPES, ERODED					
	(C) COTATI	N				
CvE2	COTATI LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) COTATI	N				
CwA	CROPLEY CLAY, 0 TO 2 PERCENT SLOPES					
	(C) CROPLEY	N				
	(I) UNNAMED	Y	3	Alluvial Fan	4,5	
CwC	CROPLEY CLAY, 2 TO 9 PERCENT SLOPES					
	(C) CROPLEY	N				
	(I) WILLOWS	Y	2B3	Basin Floor	1,5	
	(I) CLEAR LAKE	Y	2B3	Basin Floor	1,5	
CyC	CROPLEY SILTY CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) CROPLEY	N				
DaD	DIABLO CLAY, 9 TO 15 PERCENT SLOPES					
	(C) DIABLO	N				

Soil Survey Area No.: CA069
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Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
DaE2	DIABLO CLAY, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) DIABLO	N				
DaF2	DIABLO CLAY, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) DIABLO	N				
DaG3	DIABLO CLAY, 50 TO 75 PERCENT SLOPES, SEVERELY ERODED					
	(C) DIABLO	N				
DlD	DIABLO-LINNE COMPLEX, 9 TO 15 PERCENT SLOPES					
	(C) DIABLO	N				
	(C) LINNE	N				
DlE2	DIABLO-LINNE COMPLEX, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) DIABLO	N				
	(C) LINNE	N				
DlF2	DIABLO-LINNE COMPLEX, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) DIABLO	N				
	(C) LINNE	N				
DoA	DOCAS SILT LOAM, 0 TO 2 PERCENT SLOPES					
	(C) DOCAS	N				
DoC	DOCAS SILT LOAM, 2 TO 9 PERCENT SLOPES					
	(C) DOCAS	N				

Soil Survey Area No.: CA069
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Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
DsA	DOCAS CLAY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) DOCAS	N				
DsC	DOCAS CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) DOCAS	N				
EcA	EDENVALE CLAY, 0 TO 2 PERCENT SLOPES					
	(C) EDENVALE	N				
GaE	GAVIOTA LOAM, 15 TO 30 PERCENT SLOPES					
	(C) GAVIOTA	N				
GaE2	GAVIOTA LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) GAVIOTA	N				
GaF2	GAVIOTA LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) GAVIOTA	N				
GrF2	GAVIOTA ROCKY LOAM, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) GAVIOTA	N				
	(C) ROCK OUTCROP	N				
GsD	GAZOS SILTY CLAY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) GAZOS	N				
GtE2	GAZOS CLAY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) GAZOS	N				

Soil Survey Area No.: CA069
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Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
GtF2	GAZOS CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) GAZOS	N				
GtG3	GAZOS CLAY LOAM, 50 TO 75 PERCENT SLOPES, SEVERELY EROD ED					
	(C) GAZOS	N				
GuE	GULLIED LANDS					
	(C) GULLIED LANDS	N				
HaA	HANFORD COARSE SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) HANFORD	N				
HaC	HANFORD COARSE SANDY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) HANFORD	N				
HfA	HANFORD LOAM, 0 TO 2 PERCENT SLOPES					
	(C) HANFORD	N				
	(I) UNNAMED	Y	2A	Alluvial Fan	1,5	
HfC	HANFORD LOAM, 2 TO 9 PERCENT SLOPES					
	(C) HANFORD	N				
	(I) UNNAMED	Y	2A	Alluvial Fan	1,5	
HnF2	HENNEKE FINE GRAVELLY LOAM, 15 TO 50 PERCENT SLOPES, ER ODED					
	(C) HENNEKE	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
HsG3	HENNEKE SOILS, 15 TO 75 PERCENT SLOPES, SEVERELY ERODED					
	(C) HENNEKE	N				
	(C) HENNEKE	N				
	(C) ROCK OUTCROP	N				
IgG	IGNEOUS ROCK LAND					
	(C) IGNEOUS ROCK LAND	N				
	(C) LITHIC XERORTHENTS	N				
KeD	KETTLEMAN LOAM, 5 TO 15 PERCENT SLOPES					
	(C) KETTLEMAN	N				
KeF2	KETTLEMAN LOAM, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) KETTLEMAN	N				
KmF2	KETTLEMAN SOILS, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) KETTLEMAN	N				
	(C) ROCK OUTCROP	N				
LaG3	LANIGER GRAVELLY SANDY LOAM, 30 TO 75 PERCENT SLOPES, S EVERELY ERODED					
	(C) LANIGER	N				
LdF	LANDSLIDES					
	(C) LANDSLIDES	N				
LnD	LINNE CLAY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) LINNE	N				
LnE2	LINNE CLAY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) LINNE	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri- teria	Hydric Landforms	FSA Items	Foot- notes
LnF2	LINNE CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) LINNE	N				
LnF3	LINNE CLAY LOAM, 30 TO 50 PERCENT SLOPES, SEVERELY EROD ED					
	(C) LINNE	N				
LsE2	LINNE-SHEDD COMPLEX, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) LINNE	N				
	(C) SHEDD	N				
LsF2	LINNE-SHEDD COMPLEX, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) LINNE	N				
	(C) SHEDD	N.				
LtG2	LODO SHALY LOAM, 50 TO 75 PERCENT SLOPES, ERODED					
	(C) LODO	N				
LuC	LOS BANOS CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) LOS BANOS	N				
LuD2	LOS BANOS CLAY LOAM, 9 TO 15 PERCENT SLOPES, ERODED					
	(C) LOS BANOS	N				
LuF3	LOS BANOS CLAY LOAM, 15 TO 50 PERCENT SLOPES, SEVERELY ERODED					
	(C) LOS BANOS	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
LvE	LOS GATOS CLAY LOAM, 15 TO 30 PERCENT SLOPES					
	(C) LOS GATOS	N				
LvF2	LOS GATOS CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) LOS GATOS	N				
LwF2	LOS GATOS ROCKY CLAY LOAM, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) LOS GATOS	N				
	(C) ROCK OUTCROP	N				
MeA	METZ SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) METZ	Y	4	Flood Plain	4,5	1
MgA	METZ GRAVELLY SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) METZ	Y	4	Flood Plain	4,5	1
MgC	METZ GRAVELLY SANDY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) METZ	Y	4	Flood Plain	4,5	1
MhA	METZ SANDY LOAM, WET VARIANT, 0 TO 2 PERCENT SLOPES					
	(C) METZ VARIANT	Y	4	Flood Plain	4,5	
MnG	MINE PITS AND DUMPS					
	(C) DUMPS	N				
	(C) MINE PITS AND DUMPS	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
MoA	MOCHO SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) MOCHO	N				
MoC	MOCHO SANDY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) MOCHO	N				
MpA	MOCHO LOAM, 0 TO 2 PERCENT SLOPES					
	(C) MOCHO	N				
MpC	MOCHO LOAM, 2 TO 9 PERCENT SLOPES					
	(C) MOCHO	N				
MrB	MOCHO GRAVELLY LOAM, 2 TO 5 PERCENT SLOPES					
	(C) MOCHO	N				
MsC	MOCHO CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) MOCHO	N				
MtF2	MONTARA ROCKY SILTY CLAY LOAM, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) MONTARA	N				
	(C) ROCK OUTCROP	N				
NaD	NACIMIENTO CLAY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) NACIMIENTO	N				
NaE	NACIMIENTO CLAY LOAM, 15 TO 30 PERCENT SLOPES					
	(C) NACIMIENTO	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
NaF2	NACIMIENTO CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) NACIMIENTO	N				
NaG2	NACIMIENTO CLAY LOAM, 50 TO 75 PERCENT SLOPES, ERODED					
	(C) NACIMIENTO	N				
NcG3	NACIMIENTO LOAM, 30 TO 75 PERCENT SLOPES, SEVERELY EROD ED					
	(C) NACIMIENTO	N				
Pa	PACHECO SILT LOAM					
	(C) PACHECO	Y	2A	Flood Plain	1,5	1
Pc	PACHECO LOAM					
	(C) PACHECO	Y	2A	Flood Plain	1,5	1
Pd	PACHECO CLAY LOAM OVER CLAY					
	(C) PACHECO	Y	2A	Flood Plain	1,5	1
Pe	PACHECO SILTY CLAY					
	(C) PACHECO	Y	2A	Flood Plain	1,5	1
PhC	PANHILL LOAM, 2 TO 9 PERCENT SLOPES					
	(C) PANHILL	N				
PkA	PANOCHE SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) PANOCHE	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
PkC	PANOCHE SANDY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) PANOCHE	N				
PlA	PANOCHE LOAM, 0 TO 2 PERCENT SLOPES					
	(C) PANOCHE	N				
PlC	PANOCHE LOAM, 2 TO 9 PERCENT SLOPES					
	(C) PANOCHE	N				
PnE2	PINNACLES COARSE SANDY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) PINNACLES	N				
PnG3	PINNACLES COARSE SANDY LOAM, 30 TO 75 PERCENT SLOPES, SEVERELY ERODED					
	(C) PINNACLES	N				
PsE2	PINTO SANDY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) PINTO	N				
PtB	PLEASANTON LOAM, 2 TO 5 PERCENT SLOPES					
	(C) PLEASANTON	N				
PvC2	PLEASANTON GRAVELLY LOAM, 5 TO 9 PERCENT SLOPES, ERODED					
	(C) PLEASANTON	N				
ReA	REIFF SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) RIEFF	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
ReC	REIFF SANDY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) RIEFF	N				
RnA	RINCON LOAM, 0 TO 2 PERCENT SLOPES					
	(C) RINCON	N				
RnC	RINCON LOAM, 2 TO 9 PERCENT SLOPES					
	(C) RINCON	N				
	(C) RINCON	N				
	(C) RINCON	N				
RsC	RINCON SILTY CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) RINCON	N				
RsD2	RINCON SILTY CLAY LOAM, 9 TO 15 PERCENT SLOPES, ERODED					
	(C) RINCON	N				
Rw	RIVERWASH					
	(C) RIVERWASH	Y	4	Basin Floor	4,5	
SaA	SALINAS CLAY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) SALINAS	N				
SaC	SALINAS CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) SALINAS	N				
SbD	SAN BENITO CLAY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) SAN BENITO	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
SbE2	SAN BENITO CLAY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) SAN BENITO	N				
SbF2	SAN BENITO CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) SAN BENITO	N				
SbF3	SAN BENITO CLAY LOAM, 30 TO 50 PERCENT SLOPES, SEVERELY ERODED					
	(C) SAN BENITO	N				
Sc	SANDY ALLUVIAL LAND					
	(C) SANDY ALLUVIAL LAND	Y	4	Basin Floor	4,5	
SdF2	SANTA LUCIA SHALY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) SANTA LUCIA	N				
SdG3	SANTA LUCIA SHALY LOAM, 30 TO 75 PERCENT SLOPES, SEVERE LY ERODED					
	(C) SANTA LUCIA	N				
SeG	SEDIMENTARY ROCK LAND					
	(C) LITHIC XERORTHENTS	N				
	(C) SEDIMENTARY ROCK LAN	N				
ShD	SHEDD LOAM, 9 TO 15 PERCENT SLOPES					
	(C) SHEDD	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
ShE2	SHEDD LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) SHEDD	N				
ShF2	SHEDD LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) SHEDD	N				
ShF3	SHEDD LOAM, 30 TO 50 PERCENT SLOPES, SEVERELY ERODED					
	(C) SHEDD	N				
SkD	SHERIDAN COARSE SANDY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) SHERIDAN	N				
SkE	SHERIDAN COARSE SANDY LOAM, 15 TO 30 PERCENT SLOPES					
	(C) SHERIDAN	N				
SkE2	SHERIDAN COARSE SANDY LOAM, 15 TO 30 PERCENT SLOPES, ER ODED					
	(C) SHERIDAN	N				
SkG2	SHERIDAN COARSE SANDY LOAM, 30 TO 75 PERCENT SLOPES, ER ODED					
	(C) SHERIDAN	N				
SkG3	SHERIDAN COARSE SANDY LOAM, 30 TO 75 PERCENT SLOPES, SE VERELY ERODED					
	(C) SHERIDAN	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
SlD	SOPER GRAVELLY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) SOPER	N				
SlE2	SOPER GRAVELLY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) SOPER	N				
SlF2	SOPER GRAVELLY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) SOPER	N				
SmD	SOPER SANDY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) SOPER	N				
SmE2	SOPER SANDY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) SOPER	N				
SmF2	SOPER SANDY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) SOPER	N				
SnA	SORRENTO SILT LOAM, 0 TO 2 PERCENT SLOPES					
	(C) SORRENTO	N				
SnC	SORRENTO SILT LOAM, 2 TO 9 PERCENT SLOPES					
	(C) SORRENTO	N				
	(I) UNNAMED	Y	4	Depression	4,5	

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
SoB	SORRENTO GRAVELLY LOAM, 0 TO 5 PERCENT SLOPES					
	(C) SORRENTO	N				
	(I) UNNAMED	Y	4	Depression	4,5	
SrA	SORRENTO SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) SORRENTO	N				
	(I) PACHECO	Y	2A	Flood Plain	1,5	
	(I) CLEAR LAKE	Y	2B3	Basin Floor	1,5	
SrC	SORRENTO SILTY CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) SORRENTO	N				
	(I) UNNAMED	Y	4	Depression	4,5	
SsE2	SWEEN ROCKY CLAY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) ROCK OUTCROP	N				
	(C) SWEEN	N				
SsF2	SWEEN ROCKY CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) ROCK OUTCROP	N				
	(C) SWEEN	N				
StE2	SWEEN STONY CLAY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) SWEEN	N				
SwF2	SWEEN VERY STONY CLAY LOAM, 15 TO 50 PERCENT SLOPES, ER ODED					
	(C) SWEEN	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
TeF	TERRACE ESCARPMENTS					
	(C) TERRACE ESCARPMENTS	N				
VaD	VALLECITOS LOAM, 9 TO 15 PERCENT SLOPES					
	(C) VALLECITOS	N				
VaE	VALLECITOS LOAM, 15 TO 30 PERCENT SLOPES					
	(C) VALLECITOS	N				
VaF	VALLECITOS LOAM, 30 TO 50 PERCENT SLOPES					
	(C) VALLECITOS	N				
VaF2	VALLECITOS LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) VALLECITOS	N				
VrE2	VALLECITOS ROCKY LOAM, 9 TO 30 PERCENT SLOPES, ERODED					
	(C) ROCK OUTCROP	N				
	(C) VALLECITOS	N				
VrF2	VALLECITOS ROCKY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) ROCK OUTCROP	N				
	(C) VALLECITOS	N				
Wc	WILLOWS CLAY					
	(C) WILLOWS	Y	2B3	Basin Floor	1,5	1
Wk	WILLOWS CLAY, SALINE-ALKALI					
	(C) WILLOWS	Y	2B3	Basin Floor	1,5	

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
Ws	WILLOWS SANDY LOAM					
	(C) WILLOWS	Y	2B3	Basin Floor	1,5	
Ww2	WILLOWS SOILS, ERODED					
	(C) WILLOWS	Y	2B3	Basin Floor	1,5	
YoA	YOLO LOAM, 0 TO 2 PERCENT SLOPES					
	(C) YOLO	N				
YoC	YOLO LOAM, 2 TO 9 PERCENT SLOPES					
	(C) YOLO	N				
Yv8	YOLO GRAVELLY LOAM, 0 TO 5 PERCENT SLOPES					
	(C) YOLO	N				

Footnotes:

1. Hydrology has been altered in some or all areas of this map unit through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration.

APPENDIX C
DATA FORMS: ROUTINE ON-SITE DETERMINATION METHOD OF THE SAN JUAN VALLEY GOLF COURSE PROJECT SITE

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

1

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: Non-native annual grassland

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: Livestock grazing — SEEP AREA ENCLOSED IN BOX STRUCTURE TO DIVERT WATER

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
*1. Juncus balticus	OBL	herb	11.		
2. Yerba mansa (Anemopsis californica)	OBL	↓	12.		
3. Cynodon dactylon	FAC	↓	13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 100 %
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: Site dominated by hydrophytes

B. SOILS

Series/Phase: DAD - Diablo clay 2-15%
Subgroup:** Chromic pellokerert VERTISOL
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No
Histic epipedon present? Yes/No
Is the soil mottled? Yes/No
Gleyed? Yes/No
Matrix Color: 10YR 2/2
Mottle Color: 5YR 5/8
Other hydric soil indicators: OXIDIZED ROOT CHANNELS

Is the hydric soil criterion met? Yes/No
Rationale: LOW CHROMA MOTTLING

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth: 0
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole: —
List other field evidence of surface inundation or soil saturation: SOIL MOIST - DRAINAGE PATTERN
SEDIMENT DEPOSITS

Is the wetland hydrology criterion met? Yes/No
Rationale: SOIL MOIST AT TIME OF SAMPLING (OCT-NOV) APPEARS TO REMAIN SATURATED > 14 DAYS EARLIER IN RAINY SEASON

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: All criteria met

* This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

2

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: non-native annual grassland

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: Livestock grazing

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1. Bromus mollis	FACU-	herb	11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 0 %
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: Site dominated by upland plants

B. SOILS

Series/Phase: Diablo Clay 2-15%
Subgroup:** Chromic Pellixerert
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No
Histic epipedon present? Yes/No
Vertisol
Is the soil mottled? Yes/No
Gleyed? Yes/No
Matrix Color: 10-yr 2/2
Mottle Color:
Other hydric soil indicators: none observed

Is the hydric soil criterion met? Yes/No
Rationale: Low chroma - not mottling nor any other evidence

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth:
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole:
List other field evidence of surface inundation or soil saturation: none observed

Is the wetland hydrology criterion met? Yes/No
Rationale: No field evidence

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: No criteria are met

This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

3

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-83 11-5-97
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: Non-Native Annual Grassland

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: Livestock Grazing

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1. Bromus mollis	FACU-	herb	11.		
*2. Hemizonia luzulaefolia	UPL	↓	12.		
3. Malva parviflora	UPL	↓	13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 0%
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: Site Dominated By Upland Plants

B. SOILS

Series/Phase: Mabcr Clay 9-15%
Subgroup:** Chromic Pellotexert Vertisol
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No
Histic epipedon present? Yes/No
Is the soil mottled? Yes/No
Gleyed? Yes/No
Matrix Color: 10YR 2/2
Mottle Color: —
Other hydric soil indicators: none observed

Is the hydric soil criterion met? Yes/No
Rationale: Low chroma but no mottles

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth: —
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole: —
List other field evidence of surface inundation or soil saturation: none observed

Is the wetland hydrology criterion met? Yes/No
Rationale: No hydro evidence

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: No criteria are met

* This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

4

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: FW Channel w/ Emergent Veg

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain:

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1. Polypogon monspeliensis	FACW+	HERB	11.		
2. Rumex crispus	FACW-		12.		
3. Lolium multiflorum	FAC		13.		
4. Sonchus asper	FAC		14.		
5. Salix lasiolepis	FACW		15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 100 %
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: Site Dominated By Hydrophytes

B. SOILS

Series/Phase: Durbin Clay 9-15%
Subgroup:** Chromic Pellotexert
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No
Histic epipedon present? Yes/No
Vertisol
Is the soil mottled? Yes/No
Gleyed? Yes/No
Matrix Color:
Mottle Color:
Other hydric soil indicators: no soil pit dug

Is the hydric soil criterion met? Yes/No
Rationale: Site ponded on two dates with separated by 4 weeks
Aquic moisture regime

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth: 10"-12"
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole: —
List other field evidence of surface inundation or soil saturation: Visual observation of inundation for 4 weeks (Oct-Nov)

Is the wetland hydrology criterion met? Yes/No
Rationale: Site Ponded

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: All 3 Criteria Met

* This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

5

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: non-native annual grassland

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: LIVESTOCK GRAZING

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1. Hordeum leporinum	NI	herb	11.		
2. Bromus mollis	FACU-	↓	12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 0 %
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: SITE DOMINATED BY UPLAND PLANTS

B. SOILS

Series/Phase: Diablo Clay 9-15% Subgroup:** Chromic Pelloxerert Vertisol
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No Histic epipedon present? Yes/No
Is the soil mottled? Yes/No Gleyed? Yes/No
Matrix Color: 10YR 3/2 Mottle Color: —
Other hydric soil indicators: none observed

Is the hydric soil criterion met? Yes/No
Rationale: LOW CHROMA BUT NO MOTTLING OR GLEYING

C. HYDROLOGY

Is the ground surface inundated? Yes/No Surface water depth: —
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole: —
List other field evidence of surface inundation or soil saturation: none observed

Is the wetland hydrology criterion met? Yes/No
Rationale: NO FIELD EVIDENCE

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: NO CRITERIA ARE MET

* This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

6

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: NON-NATIVE ANNUAL GRASSLAND

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No LIVESTOCK GRAZING
Explain:

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1. HORDEUM LEPORINUM	NI	herb	11.		
2. BROMUS MOLLIS	FACU-		12.		
3. ERODIUM BOTRYS	UPL		13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 0 %
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: SITE DOMINATED BY UPLAND PLANTS

B. SOILS

Series/Phase: DARCO CLAY 8-15% Subgroup:** CHROMIC PELLUXERERT
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No Histic epipedon present? Yes/No
Is the soil mottled? Yes/No Gleyed? Yes/No
Matrix Color: 10 YR 2/2 Mottle Color:
Other hydric soil indicators: NONE OBSERVED

Is the hydric soil criterion met? Yes/No
Rationale: LOW CHROMA — NO MOTTLING

C. HYDROLOGY

Is the ground surface inundated? Yes/No Surface water depth:
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole:
List other field evidence of surface inundation or soil saturation: NONE OBSERVED

Is the wetland hydrology criterion met? Yes/No
Rationale: NO FIELD EVIDENCE

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: NO CRITERIA ARE MET

* This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community:

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: LIVESTOCK GRAZING

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
*1. ANEMOPSIS CALIFORNICA	OBL	Herb	11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 100%
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: SITE DOMINATED BY HYDROPHYTES

B. SOILS

Series/Phase: DIABLO CLAY 9-15%
Subgroup:** CHROMIC PELLOXERERT
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No
Histic epipedon present? Yes/No
Is the soil mottled? Yes/No
Gleyed? Yes/No
Matrix Color: 10YR 2/2
Mottle Color:
Other hydric soil indicators: SITE OCCURS WITHIN DRAINAGE

Is the hydric soil criterion met? Yes/No
Rationale: LOW CHROMA - MOTTLING

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth:
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole:
List other field evidence of surface inundation or soil saturation: SITE OCCURS WITHIN DRAINAGE
SEDIMENT DEPOSITS
SOIL MOIST - APPEARS TO BE SATURATED > 14 DAYS
DURING RAINFALL SEASON

Is the wetland hydrology criterion met? Yes/No
Rationale: DRAINAGE PATTERNS - SEDIMENT DEPOSITS -

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: ALL 3 CRITERIA ARE MET

This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

8

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: DRAINAGE CHANNEL WITHIN NON-NATIVE ANNUAL GRASSLAND

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: LIVESTOCK GRAZING

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
*1. BROMUS MOLLIS	FACU-	herb	11.		
*2. POLYPOGON MONSPELIENSIS	FACW		12.		
3. XANTHIUM SPINOSUM	FAC+		13.		
*4. LOLIUM MULTIFLORUM	FAC		14.		
*5. CYNODON DACTYLON	FAC		15.		
6. BROMUS DIANDRUS	UPL		16.		
*7. HORDEUM LEPORINUM	NI		17.		
8. EREMOCARPUS SETIGERUS	UPL		18.		
9. HELIOTROPIUM CURASSAVICUM	OBL		19.		
10. SALSOLA XANTII	FAC		20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 50%
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: SITE DOMINATED BY MIXTURE OF FAC's AND UPL's - HYDROPHYTES NOT CLEAR DOMINANTS

B. SOILS

Series/Phase: CL - Clear Lake Clay
Subgroup:** TYPIC PELLUXERERT
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No BASIN FLOOR
Histic epipedon present? Yes/No VERTISOL
Is the soil mottled? Yes/No
Gleyed? Yes/No
Matrix Color: 10YR 3/3
Mottle Color:
Other hydric soil indicators:
SOILS ARE GRAVEL-STONED-SAND
NO ORGANIC MATTER STREAKING IN HORIZON
Is the hydric soil criterion met? Yes/No
Rationale: HIGH CHROMA NO O/M STREAKING
NO MOTTLING

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth:
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole:
List other field evidence of surface inundation or soil saturation: SITE SITUATED BELOW OHW
SEDIMENT DEPOSITS - BUT INUNDATION / SATURATION EVIDENCE NOT EASILY INFERRED
Is the wetland hydrology criterion met? Yes/No
Rationale: NO FIELD EVIDENCE

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: NO CRITERIA ARE MET

This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

9

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-83 11-5-83
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: Non-native Annual Grassland

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: Livestock Grazing

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1. Hordeum leporinum	NI	Herb	11.		
2. Bromus mollis	FACU-	↓	12.		
3. Erodium cicutarium	UPL		13.		
4. Brassica nigra	UPL		14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 0 %
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: Site Dominated By Upland Plants

B. SOILS

Series/Phase: Clear Lake Clay
Subgroup:** Typic Chromoxerert
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No — Basin floor
Is the soil mottled? Yes/No
Histic epipedon present? Yes/No
Gleyed? Yes/No
Matrix Color: 10YR 3/3
Mottle Color:
Other hydric soil indicators: None Observed

Is the hydric soil criterion met? Yes/No
Rationale: No Field Evidence

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth:
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole:
List other field evidence of surface inundation or soil saturation: None Observed

Is the wetland hydrology criterion met? Yes/No
Rationale: No Field Evidence

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: No Criteria Are Met

* This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

10

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: DRAINAGE CHANNEL WITHIN NON-NATIVE ANNUAL GRASSLAND

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: LIVESTOCK GRAZING

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
*1. Elymus triticoides	FAC+	Herb	11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 100 %
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: SITE DOMINATED BY FAC+

B. SOILS

Series/Phase: Cl - Clear Lake Clay
Subgroup:** TYPIC PELLUDERT VERTISOL
Is the soil on the hydric soils list? Yes/No/Undetermined → BASIN FLOOR
Is the soil a Histosol? Yes/No
Histic epipedon present? Yes/No
Is the soil mottled? Yes/No
Gleyed? Yes/No
Matrix Color: 2.5YR 3/2
Mottle Color: —
Other hydric soil indicators: NONE OBSERVED
NO ORGANIC STREAKING IN HORIZONS

Is the hydric soil criterion met? Yes/No
Rationale: LOW CHROMA - NO MOTTLING

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth: —
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole: —
List other field evidence of surface inundation or soil saturation: SEDIMENT DEPOSITION - SITE BELOW DHW
DURATION OF SATURATION / INUNDATION NOT EASILY INFERRED FROM SITE CHARACTERISTICS

Is the wetland hydrology criterion met? Yes/No
Rationale:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: VEG, SOILS AND HYDRO EVIDENCE VERY WEAK
SOILS ARE TIGHT CLAYS SUPPORTING FAC

* This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD

11

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: Non-native annual grassland

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: LIVESTOCK GRAZING

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1. Bromus mollis	FACU-	HERB	11.		
2. Brassica nigra	UPL		12.		
3. Lolium multiflorum	FAC		13.		
4. Avena barbata			14.		
5. Elymus triticoides			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 33%
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: SITE DOMINATED BY UPLAND PLANTS

B. SOILS

Series/Phase: DoE2 - DIABLO CLAY 15-30%
Subgroup:** CHROMIC PELLUXERERT
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No
Histic epipedon present? Yes/No
Is the soil mottled? Yes/No
Gleyed? Yes/No
Matrix Color: 10YR 2/2
Mottle Color: —
Other hydric soil indicators: NONE OBSERVED

Is the hydric soil criterion met? Yes/No
Rationale: LOW CHROMA - NO MOTTLING

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth: —
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole: —
List other field evidence of surface inundation or soil saturation: NONE OBSERVED

Is the wetland hydrology criterion met? Yes/No
Rationale: NO FIELD EVIDENCE

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: NO CRITERIA ARE MET

This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD

12

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: SEASONAL POND WITHIN NON-NATIVE ANNUAL GRASSLAND

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: PONDED CREATED BY CONSTRUCTING DIRT LEVEES

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1. Xanthium spinosum	FAC+	Herb	11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 100%
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: SITE DOMINATED BY FAC'S

B. SOILS

Series/Phase: DaD - DIABLO CLAY 9-15%
Subgroup:** CHROMIC PELLUDERT
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No
Histic epipedon present? Yes/No
Is the soil mottled? Yes/No
Gleyed? Yes/No
Matrix Color: 10 YR 2/1
Mottle Color:
Other hydric soil indicators:

Is the hydric soil criterion met? Yes/No
Rationale: LOW CHROMA - MOTTLING - GLEYING

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth: —
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole: —
List other field evidence of surface inundation or soil saturation: SEDIMENT DEPOSITS - HOOF PRINTS SOIL SURFACE CRACKED MATTED VEGETATION

Is the wetland hydrology criterion met? Yes/No
Rationale: SEDIMENT DEPOSITS - CRACKED SOIL SURFACE SOIL COLUMN COMPOSED OF SEDIMENT LAYERS

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: ALL 3 CRITERIA MET

This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

** Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD

13

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-5-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: NON-NATIVE ANNUAL GRASSLAND

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: LIVESTOCK GRAZING

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1. BRASSICA NIGRA	UPL	HERB	11.		
2. BROMUS MADIT	UPL	↓	12.		
3. CENTAUREA SOLSTITIALIS	UPL		13.		
4. HORDEUM LEPORINUM	NI		14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 0 %
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: SITE DOMINATED BY UPLAND PLANTS

B. SOILS

Series/Phase: DIABLO CLAY 9-15% Subgroup:** CHROMIC PELLOXERERT
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No Histic epipedon present? Yes/No
Is the soil mottled? Yes/No Gleyed? Yes/No
Matrix Color: 10YR 3/3 Mottle Color: —
Other hydric soil indicators: NONE OBSERVED

Is the hydric soil criterion met? Yes/No
Rationale: NO FIELD EVIDENCE

C. HYDROLOGY

Is the ground surface inundated? Yes/No Surface water depth: —
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole: —
List other field evidence of surface inundation or soil saturation: NONE OBSERVED

Is the wetland hydrology criterion met? Yes/No
Rationale: NO FIELD EVIDENCE

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: NO CRITERIA ARE MET

This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD*

14

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-7-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: NON-NATIVE ANNUAL GRASSLAND

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: Livestock Grazing

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1.			11.		
2. NO VEGETATION			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: —
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: NO VEG.

B. SOILS

Series/Phase: DaE2 - Diablo Clay 15-30% Subgroup:** Chromic Pelleuert
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No Histic epipedon present? Yes/No
Is the soil mottled? Yes/No Gleyed? Yes/No
Matrix Color: 10YR 3/1 Mottle Color: 5YR 5/8
Other hydric soil indicators:

Is the hydric soil criterion met? Yes/No
Rationale: Low chroma - mottles

C. HYDROLOGY

Is the ground surface inundated? Yes/No Surface water depth: —
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole: —
List other field evidence of surface inundation or soil saturation: Salt encrustations, Hoof prints, Sediment deposits

Is the wetland hydrology criterion met? Yes/No
Rationale: Sediment Deposits

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: Site Not Vegetated - Duration of Inundation (Estimate) Appears to be too short to support hydrophytes

This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

*Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

DATA FORM: ROUTINE ON-SITE DETERMINATION METHOD

15

Field Investigator(s): Patrick Boursier/David Hartesveldt	Date: 10-7-93 11-7-93
Project/Site: San Juan Valley Golf Course	County: San Benito State: CA
Applicant/Owner: Brandenburg Properties	Plant Community: Non-native annual grassland

Do normal environmental conditions exist at the plant community? Yes/No
Explain:

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes/No
Explain: Livestock grazing

A. VEGETATION

Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum	Plant Species dominant plants denoted with asterisk	Indicator Status	Stratum
1. Hordeum murinum	UPL	Herb	11.		
2. Bromus mollis	FACU-	↓	12.		
3. Hordeum leporinum	NI	↓	13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC: 0 %
Is the hydrophytic vegetation criterion met? Yes/No
Rationale: Site dominated by upland plants

B. SOILS

Series/Phase: Diablo Clay 15-30%
Subgroup:** Chromic Pelloxerert
Is the soil on the hydric soils list? Yes/No/Undetermined
Is the soil a Histosol? Yes/No
Histic epipedon present? Yes/No
Is the soil mottled? Yes/No
Gleyed? Yes/No
Matrix Color: 2.5-YR 3/2
Mottle Color: —
Other hydric soil indicators: None observed

Is the hydric soil criterion met? Yes/No
Rationale: Low chroma - no mottles

C. HYDROLOGY

Is the ground surface inundated? Yes/No
Surface water depth: —
Is the soil saturated? Yes/No
Depth to free-standing water in pit/soil probe hole: —
List other field evidence of surface inundation or soil saturation: None observed

Is the wetland hydrology criterion met? Yes/No
Rationale: No field evidence

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes/No
Rationale for jurisdictional decision: No criteria met

This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.

Classification according to "Soil Taxonomy."

H.T. HARVEY AND ASSOCIATES

0

BIOLOGICAL RESOURCES ASSESSMENT
SAN JUAN OAKS GOLF CLUB

San Benito County, California

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1.0 INTRODUCTION

The San Juan Oaks Golf Club property encompasses approximately 2,000 acres within the foothills of the Gabilan Range of the coastal mountains at the southeastern end of the San Juan Valley. It is located about three miles southwest of the City of Hollister and approximately one mile south of the intersection of Highway 156 and Union Road (Figure 1). The property consists of the existing San Juan Oaks Golf Club and surrounding undeveloped ranchlands and hills.

Numerous surveys have been conducted on the San Juan Oaks Golf Club property to describe the existing biological resources and determine the presence/absence of special-status species. Some of these surveys were conducted in conjunction with the environmental review for construction of the existing golf course. General and species-specific surveys were conducted in 1992 and 1993 by Biosystems Analysis, Inc. and a wetland determination was conducted by H.T. Harvey and Associates in 1994 within the proposed golf course area. Biosystems evaluated the habitat for the potential to support San Joaquin kit fox and conducted surveys to determine the presence/absence of California tiger salamander.

Zander Associates began surveys of the San Juan Oaks Golf Club property in 1999 and continued through 2003. Our study area focused on the portion of the property outside of the existing golf course but we did survey some of the golf course ponds. From 1999 through 2003, we completed a wetlands assessment; identified, characterized and mapped the different vegetation types; completed surveys for California red-legged frog, California tiger salamander, California burrowing owl and special-status plant species. The results of our wetlands assessment are provided in a separate document. This report describes the various vegetation types and wildlife habitats present on the property, provides the results of our species-specific surveys, and evaluates the potential effects of the proposed new golf course project.

1.1 Study Methodology

Zander Associates reviewed various documents describing the biological resources on the San Juan Oaks Golf Club property that were prepared prior to construction of the existing golf course and were used for the environmental review of that project. We also queried the California Natural Diversity Database (CNDDB) for information on special-status plant and animal species recorded to occur in the vicinity of the property. U.S.G.S. topographic maps, National Wetland Inventory Maps, the San Benito County Soil Survey and aerial photographs of the property were used to identify physical features and assist with field surveys.

General vegetation and wildlife surveys were conducted by driving and walking the entire property using aerial photographs and topographic maps (scale 1″ = 300′) to verify locations and map specific features/habitats. These surveys were completed on April 13 and 14, 1999, May 6, and 25 1999, May 10, 2000, and October 14, 2002. Aquatic habitat sampling was conducted on April 14, May 6 and 7, 1999 by Bryan Mori (Biological Consulting Services). Ponds were sampled using dip nets and/or a 20’ seine with a 1/8” mesh. The surveys were targeted for

California tiger salamander and California red-legged frog but all fauna captured were identified. Specific surveys for special status plant species were conducted April 13 and 14, 1999, May 25, 1999, and May 4 and July 31 2001 by systematically walking the property and identifying all plant species encountered in the herbaceous layer. Any species unable to be identified in the field was collected and keyed in the laboratory.

2.0 EXISTING SETTING

The property is located at the eastern end of the San Juan Valley and extends into the lower northern slopes of the Gabilan Range. Elevations range from a low of about 215 feet in the relatively flat pasturelands toward the westerly edge of the property to a high of about 1131 feet in the hills to the south. The hills are cut by several prominent ephemeral drainage courses that carry winter runoff in a more or less northerly direction towards the pasturelands where the channels disappear and the water dissipates as overland flow. Several stock ponds and water retention basins are found throughout the undeveloped portions of the site.

The property encompasses approximately 2000 acres and includes the existing golf course and associated facilities which comprise about 250 acres. The lands outside of the golf course consist of grasslands and oak woodlands and are used for grazing and dryland farming. Surrounding uses include intensive agriculture to the north, sparsely developed wooded hills to the south and west, and San Justo Recreation Area to the east.

2.1 Vegetation Types and Wildlife Habitats

Four distinct vegetation types were identified on the site; grassland, oak woodland, mixed riparian forest and ruderal/disturbed. The identification of these vegetation types generally follows Holland's system of classification (1986) as modified by Sawyer and Keeler-Wolf (1995). In addition, there are several seasonal ponds that don't support a distinct vegetation type but do provide wildlife habitat. The basic characteristics of these vegetation types and wildlife habitats are described below and the extent of each in the project area is illustrated on Plate 1. Plant species identified through general floristic and rare plant surveys in 1999 and 2001 are listed in Appendix A.

2.1.1 Grassland

Grassland is the most extensive vegetation type in the study area (Plate 1). Most of the grasslands have become compacted and dominated by introduced annual species including rip gut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), Italian ryegrass (*Lolium multiflorum*), rat-tail fescue (*Vulpia myuros*) and barnyard foxtail (*Hordeum murinum* ssp. *leporinum*). Within the annual grassland at higher elevations and on steeper slopes there are frequent patches of native perennial grasses, primarily purple needlegrass (*Nasella pulchra*) and nodding needlegrass (*Nasella cernua*). There are areas where native grasses are locally dominant, but the patches are relatively small and fragmented and therefore were not distinguished as a separate vegetation type. Native wildflowers observed in the grasslands during

spring and summer surveys included blue-eyed grass (*Sisyrinchium bellum*), purple owl's clover (*Castilleja exserta ssp. exserta*), common muilla (*Muilla maritima*), suncups (*Camissonia ovata*), and California poppy (*Eschscholzia californica*).

Grasslands provide foraging habitat for a variety of animals. The numerous invertebrate species often found in grasslands provide a food source for lizards, birds, and some small mammals, including bats. Many of these animals, in turn, serve as prey for larger species. Animals commonly found in California grasslands include ringneck snake, gopher snake, red-tailed hawk, American kestrel, Say's phoebe, western meadowlark, western harvest mouse, Botta pocket gopher, lesser mole, black-tailed jack rabbit, coyote, bobcat, and black-tailed deer.

2.1.2 Oak Woodland

The oak woodlands on the San Juan Oaks Golf Club property are dominated by various oak species depending on moisture availability and slope aspect of a particular area. At the lower elevations and along ephemeral drainages near the canyon bottoms, coast live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*) are almost codominant. At higher elevations on drier sites and south-facing slopes, blue oak (*Quercus douglasii*) is dominant with black oak (*Quercus kelloggii*) found in localized areas. Canopy density of the oak woodlands also varies depending on the particular microclimate. The canopy is most dense where the microclimate is moister such as on north-facing slopes, in moderately steep ravines and along canyon bottoms. On south-facing slopes, near the tops of ridges and on open knolls, the canopy is more open and characteristic of an oak savanna. Understory composition also varies depending upon local conditions such as canopy density, moisture availability and soil type. Common understory species in moister areas include poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), snowberry (*Symphoricarpos albus* var. *laevigatus*), wood rose (*Rosa gymnocarpa*), hedge nettle (*Stachys bullata*) and wood fern (*Dryopteris arguta*).

Oak woodlands provide good habitat for a variety of wildlife species. Oak trees provide nesting sites and cover for many birds and mammals. Cavity-bearing trees supply denning, nesting, and roosting sources. Woody debris and duff in the forest contribute to the structural complexity of the forest floor and provide foraging areas for small mammals and microclimates suitable for amphibians and reptiles. Acorns are a valuable food source for many animal species, including the California quail and black-tailed deer. Other representative animal species of oak dominated forests include the arboreal salamander, southern alligator lizard, common kingsnake, western screech owl, scrub jay, and Virginia opossum. The woodland canopy also provides suitable nesting habitat for several bird species, including raptors.

2.1.3 Mixed Riparian Forest

This vegetation type occurs in relatively narrow bands along drainages where the microclimate is moist and the water table is closer to the surface. The mixed riparian forest is dominated by open to closed canopies of coast live oak, valley oak and red willow (*Salix laevigata*). Along the more significant drainage in the eastern portion of the site (Drainage F on Plate 1), California sycamore (*Platanus racemosa*) are also a major component of the canopy. Arroyo willow (*Salix lasiolepis*)

is interspersed throughout the mixed riparian forest vegetation type in the project area. Common shrubs associated with this vegetation type include poison oak, blue elderberry (*Sambucus mexicana*), snowberry, California blackberry and California rose (*Rosa californica*). Herbaceous vegetation is sparse but there are a number of native grasses and forbs scattered throughout the riparian forest including Douglas' mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica dioica* ssp *holosericea*), western willow herb (*Epilobium adenocaulon*), miner's lettuce (*Claytonia perfoliata*) and willow dock (*Rumex salicifolia*).

Riparian forests typically provide valuable wildlife habitat because the canopy of trees and shrubs present provide nesting and foraging sites and cover for animals in an area adjacent to a water source. Animal species that are common to riparian habitats include the California newt, Pacific tree frog, California red-legged frog, bullfrog, arboreal salamander, song sparrow, yellow warbler, and ornate shrew. The cottonwood and sycamore trees included in the mixed willow riparian vegetation could be used by raptors for nesting and roosting, particularly since they are adjacent to grasslands that provide foraging habitat. Reptiles including the western fence lizard, western skink, and southern alligator lizard are often found in the leaf litter, downed tree branches and fallen logs in riparian areas.

2.1.4 Ruderal/Disturbed

The ruderal/disturbed areas include the existing golf course and associated facilities. There are several ponds within the golf course and most of these are kept supplied with water year-round. Emergent aquatic vegetation and riparian vegetation has established around the perimeter of a few ponds that are at the edge of the golfcourse but the ponds in the middle of the fairways are kept relatively free of aquatic vegetation. The fairways and greens are turfed and there is landscaping around the clubhouse and parking areas.

The disturbed areas provide limited habitat for wildife in the vicinity. Deer may browse on the turfed areas and the ponds at the edge of the golf course that contain emergent and woody vegetation provide suitable habitat for amphibians and birds.

2.1.5 Ephemeral Drainages

There are three prominent ephemeral drainage systems that convey runoff from the hills in the southern portion of the property northeast through the site (Drainages C, D and F on Plate 1). All of these contain incised main stem channels and tributaries that carry runoff from the surrounding oak woodlands onto and through the central part of the property. These drainage channels support an established riparian canopy but typically lack in-channel herbaceous wetland vegetation.

Two less prominent drainages (Drainages A and B) originate offsite and carry seasonal runoff through small channels that extend about 200 linear feet onto the property and then end. Runoff carried in these drainages dissipates as overland sheet flow through the northwestern portion of the property. A third drainage (Drainage E) originates in a side canyon adjacent to the main stem of Drainage D and empties into a constructed stock pond (Pond 10).

Drainage G is a man-made ditch that begins near the maintenance yard for the golf course, heads towards the northern property boundary, turns west and follows the length of the northern property boundary. At the northwest corner of the property, the ditch turns north again and follows a course through agricultural fields until it eventually links with San Juan Creek near Highway 156. The ditch is hydrologically connected to Drainage D through newly created creeks and ponds in the golf course and it is connected to Drainage F through overflow/diversions from Pond 11. None of the other drainages are directly connected to Drainage G. There is one side tributary to this drainage that was dug to convey overflow from the golf course ponds off the site.

In addition to the drainage channels, there are numerous erosional gullies located primarily in the steeper hillside areas. These gullies typically do not have identifiable beds, banks or channels, are located in extremely limited watershed areas, do not support any hydrophytic vegetation and are not tributary to any larger drainage systems.

2.1.6 Ponds

Almost all of the ponds on the property have been created as water supply/retention areas associated with ranching operations or as golf course features. There are 13 ponds not associated with the golf course that vary in size from 1.7 acres to only 0.03 of an acre. All of these ponds are seasonal, typically containing water during the winter months and drying out in the late spring and summer. There is no aquatic vegetation associated with these ponds other than occasional algal blooms and aquatic ferns and only marginal shoreline vegetation due to heavy cattle use. A description of each of the 13 ponds identified follows.

<u>Pond 1</u>**:** This is a former irrigation pond that was filled with well water and was used for the ranching operations. It is no longer supplied with water and does not receive enough overland flow or direct rainfall naturally to be maintained as a pond. It is located adjacent to the golf course maintenance yard and the access road to the yard lies between the pond and the open hillsides. Wetland plant species were observed in the pond in 1999 but no signs of ponding (algal matting, vegetation matting) were present.

There was no water in this pond when the 1999 aquatic surveys were conducted and therefore it was not sampled. In 1993, there was water in the pond and Biosystems observed western toad larvae and larvae and adults of Pacific treefrog and California newt.

<u>Pond 2</u>**:** This is a larger stock pond that remains hydrologically connected to the adjacent hillsides and therefore continues to pond water seasonally. There is no emergent aquatic vegetation associated with this pond and no well-developed shoreline vegetation. The pond is heavily used by cattle. Only one California newt was captured during 1999 aquatic surveys and invertebrates were uncommon in this pond.

<u>Pond 3</u>**:** This pond contained water throughout 1993 (BioSystems 1994) but was completely dry in 1999. Biosystems observed fairly abundant submergent, emergent and shoreline vegetation with several decadent willows in this pond but no wetland vegetation was present in 1999.

California tiger salamander (CTS) larvae were present here in 1993 but there was not a sufficient amount of water during the 1999 aquatic surveys to re-sample this area.

Pond 4: This is a relatively small pond situated at the base of a hill and adjacent to one of the maintenance roads for the golf course. One decadent willow and a few stems of spikerush (*Eleocharis macrostachya*) were observed around the southern margin of the pond in 1999. The surrounding vegetation consists of annual grasslands and golf course greens. Treefrog larvae were found in abundance in this pond in 1999 as were invertebrates including clam shrimp, seed shrimp, backswimmers, damselfly naiads and beetle larvae. California linderialla were also observed. No CTS were found in this pond but one adult California red-legged frog (CRLF) was captured and released during the May 6, 1999 survey. Biosystems reported CTS larvae in this pond in 1993.

Pond 5**:** This pond is downslope from Pond 6 and measures about 100 feet by 20 feet. There is no associated aquatic vegetation and it is surrounded by annual grassland. It appears to only hold water occasionally and is not consistently present from year to year.

Pond 6**:** Pond 6 has a relatively small watershed but it retains water most of the year. There is no aquatic vegetation in the pond and no wetland vegetation along its shores. Several large CTS larvae were captured in this pond during the 1999 aquatic surveys and there was speculation that these larvae were similar to the non-native invasive species of tiger salamander. Treefrog larvae were common as were invertebrates such as backswimmers, water beetles, damselfly naiads and dragonfly naiads.

Pond 7**:** This pond was created at the base of a swale by constructing an artificial berm. The area that ponds seasonally is approximately 140 feet by 90 feet. Mosquito fern (*Azolla filiculoides*) was observed on the water surface and spikerush and knotweed were present along the water margin. Biosystems observed CTS larvae in this pond in 1993. The pond was seined again in May 1999 and four minnow traps were left overnight in the central portion of the pond. No CTS were captured through seining or trapping but treefrog larvae were abundant and one newt larvae was captured.

Pond 8: This is an artificial reservoir excavated adjacent to the main stem of Drainage D. The reservoir is relatively large (approximately 0.7 acre at the ordinary high water line), the sides are steep, precluding establishment of perimeter wetland or riparian vegetation. Water is diverted from Drainage D into this reservoir through a culvert and is returned to the channel by way of mechanical valves at the downstream end. CRLFs were observed in this pond in 1999 but no CTS were present.

Pond 9: Pond 9 is a small in-channel pond/settling basin upstream of the diversion culvert for Pond 8 in Drainage D. This pond holds water during the winter storm season but dries in the spring and remains dry until the following winter. It does not support a prevalence of wetland vegetation. The surface area of this pond at the ordinary high water mark is approximately 3,200 square feet. CRLFs were observed in this pond in 1999 but no CTS were present.

Pond 10: This large stock pond was excavated at the downstream end of a seasonal drainage course (Drainage E). It holds water throughout most of the summer and thus may be spring fed since no flow was observed in the upstream drainage. Two large willow snags represent about the only vegetation along the banks of this pond, which is heavily used by cattle. The surface area of the pond defined by the ordinary high water line and is about 1.7 acres. California newts and backswimmers were common in this pond. CTS larvae were captured in this pond in May 1999.

Pond 11**:** This is an historic diversion structure located near the base of a small drainage. It stores water seasonally and does not support submergent, emergent or shoreline vegetation. CTS larvae were present in this pond in 1993.

Pond 12**:** This is a stock pond that occurs within the proposed open space. It is mostly unvegetated and receives heavy use by livestock.

Pond 13**:** This is another stock pond within the proposed open space. This pond is also mostly unvegetated because of being trampled by livestock and is approximately the same size as Pond 12 (3,500 sqaure feet).

2.1.7 Seasonal Isolated Wetlands

Seasonal wetlands are limited in extent and occur primarily in the relatively flat portions of the site where the duration of soil saturation or surface water ponding is sufficient to establish all three wetland parameters: wetland plants, soils and hydrology. Five seasonal wetland areas were identified and are described below.

W-1: This area is near the northwestern corner of the property in the west pasture. Water ponds seasonally in this microtopographic depression underlain by Clear Lake clay. At the time of the 1999 surveys, no surface water or soil saturation was observed in this area but the vegetation composition was slightly different than the surrounding grassland and consisted mostly of facultative wetland species.

W-2: This wetland area is actually a series of small isolated depressions situated along a fenceline in the western pasture (Plate 1). These depressions were thoroughly saturated in March and April of 1999 and continued to pond and or contain saturated soils during the growing seasons in 2000 - 2002. The predominant vegetation in these depressions is loosestrife (*Lythrum hyssopifolia*), curly dock (*Rumex crispus*) and common polygonum (*Polygonum arenastrum*). The extent of the eight depressions comprising this wetland area is approximately 560 square feet.

W-3: This wetland is another microtopographic depression in the west pasture that is ponded or saturated during the growing season, supports a predominance of wetland vegetation, and is underlain by hydric soils. The area is approximately 35 feet by 50 feet (1,750 square feet).

W-4: Wetland W-4 is comprised of a small narrow swale culminating in a low depression that ponds water seasonally and supports hydrophytic vegetation including rabbitsfoot grass (*Polypogon monspeliensis*) and crypsis (*Crypsis schoenoides)*. The swale and the depression are approximately 1,000 square feet in extent.

W-5: This wetland has developed as the result of a road that was cut into the hillside. Water flows off the slope and is trapped by the roadcut creating an approximately 60 square-foot area that remains saturated and supports wetland grasses such as rabbitsfoot grass and crypsis.

2.1.8 Seeps

Four small seeps were identified on the property in the hills of the upper (southerly) limits of the site. Three of the seeps (Seeps #1, 2, 3) are on the same hillside above an access road and are relatively small in extent. Seep # 1 consists of a narrow channel, approximately 1 foot wide, that widens to about 50 feet where it meets the road and is mostly unvegetated due to trampling by livestock. Seep # 2 is more vegetated and is approximately 35 feet by 50 feet. Seep # 3 is slightly larger, 30 feet by 100 feet, but has essentially the same vegetative composition as the others. Seep #4 is upslope and across the road from the other seeps and is actually part of a larger wetland area that continues off of the property. Only about 100 square feet of the wetland area associated with this seep is within the project boundaries.

2.2 Special-Status Species

For the purpose of this assessment, we identify special-status species as: those plants and animals listed, proposed for listing, or candidates for listing as threatened of endangered by the U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (ESA); those listed or proposed for listing as rare, threatened, or endangered by the California Department of Fish and Game (CDFG) under the California Endangered Species Act (CESA); plants occurring on Lists 1B and 2 of the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001); and animals designated as "Species of Special Concern" by the CDFG.

The California Natural Diversity Database (CNDDB) (CDFG, 2002) lists occurrences of several special status animal species and three plant species within a 5-mile radius of the project site. A list of the special status plant and animal species evaluated for their potential presence on the project site is provided in Table 1 and Table 2, respectively, along with a summary of our findings.

2.2.1 Plants

Surveys for special-status plants were conducted in areas outside of the existing golf course on the San Juan Oaks Golf Club property on April 13 and 14, 1999, May 25, 1999, May 4 and July 31, 2001. These surveys were conducted according to CDFG guidelines (CDFG, 1984) and included walking transects through all grassland, woodland and riparian habitat on the site, listing all plant species encountered. Any species that was not identifiable in the field was

Table 1: Special Status Plant Species Evaluated for Potential to Occur on the San Juan Oaks Golf Club Property

Plant Species	Status Fed/CA/CNPS	Habitat	Findings
Alkali milk-vetch *(Astragalus tener var. tener)*	--/--/1B	Vernal pools (alkaline), valley foothill grasslands. Blooms March – June	Not observed on the site during numerous floristic surveys.
San Benito evening primrose *(Camissonia benitensis)*	T/--/1B	Clay or gravelly serpentine soils on alluvial terraces; New Idria area. Blooms May – June.	No serpentine habitats present on site. Not observed on the site during numerous floristic surveys.
Recurved larkspur *(Delphinium recurvatum)*	--/--/1B	Alkaline areas within valley and foothill grasslands. Blooms March – May.	Not observed on the site during numerous floristic surveys.
Pinnacles buckwheat *(Eriogonum nortonii)*	--/--/1B	Chaparral and valley foothill grasslands. Blooms May – June	Not observed on the site during numerous floristic surveys.
Round-leaved filaree (*Erodium macrophyllum*)	--/--/2	Valley and foothill grasslands in clay soils. Blooms March – May.	Not observed on the site during numerous floristic surveys.
Hoover's button-celery *(Eryngium aristulatum)*	--/--/1B	Vernal pools or lagunas in South Coast Ranges. Blooms in July.	Not observed on the site during numerous floristic surveys.
Talus fritillary *(Fritillaria falcata)*	--/--/1B	Serpentine talus slopes, 1000-3000 feet; inner South Coast Ranges; In cultivation. Blooms March – May.	No serpentine habitats present and site out of elevational range. Not observed on the site during numerous floristic surveys.
Fragrant fritillary *(Fritillaria liliacea)*	--/--/1B	Heavy soils, open hills and fields near coast below 600 feet; In cultivation. Blooms February – April.	Not observed on the site during numerous floristic surveys.
Congdon's tarplant *(Hemizonia parryi ssp. congdonii)*	--/--/1B	Alkaline valley foothills and moist grasslands. Blooms June - November	Not observed on the site during numerous floristic surveys.
Santa Cruz tarplant *(Holocarpha macradenia)*	T/E/1B	Coastal grassland terraces around Monterey and San Francisco Bays; often on clay soils. Blooms June – October.	Not observed on the site during numerous floristic surveys.
Pale yellow layia *(Layia heterotricha)*	--/--/1B	Valley foothill grasslands; alkaline or clay soils. Blooms March –June.	Not observed on the site during numerous floristic surveys.
Most beautiful jewelflower *(Streptanthus albidus* ssp. *peramoenus)*	--/--/1B	Serpentine soils in chaparral and valley and foothill grasslands. Blooms April – June.	No serpentine habitats present on site. Not observed on the site during numerous floristic surveys.

Status Explanations

Federal (Fed):
T = listed as threatened under the federal Endangered Species Act.

State (CA):
E = listed as endangered under the California Endangered Species Act.

California Native Plant Society (CNPS)
1B = Rare or Endangered in California and Elsewhere
2 = Rare or Endangered in California but Common Elsewhere

Table 2: Special Status Animal Species Evaluated for the Potential to Occur on the San Juan Oaks Golf Club Property

Animal Species	Status-Fed/CA	Habitat	Findings
Invertebrates			
Vernal pool fairy shrimp (*Branchinecta lynchi*)	T/--	Temporary pools within grass or mud-bottomed swales; earth slump or basalt-flow depression pools in grasslands.	Potential habitat in Pond 4. Not found during aquatic surveys.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	E/--	Vernal pools with clear to turbid water in grass-bottomed pools and clear-water sandstone depression pools.	Potential habitat in Pond 4. Not found during aquatic surveys.
Amphibians			
California red-legged frog *(Rana aurora draytonii)*	T/CSC	Slow-moving streams with plunge pools or oxbows. Freshwater perennial pools and ponds with overhanging vegetation.	Present on site. Found in Pond 4 and in one golf course pond.
Western spadefoot toad (*Scaphiopus hammondi*)	--/CSC	Central Valley and foothill. Prefers arid grassland & open woodland in low hills & valleys.	No suitable habitat present. Site is out of distribution range.
California tiger salamander (*Ambystoma californiense*)	PT/CSC	Grasslands and open oak woodlands; requires seasonal ponds for breeding; uses ground squirrel or gopher burrows in upland areas for aestivation sites	Present on site. Larvae found in Pond 6 and Pond 10 in 1999.
Reptiles			
California horned lizard (*Phrynosoma coronatum frontale*)	--/CSC	Found in a variety of habitats, from grasslands to chaparral to riparian oak woodland; most abundant in alluvial fans.	Potential habitat present. Not observed during numerous surveys.
Western pond turtle *(Clemmys marmorata)*	--/CSC	Permanent or nearly permanent water in a variety of habitats. Requires upland nesting and basking sites.	Potential habitat present. Not observed in 1999, 2000 or 2001.
Birds			
Cooper's hawk (*Accipiter cooperii*)	--/CSC	Nests in riparian oak woodland forest; hunts for avian prey in open woodland and riparian corridors.	Winter and summer ranges include all of San Benito County. Potential nesting habitat present but no nests observed on site to date.
Tricolored blackbird (nesting) (*Agelaius tricolor*)	--/CSC	Nests in marshes with bulrush, blackberry and cattails.	Potential habitat present around golf course pond where CRLF observed. Not observed on site to date.
Golden eagle *(Aquila chrysaetos)*	--/CSC	Breeds on cliffs or in large trees isolated from disturbance. Open mountains, foothills and plains; open country.	Winter and summer range includes all of San Benito County. Potential nesting habitat on site.
Burrowing owl *(Athene cunicularia)*	--/CSC	Flat grasslands, deserts, and agricultural fields; nests in abandoned ground squirrel burrows	Potential habitat present. No owls or signs of owl use observed on site during numerous surveys

Table 2: Continued

Animal Species	Status-Fed/CA	Habitat	Findings
Ferruginous hawk *(Buteo regalis)*	--/CSC	Grasslands, desert scrub, low foothills surrounding valleys. Nests in trees of cliffs.	
Northern harrier (*Circus cyaneus*)	--/CSC	Marshes and open grasslands. Nests in marsh vegetation or in tall grass.	Observed foraging on site. No nesting habitat present.
White-tailed kite (*Elanus leucarus majusculus*)	--/CSC	Found in river valleys, riparian woodlands and grasslands along the Pacific coast.	Observed foraging onsite. Potential nesting habitat present.
Prairie falcon (*Falco mexicanus*)	--CSC	Occupies mountainous grasslands, plains, open hills and prairies. Nests on cliff faces.	May forage onsite. No nesting habitat present.
Peregrine falcon (*Falco peregrinus anatum*)	DL/E	Found within coastal habitats in open country cliffs.	Potential foraging habitat present. Unlikely to nest onsite
Bald eagle *(Haliaeetus leucocephalus)*	--/CSC	Found primarily along the coast near rivers and large lakes. During migration, found in mountain range and open country.	Winter range includes all of San Benito County. May forage onsite but no nesting habitat present.
California horned lark (*Eremophila alpestris actia*)	--/CSC	Found in short dry grasslands. Nests on the ground in grasslands.	Observed foraging on the property.
Loggerhead shrike *(Lanius ludovicianus)*	--/CSC	Nests in bushes or trees surrounded by open grassland or ruderal habitats.	Observed foraging on the property.
Bank swallow (nesting) (*Riparia riparia*)	--/T	Found near marshes, streams, and lakes. Nests in sand banks.	Known to nest along banks of Pajaro River. Not currently recorded in San Benito River. Not likely to nest along the drainages on the site.
Mammals			
Townsend's Big-eared bat (*Plecotus townsendii*)	--/CSC	Throughout California in mesic environments with caves or man-made structures for roosting. Feeds along riparian habitat edges.	May forage onsite. Suitable roosting habitat not present.
San Joaquin kit fox *(Vulpes macrotis mutica)*	E/T	Grasslands in the San Joaquin Valley and adjacent hills of Coast Ranges; occupies dens in open areas with loose-textured soils, often excavated from abandoned ground squirrel burrows.	Within historic range. Not detected during 1992 protocol surveys. No evidence of kit fox activity observed onsite to date.

Status Explanations

Federal (Fed):

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
PT = proposed for listing as threatened
DL = delisted

State (CA):

E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
CSC = designated as a "species of special concern" by the CDFG.

collected and keyed in the laboratory. A list of all of the plant species identified on the site during these surveys is provided in Appendix A.

No special status plants were found on the property during our surveys. Many of the special status plants known to occur in San Benito County are associated with serpentine soils or serpentinite bedrock. There is no serpentine soil or serpentinite bedrock on the site and therefore the species associated with this habitat are not expected to be present. Other species associated with habitats that are found on the project site would have been identifiable at the time of the surveys, which were conducted during the blooming period of these plants. A summary of our conclusions with respect to each target plant species is provided in Table 1.

2.2.2 Animals

The special status animal species evaluated for their potential to occur on the property and a summary of our findings is provided in Table 2. A more detailed discussion for some of these species follows.

San Joaquin Kit Fox (Vulpes macrotis mutica): This small canid is federally listed as endangered and state listed as threatened. The proposed project site is considered to lie within the historic range of the San Joaquin kit fox (SJKF) as determined by the U. S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG). Grassland habitat at the site is suitable for hunting and denning (abundant ground squirrels and ground squirrel burrows). Specific surveys for SJKF were conducted in May and July of 1992 by Biosystems Analysis, Inc. focusing on areas that are now incorporated into the existing golf course but including some portion of the property outside of that boundary. The surveys were conducted following CDFG Region 4 approved survey methodology.

No kit foxes or evidence of kit foxes was observed during the 1992 surveys. Nineteen "potential" kit fox dens (ground squirrel burrows) of suitable size but with no sign of kit fox use were found on the property but no "known," "natal/pupping," or "atypical" dens were identified. Based on the survey results, it was determined that SJKF were not present on the San Juan Oaks Golf Club property.

California Tiger Salamander (Ambystoma californiense): The Central California population of California tiger salamander (CTS) was proposed for federal listing as threatened by the U.S. Fish and Wildlife Service on May 16, 2003 and the animal is a State Species of Special Concern. CTS breed in seasonal pools in grasslands and lowland hills, but spend most of their life in subterranean refugia in nearby upland habitat, commonly using small mammal burrows for that purpose. CTS are known to move 1.0 mile or more between aestivation sites and breeding pools. For successful breeding, CTS require seasonal pools that hold water for a minimum of four months, to allow CTS larval metamorphosis to occur. Because CTS adults may take 4 to 5 years to reach sexual maturity, during which time they are using upland habitat, 95-99% of their life cycle is spent on land (Shafer, pers. comm.), and suitable upland habitat is critical to the survival of the species. Presence of the species is most readily determined by springtime pond surveys or by rainy season nighttime observations.

Amphibian surveys were conducted at the project site on April 14, May 6, and May 7, 1999, by Bryan Mori (Biological Consulting Services). Sampling was done using dipnets and a fine-mesh seine. Eight ponds were sampled, and a brief visual survey for suitable habitat was conducted along the drainages.

CTS larvae were found in two ponds on the project site (Pond 6 and 10 on Plate 1). There is potential aestivation habitat in the open grassy hills surrounding these ponds although few ground squirrel holes were identified in proximity to the ponds in 1999.

California Red-legged Frog (Rana aurora draytonii): The California red-legged frog (CRLF) is a federally listed threatened species and a California Species of Special Concern. This native frog is a pond-dwelling amphibian occupying perennial and intermittent ponds from sea level up to approximately 4500 feet in elevation. Ponds inhabited by CRLF typically contain some type of vegetation usually willows and/or tules either submergent or overhanging, although frogs have also been observed in ponds relatively devoid of visible vegetation. Deep water (>3 feet) allows the frogs refugia from potential predators, however frogs can be found in more shallow waterbodies as well.

Surveys for CRLF were conducted on the property site on May 6 and May 7, 1999. Adult CRLF were found associated with four ponds – Pond 4, Pond 8 and Pond 9 on Plate 1 and the westernmost pond associated with the golf course along the entrance road to the clubhouse.

Western Spadefoot Toad (Scaphiopus hammondii): The western spadefoot toad (WST) is a California Species of Special Concern. These toads have been observed in a variety of habitats, but are typically associated with the sandy, gravelly soils of rain pools and stock ponds found in grassland and oak woodland habitats at elevations below 3,000 feet. These animals are mostly terrestrial and are found in the more arid regions of the state (e.g. Central Valley and southern California). WST enter water only to breed and have the quickest reproduction cycle of any Anuran known in the state (as little as three weeks to metamorphosis if temperature and food sources are favorable). WST have an extended period of subterranean dormancy (8-9 months), emerging with the spring rains to breed in the temporary pools.

Despite numerous surveys conducted within and around the area, western spadefoot toads have not been found north of Hollister, which appears to be the natural limit of the distribution of this organism. Site assessments conducted in 1999 concluded that there is no suitable habitat onsite for WST and that the project-site is out of the range of the species distribution.

Western Pond Turtle (Clemmys marmorata): The western pond turtle (WPT) is a California Species of Special Concern. It is the only native aquatic (freshwater) turtle found in California. Western pond turtles are found in freshwater habitats throughout the state up to elevations of about 4700 feet. Western pond turtles require some slow-water aquatic habitat, and are uncommon in high-flow streams. WPT presence seems to be associated with the presence of

basking sites and hatchlings require shallow water habitat with dense vegetation in which to forage.

WPT leave the aquatic site to reproduce, aestivate and overwinter, and so upland habitat is also important for the species. These turtles require an upland oviposition site in the vicinity of the aquatic site and may overwinter on land or may remain active in water during the winter season depending on factors poorly understood at this time. WPT on the central coast of California largely appear to remain active year-round. While there is suitable habitat for the species on the property, no WPT were observed during any of the aquatic biological surveys conducted in 1999, 2000 or 2001.

California Burrowing Owl (Athene cunicularia): The California burrowing owl is a California Species of Special Concern. The preferred habitat for burrowing owls includes annual and perennial grasslands, deserts and arid scrublands with bare ground or low-growing vegetation. Burrowing owls use rodent burrows (primarily ground squirrel) or other similar refugia for nesting and roosting habitat. No burrowing owls or evidence of burrowing owl use were observed during the course of the 1999, 2000, 2001, 2002 and 2003 field investigations.

Invertebrates: Both the vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*) are known to occur in vernal pools in San Benito County, primarily in South County. While there are no recorded occurrences of either of these species in the vicinity of the San Juan Oaks Golf Club property, there is potential habitat present in Pond 4. Aquatic sampling of this pond in 1999 did not find these species but did find the more common California linderiella (*Linderiella occidentalis*).

Migratory Birds: The Migratory Bird Treaty Act (16 USC 703) prohibits the taking, hunting, killing, selling, purchasing, etc. of migratory birds, parts of migratory birds, and their eggs and nests. As used in the act, the term “take” is defined as meaning, “to pursue, hunt, capture, collect, kill or attempt to pursue, hunt, shoot, capture, collect or kill, unless the context otherwise requires.” Most native bird species on the San Juan Oaks Golf Club property are covered by this act. The California Fish and Game Code (Section 3511) also provides protection for certain species as listed in the Section. The golden eagle and white-tailed kite are included on that list and have the potential to nest on the project site. Section 3503.5 of the Fish and Game Code specifically protects the nests and eggs of birds-of-prey and essentially overlaps with the Migratory Bird Treaty Act.

Potential nesting sites for birds-of-prey and other migratory birds exist in the coast live oak and riparian forests. In practice, abiding by the Migratory Bird Treaty Act usually means avoiding removal of trees with active nests until such time as the young have fledged and the nest is abandoned.

3.0 EVALUATION OF PROJECT EFFECTS

The following evaluation of project effects on biological resources is based on review of the Site Plan and Vesting Tentative Map dated October 1, 2002 prepared by Whitson Engineers. The site plan was overlayed onto the map of vegetation types (Plate 2) to determine the extent of habitat removal and evaluate potential indirect effects on special status species.

The proposed project includes a new private 18-hole golf course and resort, a public Par 3 golf course, 154 family homes, 30 affordable housing units, a village commercial center, two 5-acre ranch estates, a County Regional Park, and over 1,100 acres of permanent wildlife habitat. There is an approximately 3-acre parcel designated for future employee affordable housing but these units will not be constructed as part of this project. The project also incorporates approximately 55 acres to be designated Agricultural Conservation. These acres were not included in our study area and therefore are not addressed in this report. The majority of the 55 acres is currently under cultivation and designation as Agricultural Conservation will not result in a land use change.

The extent of vegetation types impacted by the project and included in designated open space areas is summarized in the following table. The two 5-acre ranch estate lots have not been specifically designed and therefore habitat loss associated with these areas assumes conversion of the entire 5-acre parcel.

Table 3-1: Extent of Vegetation Types Removed and Preserved with the Proposed Project

Vegetation Type	Total in Study Area (acres)	Converted to Golf Course (acres)	Removed for Other Facilities (acres)	Total Impacted (acres)	Permanent Wildlife Habitat (acres)	County Park (acres)	Total in Open Space (acres)
Grassland	937	279	143[1]	422	441	61	497[2]
Oak Woodland	665	0	5[3]	5	665	0	660
Riparian Woodland	63	0	0	0	57	0	57[4]
Pond	7	0	0.03	0.03	6.53	0.15	6.68
Wetland	1.53	1.37		1.37	0.14	0.02	0.16
Drainage	1.43	0.22	0.13	0.35	1.12	0	1.12
Disturbed	260[5]	0	9	9	0	0	0

[1] Assumes development of Lot 1 disturbs entire 5 acres.
[2] Approximately 18 acres of grassland will remain within Resort Lot and around existing golf course. Not included as open space.
[3] Assumes development of Lot 2 disturbs entire 5 acres.
[4] Approximately 6 acres of this habitat type occurs along drainages that are within the existing golf course and though not designated open space for this project, are expected to remain intact as part of the existing course.
[5] Includes the existing golf course and associated facilities.

The primary vegetation type affected by the project is annual grassland. Although a total of approximately 422 acres of this vegetation type will be removed, over half will be converted to golf course and will continue to provide habitat for some of the wildlife species that currently use the grasslands on the property. For instance, fairways may support numerous invertebrate species that provide a food source for lizards, birds, and some small mammals, including bats and these animals, in turn, serve as prey for larger species. Deer are likely to browse on the greens and fairways and the open grass areas will not impede wildlife movement. Annual grassland habitat is common in the region and is not considered sensitive unless it supports special status species. Absent special status species, the loss of annual grassland habitat is not considered significant. Impacts to special status species using grassland habitat on the San Juan Oaks Golf Club property are discussed separately below.

Lot 2 will be placed within oak woodland and for purposes of evaluting project effects, we have assumed that the entire five acres of oak woodland will be removed. The DFG considers oak woodland a sensitive habitat with high wildlife value and recommends avoidance or preservation of an equal amount of oak woodland to that impacted. Although the San Juan Oaks Golf Club project will remove up to five acres of oak woodland, it will designate over 600 acres as permanent wildlife habitat. Therefore, the potential losses resulting from the project are not significant considering the amount of area that will be permanently protected.

Construction of the golf course will result in the removal of three wetland areas (W-1, W-2 and W-3) totalling 1.37 acres. Wetland W-1 is a seasonal swale underlain by clay soil that saturates during the rainy season and holds water at the surface. The vegetation associated with this swale includes annual grasses that are typical of seasonally wet areas. Wetlands W-2 and W-3 are microtopgraphic depressions that also pond water seasonally and support some wetland grasses and herbs. All of these habitats are degraded by cattle grazing and none were found to support any of the special status aquatic species known to occur in the area. There is sufficient opportunity within the undeveloped areas of the property to recreate these seasonal wetland habitats and adequately mitigate for the losses incurred by construction of the new golf course.

The only seasonal pond on the property that will be removed for construction of the proposed project is Pond 5. This pond is within the parcel where the Sewer Treatment Facility will be constructed. Pond 5 is small (0.03 acre), it is devoid of wetland vegetation and only retains water in high precipitation years. No special status species were observed in this pond during the surveys conducted over the past five years. Again, there is sufficient opportunity within the preserved areas of the property to adequately mitigate for the loss of this pond. Pond 1 is within the parcel to be designated for future employee affordable housing and will not be impacted by this project. Pond 1 is a former irrigation pond that was filled with well water and was used for the ranching operations. It is no longer supplied with water and does not receive enough overland flow or direct rainfall naturally to be maintained as a pond or to support wetland vegetation or aquatic wildlife.

The seasonal drainages in the northwestern portion of the property (Drainages A, B, and C) will be converted into golf course features including lakes, watercourses and sediment basins. A portion of Drainage C (0.08 acre) will be removed for construction of lots adjacent to the course. These drainages do not support in-channel wetland vegetation or riparian habitat, they only carry water during storm events, and they provide limited wildlife habitat and therefore, their removal would not have an adverse effect on biological resources in the area. Approximately 300 linear feet of Drainage G will be included in one of the sediment retention basins and another ± 40 feet will be culverted for a street crossing. These areas of Drainage G are within a man-made reach that is tributary to the main ditch but some in-channel vegetation has established and the drainage could provide habitat for the CRLF.

Although the project will not directly affect any of the ponds that are known to support or have the potential to support CTS, it will remove grasslands that could provide upland estivation habitat for the species. The project features most likely to impact CTS estivation habitat include the Sewer Treatment Facility, the Affordable Housing site, the Resort and lots planned for the island of open space in the center of the existing golf course. These features are situated in grassland habitat that is directly accessible to the ponds where CTS larvae were found – there are no physical features or developed areas between the ponds and this grassland. The grasslands in the northwest portion of the property are separated from the CTS breeding ponds by the existing golf course, access roads and two major drainages. Animals would need to negotiate several obstacles in order to move back and forth to the breeding ponds reducing the likelihood that CTS would estivate in this portion of the site. For that reason, we estimate that the amount of potential estivation habitat removed for the project is approximately 37 acres. The project will not create any new barriers between the known breeding ponds and the surrounding grasslands and all of those grasslands, approximately 346 acres, will be included in the designated permanent wildlife habitat (Figure 2). Consequently, the project will not substantially reduce habitat for CTS and it will not substantially interfere with the movement of CTS from the breeding ponds to the estivation areas. However, measures will need to be employed to avoid harm to individual salamanders.

California red legged frogs were observed in Pond 4, Pond 8, Pond 9 and in the golf course pond along the entrance road to the existing clubhouse. None of these features will be directly impacted by the project and none of the other ponds on the property with potential to support CRLF will be removed. The 300 linear feet of Drainage G to be contained within the sediment retention basin could provide suitable habitat for CRLF. Linkage between all potential breeding habitat will be maintained in the permanent open space areas and therfore the project will not create barriers for dispersing frogs. The ± 0.05 acre of potential habitat within Drainage G can be mitigated in the permanent open space areas on the property but if CRLF are present in the drainage, they will need to be relocated. Measures for relocation and other measures to avoid harm to individual frogs during construction will be developed in consultation with the U.S. Fish and Wildlife Service.

Because the CTS is proposed for federal listing as threatened and the CRLF is federally listed as threatened, both are protected under the federal Endangered Species Act (ESA). As a

fundamental element of this protection, Section 9 of the ESA prohibits killing, harming, or otherwise "taking" listed animal species. Taking includes such destruction or significant alteration of habitat that actually kills or injures listed animals. Sections 7 and 10 of the Act authorize the U.S. Fish and Wildlife Service to allow limited take of listed species incidental to otherwise lawful activities (e.g. development of land) provided that the species is not jeopardized and the impacts of the take are mitigated. With respect to species proposed for listing, the ESA calls on federal agencies to confer with the USFWS if their actions may affect any such species.

The San Juan Oaks Golf Course project, as proposed, will result in the fill of waters of the United States subject to U.S. Army Corps of Engineers' jurisdiction and will require Department of the Army authorization under Section 404 of the Clean Water Act. If the Corps determines that this authorization may affect the CRLF or the CTS, it will be required to consult with the U.S. Fish and Wildlife Service pursuant to the ESA. Through this consultation, the USFWS will issue a Biological Opinion (BO) concluding whether or not the action will jeopardize the species. The BO will also include terms and conditions that must be complied with in order for the Corps to be exempt from the prohibitions of Section 9 of the ESA. Specific measures to avoid take of individual CRLF or CTS during construction will be determined through this process and additional long-term measures will probably also be addressed.

The San Joaquin kit fox has not been observed on the San Juan Oaks Golf Club property during the ten years that biologists have been conducting surveys on the site. Nevertheless, according to Terry Palmisano, Senior Biologist Supervisor, Department of Fish and Game, for projects in San Benito County containing grassland habitats, the DFG is assuming there is potential SJKF habitat and is recommending completion of a habitat evaluation form. The purpose of the evaluation form is to determine the quality of the habitat and ultimately, the mitigation ratio that the DFG will request of the project. The San Juan Oaks Golf Club project will remove 422 acres of grassland but close to 500 acres of grassland habitat will be contained within permanent open space. Of the 422 acres of grassland to be removed, 279 acres (about two thirds) will be converted to golf course – a land use not necessarily incompatible with SJKF. The remaining 143 acres will be developed and will no longer provide potential habitat for SJKF.

The California burrowing owl has not been observed nesting or breeding on the San Juan Oaks Golf Club property but suitable habitat is present in the annual grasslands. Although some of the grasslands will be converted to golf course or removed for other development, large contiguous areas of grasslands will be retained and contained within the designated permanent wildlife habitat (Figure 2). Therefore, the property will continue to provide suitable habitat for burrowing owls.

The County of San Benito is in the process of preparing a Habitat Conservation Plan (HCP) to address species such as the SJKF, CTS, CRLF, and burrowing owls countywide. As an interim measure to completing the HCP and obtaining the Section 10(a)(1)(B) permit, the County adopted Ordinance No 541 for establishing an HCP study area and setting mitigation fees (adopted August 1, 1988). The San Juan Oaks Golf Club project is within the HCP study area and is subject to these mitigation fees. Compliance with the County Ordinance essentially

mitigates potential SJKF impacts but the CTS and CRLF will still need to be addressed through the Corps permitting process unless the countywide HCP is completed prior to initiation of that process.

The project has the potential to effect nesting migratory birds such as the California horned lark, loggerhead shrike, Cooper's hawk, white-tailed kite and golden eagle. The Cooper's hawk, white-tailed kite and golden eagle would typically nest in the oak or riparian woodland habitats that will not be directly impacted by the project. The horned lark and loggerhead shrike nest in grasslands or in shrubs or trees within grasslands. Removal of any active nest could occur during construction activities and would conflict with the Migratory Bird Treaty Act. However, this conflict can be averted by conducting pre-construction surveys to determine if any active nests are in the vicinty, establishing appropriate buffers if present, and avoiding removal of the nest until the young have fledged.

4.0 RECOMMENDED MITIGATION MEASURES

The following measures are recommended to avoid or reduce impacts on biological resources resulting from construction of the San Juan Oaks Golf Club project to a less than significant level.

1. Mitigation for wetland impacts could be accomplished by recreating similar habitat within one or more of the proposed detention/siltation basins. These areas will receive water seasonally as storm runoff and will therefore have a hydrologic regime similar to the existing wetlands. The proposed basin at the northwest property boundary is also within the same soil type as the existing wetlands. The wetlands removed should be mitigated at a minimum 1:1 replacement ratio.

2. The new golf course will incorporate a series of drainages and lakes that will adequately mitigate for the 0.31 acre of existing seasonal and man-made drainages impacted by the project. Additionally, enhancement of the perimeter drainage (Drainage G) could be considered. This drainage is currently devoid of any bank vegetation and installation of tree and shrub plantings could provide more channel cover, improve in-channel habitat, and create a vegetated corridor.

3. The man-made tributary to Drainage G carriers filtered water from the golf course out to the perimeter ditch. This tributary could provide habitat for the CRLF. Therefore the proposed sediment retention basin in the vicinity should be designed to maintain the existing conditions in this drainage.

4. The Sewer Treatment Facility should be designed to avoid removing Pond 5. If that is infeasible, an additional pond of similar size and hydrology should be created in the nearby grassland open space areas.

5. Lot 2 should be sited and designed to minimize the removal of oak woodland habitat. Oak trees should be incorporated into the design as much as is feasible to reduce the number to be removed. Oak trees that are adjacent to construction areas should be protected by keeping activities out of the dripline of the tree or incorporating other protection measures developed by a qualified arborist. Oaks that are removed should only be replaced if a biologist or arborist determines that there are suitable areas within the open space to accommodate replacement plantings without compromising existing habitat conditions. If feasible, trees should be replaced at a ratio that ensures survival of at least one mature tree (of the same species) for each one removed.

6. Measures to protect individual CTS and CRLF prior to and during construction should be developed in consultation with the USFWS and DFG. Measures for CTS are likely to include pre-construction surveys (including burrow excavation) prior to ground disturbance in all grasslands within three-quarters of a mile of known breeding ponds and relocation to suitable habitat in undisturbed portions of the property with access to the breeding ponds. Measures for CRLF could include installation of temporary barriers around occupied habitat and potential habitat that is within the vicinity of construction activities, monitoring of construction activities by a qualified biologist, development and implementation of best management practices (BMPs) to avoid siltation or contamination of habitat, and implementation of an environmental awareness program for construction workers.

7. Although not observed on the property, a pre-construction survey for burrowing owls is recommended to ensure that construction activities would not harm any individual owls that may have moved on to the site. The survey should be conducted 30 days prior to construction. If the survey occurs during the breeding season (February 1 to August 31) and owls are observed on or within 250 feet of the area of disturbance, a 250-foot buffer should be established around the occupied burrow with construction fencing. The fenced area should remain in place for the duration of the breeding season while construction activities are occurring. If the survey is conducted outside of the breeding season and owls are observed, owl eviction may be authorized by DFG.

8. In compliance with Ordinance No 541, the appropriate fees should be submitted to the County to fund a mitigation bank for San Joaquin kit fox and California burrowing owl. This will mitigate impacts for potential habitat loss resulting from the project.

9. Pre-construction surveys for nesting birds-of-prey and migratory birds within the construction areas is also recommended to ensure that no active nests are harmed. If construction activities are initiated between August and December, outside of the typical nesting season for the birds-of-prey and migratory birds expected to occur in the vicinity, then pre-construction surveys for active nests should not be necessary. If activities are initiated before August or after December, then pre-construction surveys for active nests within a certain radius of proposed activities is recommended. The radius of the area to be surveyed should be determined by a qualified biologist considering the nature of the construction activity, the topography and the density of trees in the vicinity. The goal is to determine if any active

nests would be affected by project construction activities such that it would cause abandonment of the nest. Additionally, if any trees are to be removed and/or trimmed the canopy should be surveyed for active nests prior to removal. If active nests are found and the biologist determines that construction activities would remove the nest or have the potential to cause abandonment, then those activities should be avoided until the young have fledged as determined through monitoring of the nest. Once the young have fledged, construction activities can resume in the vicinity.

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APPENDIX A

Plant species observed on the San Juan Oaks Golf Club Property on 4/13/99, 5/25/99, 5/4/2001, and 7/31/2001

Scientific Name	Common Name	Habitat[1]
TREES:		
Acer macrophyllum	big-leaf maple	R
Aesculus californicus	California buckeye	OW
Eucalyptus globulus	blue gum eucalyptus	OW
Platanus racemosa	sycamore	R
Quercus agrifolia	coast live oak	OW
Quercus douglasii	blue oak	OW
Quercus kelloggii	black oak	OW
Quercus lobata	valley oak	OW
Salix laevigata	red willow	R
Salix lasiolepis	arroyo willow	R
Sambucus mexicana	blue elderberry	OW
Umbellularia californica	California bay	OW/R
SHRUBS/ WOODY VINES:		
Artemisia californica	California sagebrush	OW
Baccharis pilularis var. *consanguinea*	coyote brush	OW
Baccharis viminea	mulefat	R
Genista monspessulana	French broom	G/ OW
Heteromeles arbutifolia	toyon	OW
Lessingia filaginifolia	common corethrogyne	G
Lonicera hispidula	hairy honeysuckle	OW
Lotus scoparius	deer weed	G/ OW
Lupinus albifrons var. *albifrons*	silver-leaf bush lupine	OW
Mimulus aurantiacus	sticky monkey flower	OW
Nicotiana glauca	indian tobacco	G/ OW
Rhamnus californica	California coffeeberry	OW
Ribes menziesii	gooseberry	OW
Ribes speciosum	fuschia-flowered gooseberry	OW
Rosa californica	California rose	OW/ R
Rosa gymnocarpa	wood rose	OW
Rubus ursinus	California blackberry	OW
Solanum umbelliferum	blue witch	OW
Symphoricarpos mollis	creeping snowberry	OW
Symphoricarpos albus var. *laevigatus*	snowberry	OW
Toxicodendron diversilobum	poison oak	OW

[1] (G = Grassland; OW = Mixed Oak Woodland and Oak Savanna; R = Mixed Riparian Forest)

Scientific Name	Common Name	Habitat
HERBS:		
Achillea millefolium	yarrow	G/ OW
Achyrachaena mollis	blow wives	G
Agoseris grandiflora	large-flowered agoseris	G
Allium unifolium	one-leaved onion	G
Amsinckia menziesii ssp. intermedia	fireweed	G
Anagallis arvensis	scarlet pimpernel	G
Anaphalis margaritacea	pearly everlasting	G/ OW
Anthemis cotula	dog-fennel	G
Anthriscus caucalis	bur-chervil	G/OW
Artemisia douglasiana	mugwort	OW
Asclepias fascicularis	narrow-leaved milkweed	G
Baccharis douglasii	Douglas' baccharis	R
Bellardia trixago	bellardia	G
Brassica nigra	mustard	G
Triteleia ixioides	golden brodiaea	G
Brodiaea terrestris	dwarf brodiaea	G
Calandrinia ciliata	red maids	G
Calochortus albus	fairy lantern	OW
Calystegia subacaulis	hill morning glory	G
Camissonia ovata	suncups	G
Capsella bursa-pastoris	shepherd's purse	G/ OW
Cardaria draba	heart pod hoary cress	G
Carduus pycnocephalus	Italian thistle	G/ OW
Castilleja affinis	coast paintbrush	OW
Castilleja densiflora ssp. densiflora	owl’s clover	G
Castilleja exserta ssp. exserta	purple owl's clover	G
Castilleja rubicundula ssp. lithospermoides	cream sacks	G
Triphysaria pusilla	dwarf owl's clover	G
Centaurea calcitrapa	purple star thistle	G
Centaurea melitensis	tocalote	G
Centaurea solstitialis	yellow star thistle	G
Cerastium arvense	field chickweed	G
Chamomilla sauveolens	chamomile	G
Chlorogalum pomeridianum	curly-leaved soap plant	G
Cirsium quercetorum	brownie thistle	G
Cirsium vulgare	bull thistle	G
Clarkia purpurea ssp. *quadrivulnera*	winecup clarkia	G
Claytonia perfoliata	miner's lettuce	OW
Conium maculatum	poison hemlock	G
Convolvulus arvensis	field bind weed	G
Conyza canadensis	horseweed	G
Cortaderia selloana	pampas grass	G
Cotula coronopifolia	brass buttons	R

Scientific Name	Common Name	Habitat
Delphinium patens ssp. greenei	woodland larkspur	OW
Dichelostemma capitatum	blue dicks	G/ OW
Dodecatheon hendersonii	Henderson's shooting star	G
Epilobium adenocaulon	western willow herb	G/ R
Epilobium brachycarpum	panicle-flowered willow herb	G
Erechtites glomerata	cut-leaved fireweed	OW
Eremocarpus setigerus	turkey mullein	G
Erigeron philadelphicus	Philadelphia daisy	G
Erodium botrys	storksbill	G
Erodium cicutarium	red-stemmed filaree	G
Eschscholzia californica	California poppy	G
Filago gallica	filago	G
Foeniculum vulgare	fennel	G
Galium aparine	bedstraw	OW
Galium californicum	California bedstraw	OW
Galium porrigens	climbing bedstraw	OW
Geranium carolinianum	Carolina geranium	G
Geranium molle	dove’s-foot geranium	G/OW
Gilia capitata ssp. abrotanifolia	gilia	G
Gilia minor	gilia	G
Gnaphalium californicum	California everlasting	G/ OW
Gnaphalium luteo-album	weedy cudweed	G
Gnaphalium purpureum	purple cudweed	G
Grindelia sp.	gumweed	G
Heliotropium curassavicum	Chinese pusley	R
Hemizonia congesta ssp. luzulifolia	hayfield tarweed	G
Hemizonia corymbosa	coast tarweed	G/ CS
Hesperevax sparsiflora	erect hesperevax	G
Heterotheca grandiflora	telegraph weed	G
Hirschfeldia incana	summer mustard	G
Hypochaeris glabra	smooth cat's ears	G
Hypochaeris radicata	rough cat's ears	G
Iris douglasiana	Douglas' iris	OW
Lactuca serriola	wild lettuce	G
Lemna gibba	gibbous duckweed	R
Lepidium nitidum	pepper grass	G
Lillaea scilloides	flowering quillwort	G
Linanthus ciliatus	whisker-brush	G/ OW
Lithophragma affinis	woodland star	OW
Lomatium utriculatum	foothill lomatium	G
Lotus corniculatus	bird's foot trefoil	G
Lotus purshianus	Spanish clover	G
Lotus strigosus	Bishop lotus	G
Lotus wrangelianus	California lotus	G
Lupinus bicolor	Lindley's annual lupine	G
Lupinus nanus	sky lupine	G

Scientific Name	Common Name	Habitat
Lupinus succulentus	succulent annual lupine	G
Lupinus truncatus	Nuttall's annual lupine	G
Lythrum hyssopifolia	loosestrife	G
Madia gracilis	slender madia	G
Malva nicaeensis	bull mallow	OW/G
Malvella leprosa	alkali mallow	G
Marah fabaceous	wild cucumber	G/ OW
Medicago polymorpha	bur-clover	G
Melilotus indica	yellow sweet-clover	G
Micropus californicus	slender cottonweed	G
Microseris douglasii ssp douglasii	Douglas' microseris	G
Mimulus guttatus	seep-spring monkey flower	G
Muilla maritima	common muilla	G
Navarretia atractyloides	holly-leaved navarretia	G
Nemophila menziesii	baby blue-eyes	OW
Perideridia kelloggii	Kellogg's yampah	OW
Phoradendron villosum	oak mistletoe	OW
Picris echioides	bristly ox-tongue	G
Plagiobothrys canescens	Valley popcorn flower	G
Plagiobothrys nothofulvus	popcorn flower	G
Plantago erecta	California plantain	G
Plantago lanceolata	English plantain	G
Plantago major	broad-leaved plantain	G
Plectritis congesta	pink plectritis	G/ OW
Polygala californica	milkwort	OW
Polygonum arenastrum	common knotweed	G
Ranunculus californicus	California buttercup	G
Ranunculus hebecarpus	downy buttercup	R
Ranunculus muricatus	prickle-seed buttercup	G
Raphanus sativa	wild radish	G
Rorippa nasturtium-aquatica	water cress	G
Rubus ursinus	California blackberry	OW
Rumex acetosella	sheep sorrel	G
Rumex crispus	curly dock	G
Rumex pulcher	fiddle dock	G
Rumex salicifolia	willow dock	G
Rupertia physodes	California tea	OW
Sanicula bipinnatifida	purple sanicle	G
Sanicula crassicaulis	coast sanicle	OW
Sanicula laciniata	cut-leaved sanicle	G/ OW
Satureja douglasii	yerba buena	OW
Saxifraga californica	California saxifrage	G
Scandix pecten-veneris	shepherd's needle	G
Scrophularia californica	California bee plant	OW/R
Senecio vulgaris	common senecio	G/ OW
Sidalcea malvaeflora	checkerbloom	G

Scientific Name	Common Name	Habitat
Silene gallica	catch fly	G
Silybum marianum	milk thistle	G/ OW
Sisymbrium officinale	hedge-mustard	G
Sisyrinchium bellum	blue-eyed grass	G
Smilacina racemosa	false Solomon's seal	OW
Sonchus asper	prickly sow thistle	G/ OW
Stachys bullata	hedge nettle	OW
Stellaria media	chickweed	G/ OW
Stephanomeria virgata ssp. pleurocarpa	tall stephanomeria	G
Taraxacum officinale	dandelion	G
Thermopsis macrophylla	false lupine	OW
Thysanocarpus curvipes	hairy fringe pod	G/ OW
Torilis nodosa	knotted hedge parsley	OW
Tragopogon porrifolius	salsify	G
Trifolium ciliolatum	tree clover	G
Trifolium dubium	hop clover	G
Trifolium gracilentum	pinpoint clover	G
Trifolium hirtum	rose clover	G
Trifolium incarnatum	crimson clover	G
Trifolium repens	white clover	G
Trifolium subterraneum	subterranean clover	G
Trillium chloropetalum	giant wake robin	I OW/R
Triphysaria erianthus	johnny tuck	G
Tritelia hyacinthina	white brodiaea	G
Tritelia laxa	Ithuriel's spear	G
Typha latifolia.	cattail	R
Urtica dioica ssp. holosericea	stinging nettle	G/ OW
Urtica urens	dwarf nettle	G
Verbena lasiostachya	vervain	G
Veronica anagallis-aquatica	great water speedwell	G/ R
Vicia americana	American vetch	G
Vicia benghalensis	Bengal vetch	G
Vicia sativa	spring vetch	G
Viola pedunculata	johnny jump-up	G
Wyethia glabra	mule's ears	OW
Wyethia helenioides	gray mule-ears	OW/G
Xanthium spinosum	spiny cocklebur	G
Xanthium strumarium	cocklebur	G
GRASSES/ RUSHES/ SEDGES:		
Aira caryophyllea	silver hair grass	G
Avena barbata	slender wild oats	G
Avena fatua	fat oat	G
Briza minor	little quake grass	G
Bromus carinatus	California brome	G

Scientific Name	Common Name	Habitat
Bromus diandrus	rip gut	G
Bromus hordeaceus	soft chess	G
Bromus madritensis ssp. rubens	red brome	G
Carex tumulicola	woodland sedge	OW
Crypsis schoenoides	crypsis	G
Cynosurus echinatus	dog-tail grass	G
Cyperus eragrostis	nut-sedge	G
Dactylis glomerata	orchard grass	G
Danthonia californica	California wild oats	G
Eleocharis acicularis	needle spike rush	G
Eleocharis macrostachya	spike rush	G
Elymus glaucus	western ryegrass	G/ OW
Holcus lanatus	velvet grass	G
Hordeum brachyantherum	meadow barley	G
Hordeum marinum ssp. gussoneanum	Mediterranean barley	G
Hordeum murinum ssp. glaucum	glaucous foxtail	G
Hordeum murinum ssp. leporinum	barnyard foxtail	G
Juncus balticus	baltic rush	G
Juncus bufonius	toad rush	G
Juncus effusus	spreading rush	G
Juncus patens	common rush	G
Juncus phaeocephalus	brown-headed rush	G
Juncus tenuis	slender rush	OW/G
Juncus xiphioides	iris-leaved rush	G
Lamarkia aurea	golden-top	G
Lolium multiflorum	Italian ryegrass	G
Luzula comosa	wood rush	OW
Melica californica	western melic	G
Melica imperfecta	coast-range melic	G/ OW
Nassella pulchra	purple needle grass	G
Poa annua	annual blue grass	G
Poa secunda	pine bluegrass	OW/G
Polypogon monspeliensis	rabbit foot grass	G
Vulpia myuros	rat-tail fescue	G
FERNS/ FERN ALLIES:		
Athyrium filix-femina	western lady fern	OW
Azolla filiculoides	fern-like azolla	R
Dryopteris arguta	wood fern	OW
Pentagramma triangularis	golden-back fern	OW
Pteridium aquilinum	Bracken fern	G/ OW
Woodwardia fimbriata	giant chain fern	G/ OW

Assessment of Waters of the United States
as defined by
U. S. Army Corps of Engineers

San Juan Oaks Golf Club
San Benito County, California

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1.0 INTRODUTION

Zander Associates conducted an assessment of the Rancho San Justo Company property in San Benito County to identify and map areas potentially meeting the regulatory definition of "waters of the United States" including wetlands subject to U.S. Army Corps of Engineers (Corps) jurisdiction. The property is approximately 2,000 acres and lies within the foothills of the Gabilan Range of the coastal mountains at the southeastern end of the San Juan Valley. It is located about three miles southwest of the City of Hollister and approximately one mile south of the intersection of Highway 156 and Union Road (Figure 1). The property consists of the existing San Juan Oaks Golf Club and surrounding undeveloped ranchlands and hills.

In 1994/95, the Corps evaluated the portion of the property on which the existing golf course was constructed (about 250 acres) to determine the extent of its jurisdiction. Based on that determination, minor fill of jurisdictional areas for construction of the golf course proceeded as authorized under a Department of the Army Nationwide permit. Although Zander Associates' assessment was focused on the surrounding ranchlands and hills in the remainder of the property, reconnaissance surveys were conducted on portions of the 250 acres that are not included in the golf course play areas to evaluate current conditions.

Our assessment was first conducted in 1999. Subsequent investigations were completed in 2000 and 2002 to keep the data current and confirm that areas delineated in 1999 remained essentially the same. This report summarizes the results of all of the field investigations and data collection and identifies those areas potentially subject to Corps jurisdiction under current physical and regulatory conditions. A description of the general site characteristics is provided and each potential wetland, drainage and pond identified on the property is specifically described. An overview of the Corps' regulatory authority is provided along with an evaluation of the areas on the property over which the Corps may assert jurisdiction.

2.0 JURISDICTIONAL CRITERIA REVIEW

The U.S. Army Corps of Engineers (Corps), under provisions of Section 404 of the Clean Water Act (1972), has jurisdiction over "waters of the United States." Such waters are broadly defined in the Corps' regulations (33 CFR 328) to include, among other areas, navigable waterways, their tributaries (including intermittent streams), and wetlands. The Corps follows specific criteria in determining whether an area is subject to its jurisdiction. In streams, the extent of "waters of the United States" is determined by the ordinary high water mark - a point on the stream above which high water normally does not rise. Such a point may be determined in the field through observation of scour marks, drift lines, stream deposition patterns, or it may be established through a review of historical records, photographic interpretation, hydrologic calculations or other means. The Corps identifies wetlands using a multi-parameter approach that requires positive indicators in three distinct categories: soils, hydrology and vegetation. According to the *Corps of Engineers Wetlands Delineation Manual* (1987), except in certain situations, all three parameters must be satisfied for an area to be considered a jurisdictional wetland. Following is a brief summary of the criteria used to determine if positive wetland indicators are present in each of the three categories.

2.1 Wetland Criteria

2.1.1 Soils

Wetland or "hydric soils" are defined by criteria established by the National Technical Committee for Hydric Soils (NTCHS). These criteria are reproduced in the Corps 1987 manual and are based on the depth and duration of soil saturation. The NTCHS has developed a list of hydric soils for the United States (USDA 1991), and the Natural Resource Conservation Service (NRCS) has issued a hydric soils list for San Benito County (March 1992).

Hydric soils develop under anaerobic conditions and are commonly identified in the field using indirect indicators such as color and organic matter content. Hydric soils tend to have low chroma (dark color) as defined by a standard reference, the Munsell Soil Color Charts (1975), and features such as mottling, grey colors (gleying), oxidized root channels (reddish-brown deposits visible around the root channels), and a specific range of organic matter content.

2.1.2 Hydrology

The wetland hydrologic criterion is met where an area is inundated or saturated for a sufficient period of time to be able to support a predominance of hydrophytic vegetation. This period of time is defined as ten to fifteen days or longer during the growing season in an average rainfall year. Indicators of wetland hydrology can be determined by reviewing recorded data and aerial photographs and by observing field evidence such as drift lines, sediment deposits on plants and other objects, encrusted detritus, water marks, visual observation of soil saturation and visual observation of inundation (e.g. algal matting).

2.1.3 Vegetation

Hydrophytic vegetation is defined as "macrophytic plant life growing in water, soil, or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content." The U.S. Fish and Wildlife Service (USFWS) has published the *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1988), which separates vascular plants into the following four basic categories based on a plant species frequency of occurrence in wetlands:

- Obligate wetland (OBL). Occur almost always (estimated probability >99%) under natural conditions in wetlands.

- Facultative Wetland (FACW). Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.

- Facultative (FAC). Equally likely to occur in wetlands or non-wetlands (estimated probability 34%- 66%).

- Facultative Upland (FACU). Usually occur in non-wetlands (estimated probability 67-99%), but occasionally found in wetlands (estimated probability 1%-33%).

- Obligate Upland (UPL). Occur in wetlands in another region, but occur almost always (estimated probability >99%) under natural conditions in non-wetlands in the region specified.

The Corps considers OBL, FACW and FAC species to be the most important wetland indicators. An area is considered to have hydrophytic vegetation when more than 50 percent of the dominant species in each vegetative stratum (tree, shrub, and herb) fall within these three categories. Any species not appearing on the USFWS list is assumed to be an upland species that almost never occurs in wetlands.

2.2 Specific Exemptions

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions (51 Fed. Reg. 41, 217 1986).

2.3 Isolated Waters and Wetlands

As determined by the U.S. Supreme Court in Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, 531 U.S. 159 (2001) ("SWANCC"), isolated, intrastate and non-navigable waters are not jurisdictional if the sole basis for asserting jurisdiction is the actual or potential use of the waters as habitat for migratory birds that cross state lines in their migrations. However, if a creek or drainage is tributary to a navigable water or wetlands are adjacent to a tributary of a navigable water, then they are considered jurisdictional (Federal Register January 15, 2003). The definition of tributary has been interpreted variously in the

courts and in some cases has included streams that are far removed from a navigable water or manmade conveyances such as ditches, pipes, culverts or storm sewers. Consequently, jurisdictional decisions are made on a case-by-case basis by the Corps field staff who consider the clarifying guidance regarding SWANCC in a Joint Memorandum issued by the Corps and EPA (January 10, 2003), applicable regulations and any additional relevant court decisions.

3.0 ASSESSMENT METHODOLOGY

An initial site visit was conducted on March 3, 1999 to identify areas of surface ponding following several rainstorms and to determine appropriate locations for installation of piezometers to monitor duration of soil saturation. As a result of the initial visit, piezometers were installed in eight locations in the western part of the property on March 8, 1999 (Plate 1). Reconnaissance-level assessments of the entire property occurred on April 13, 1999 to further identify areas with potential to meet criteria as jurisdictional waters. Directed field data collection and mapping occurred on May 6 and September 16, 1999. Additional site visits were conducted on May 10, 2000, October 14, 2002 and December 12, 2002 to confirm conditions had not changed substantially since 1999. Piezometer readings were taken through the spring of 1999 and October through June in 1999-2000 and 2000-2001.

Topographic maps and aerial photographs of the study area obtained from several sources were reviewed prior to field surveys. Maps reviewed included: U.S. Geological Survey topographic map (Hollister 7.5 minute quadrangle), National Wetlands Inventory Maps, aerial photographs contained in the Soil Survey of San Benito County (SCS 1969), maps generated from the H. T. Harvey report (1994), and relatively recent (1992) aerial photography and topographic mapping provided by the Rancho San Justo Company.

Potential jurisdictional waters were delineated following the methods outlined in the *Corps of Engineers Wetlands Delineation Manual* (1987). The entire property was surveyed and data on plant species composition, hydrologic indicators and soils were recorded at various locations throughout the property as indicated on Plate 1. Sample points were located within and around potential wetlands where necessary to determine the extent of area meeting the Corps criteria. For drainages lacking wetland vegetation, the area below the ordinary high water mark was considered to be the extent of Corps jurisdiction. The ordinary high water mark (OHWM) was identified by the presence of shelving, cleared terrestrial vegetation, staining on rocks or trees, an obvious scour line, and/or the presence of water deposited debris or litter. The width of the drainage was measured at the OHWM at several locations since widths varied considerably within the drainage.

Following are the specific methods used to collect data for each parameter.

3.1 Vegetation

Plants observed at each of the sample sites were identified to species using standard floras for central California and assigned a wetland indicator status using the *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1988). A complete list of the plant species observed at data points, along with their wetland indicator status is provided in Appendix A. Plant names used are based on *The Jepson Manual* (Hickman 1993) and the indicator status assigned is from Reed (1988).

3.2 Soils

The *Soil Survey of San Benito County* (NRCS 1969) was consulted for the soil types mapped within the study area and to determine if the NTCHS or the NRCS lists any of these soils as hydric. At each sample location, the mapped soil type was identified and a pit was dug to look for hydric characteristics such as the presence of organics (Histisols), mottling or gleying, oxidized rhizospheres or accretions in the top 12" of the soil. Chroma values using the Munsell Soil Color Chart were recorded for the soil matrix at each sample.

3.3 Hydrology

Eight piezometers were installed in May of 1999 in the western pasture area. The piezometers consisted of 3" diameter perforated PVC pipe in 2-foot sections. The pipes were wrapped with filter cloth and placed in over-excavated holes that were backfilled with sand and gravel. Approximately 18" of the pipe was placed below ground level and 6" remained above the ground level. Piezometers were located in microtopographic depressions or in areas where runoff was dispersed overland from adjacent drainages but where no surface indicators of ponding or soil saturation were evident. Three additional piezometers were installed in October 1999 and four more were installed in October 2000. Measurements of the depth to groundwater were taken in the spring of 1999 and throughout the rainy seasons (October through June) of 1999-2000 and 2000-2001. The measurements were plotted with daily rainfall totals to evaluate the duration of soil saturation in the root zone (top 12") following periods of rain (Appendix A). Sites where the soil was saturated within the root zone for more than 14 consecutive days following the end of a significant period of rain were considered to meet the wetland hydrology parameter.

During each field visit, positive field indicators of wetland hydrology were recorded where observed. Indicators included visual observations of inundation and/or soil saturation, water marks, drift lines, water-borne sediment deposits, water-stained leaves, and drainage patterns in wetlands. Areas exhibiting positive field indicators were reexamined in subsequent surveys to confirm that the soil was saturated for a sufficient period of time during the growing season to support wetland vegetation. Copies of the data sheets completed for each sampling point are provided in Appendix B.

4.0 RESULTS

The property consists of undeveloped ranchlands and hills surrounding the existing golf course. Elevations range from a low of about 215 feet in the relatively flat pasturelands toward the westerly edge of the property to a high of about 1131 feet in the hills to the south of the existing golf course (Plate 1). The hills on the south are cut by several prominent ephemeral drainage courses that carry winter runoff in a more or less northerly direction where they dissipate as overland flow. These channels are usually dry late spring to early summer. A variety of stock ponds and water retention basins, mostly associated with ranching operations, occur throughout the property. All of the area, with the exception of the golf course, is used for livestock grazing.

The average annual rainfall for the Hollister area based on the ten year period 1992 through 2001 (which includes the anomalous El Nino winter of 1998) is approximately 15.8 inches. Most of the rainfall occurs between October and April. Annual rainfall measured in the vicinity of the property for the 1998/99 season was 10.21 inches and subsequent seasons were also below average – 11.74 inches in 1999/2000, 9.32 inches in 2000/01 and 10.13 inches in 2001/02. Water reaches the property either through direct rainfall or via one of the several ephemeral channels that begin in the hills to the south and dissipate in the flatter portions of the site. The runoff carried in the channels continues as overland flow and either infiltrates into the ground or reaches the perimeter channel (Drainage G) that carries water through the agricultural fields and out to San Juan Creek. Runoff from watersheds on the property is also captured in a series of man-made ponds that were used for watering of livestock. All of these ponds are seasonal but some retain water longer than others. The clay soils in the western pasture slow infiltration and water is retained at or near the surface for a longer period of time because the gradient is relatively flat. The water tends to collect in microtopographic depressions or swales where it remains until it infiltrates or evaporates.

Non-native grassland is the dominant plant community in the study area. Plant species found in this type include, annual ryegrass (*Lolium multiflorum*), bromes (*Bromus diandrus, B. hordeaceus*), cultivated oat (*Avena sativa*), mustard (*Brassica* sp.), and wild radish (*Raphanus sativus*). Riparian woodlands are associated with the major drainages in the southern portion of the property and oak woodland vegetation is dominant in the the hills to the south. The riparian woodlands contain willow (*Salix* spp.), coast live oak (*Quercus agrifolia*), California bay laurel (*Umbellularia californica*), and sycamore trees (*Platanus racemosa*) with snowberry (*Symphoricarpos albus* var. *laevigatus*), California rose (*Rosa californica*) and poison oak (*Toxicodendron diversilobum*) in the understory. The oak woodlands are comprised of coast live oak and valley oak (*Q. lobata*) in the more mesic locations and blue oak (*Q. douglassii*) and black oak (*Q. kelloggii*) on drier sites at higher elevations. Some isolated seasonal wetlands and hillside seeps identified on the property support typical wetland plants including rabbitsfoot grass (*Polypogon monspeliensis*), hyssop loosestrife (*Lythrum hyssopifolia*), several species of dock (*Rumex* spp.), nut sedge (*Cyperus eragrostis*), rushes (*Juncus* spp.), and knotweed (*Polygonum* sp.). A complete list of the plant species observed in these wetlands is provided in Appendix B.

Eight different soil series have been mapped on the property by the NRCS (1969)(Figure 2). Of these, only the Clear Lake clay and Willows sandy loam series are listed as hydric soils, although there are inclusions in the Cropley clay series that are also considered hydric. The Clear Lake clay and Willows sandy loam soils are mapped in the flat grassland areas in the northern portion of the property.

The National Wetlands Inventory Map (Hollister Quadrangle) identifies four different wetland habitats on the property (Figure 3). The NWI maps were created by the U.S. Fish and Wildlife Service (USFWS) using stereoscopic analysis of high altitude aerial photographs taken in April 1985 and are not ground-truthed so they only serve as general guides to identifying potential wetland areas. The wetland areas identified are classified using a system developed by USFWS (Cowardin et al. 1979). The wetland habitats indicated on the NWI map are ponds and creeks that correspond with some of the features identified in this assessment.

Potential waters, including wetlands, on the property are divided into four separate categories; drainages, ponds, isolated wetlands, and seeps. Following are descriptions of each category. Each of the features discussed is identified on Plate 1 and a tabulation of their extent in the study area is provided in Table 1.

4.1 Drainages

There are three prominent ephemeral drainage systems that convey runoff from the hills in the southern portion of the property northeast through the site (Drainages C, D and F on Plate 1). All of these contain incised main stem channels and tributaries that carry runoff from the surrounding oak woodlands onto and through the central part of the property. These drainage channels support an established riparian canopy but typically lack in-channel herbaceous wetland vegetation. Almost all of the channels are located in areas proposed to be dedicated as natural open space.

Two less prominent drainages (Drainages A and B) originate offsite and carry seasonal runoff through small channels that extend about 200 linear feet onto the property and then end. Runoff carried in these drainages dissipates as overland sheet flow through the northwestern portion of the property. A third drainage (Drainage E) originates in a side canyon adjacent to the main stem of Drainage D and empties into a constructed stock pond (Pond 10).

Drainage G is a man-made ditch that begins near the maintenance yard for the golf course, heads towards the northern property boundary, turns west and follows the length of the northern property boundary. At the northwest corner of the property, the ditch turns north again and follows a course through agricultural fields until it eventually links with San Juan Creek near Highway 156. The ditch is hydrologically connected to Drainage D through newly created creeks and ponds in the golf course and it is connected to Drainage F through overflow/diversions from Pond 11. None of the other drainages are directly connected to Drainage G. There is one side tributary to this drainage that was dug to convey overflow from the golf course ponds off the site.

In addition to the drainage channels, there are numerous erosional gullies located primarily in the steeper hillside areas. These gullies typically do not have identifiable beds, banks or channels, are located in extremely limited watershed areas, do not support any hydrophytic vegetation and are not tributary to any larger drainage systems. Thus, they have not been identified as potential jurisdictional waters in this assessment.

4.2 Ponds

Almost all of the ponds on the property have been created as water supply/retention areas associated with ranching operations or as golf course features. Outside of the golf course features, 13 ponds were identified on the property varying in size from 1.7 acres to only 0.03 of an acre. All of the 13 ponds are seasonal and typically contain water during the winter months but dry out in the late spring and summer at varying rates. There is no aquatic vegetation associated with these ponds other than occasional algal blooms and aquatic ferns and only marginal shoreline vegetation due to heavy cattle use. A description of each of the 13 ponds identified follows.

Pond 1**:** This is a former irrigation pond that was filled with well water and was used for the ranching operations. It is no longer supplied with water and does not receive enough overland flow or direct rainfall naturally to be maintained as a pond.. It is located adjacent to the golf course maintenance yard and the access road to the yard lies between the pond and the adjacent hillsides. Obligate, facultative wetland, and facultative plant species were observed in the pond in 1999 and the soils had a low chroma. However, no signs of ponding (algal matting, vegetation matting) were observed. Because the pond had a predominance of wetland vegetation and hydric soils, and is within a large topographic depression (assumed hydrology) it was considered a potential wetland.

Pond 2**:** This is a larger stock pond that remains hydrologically connected to the adjacent hillsides and therefore continues to pond water seasonally. There is no emergent aquatic vegetation associated with this pond and no well-developed shoreline vegetation. The pond is not directly connected to the major drainage downslope that was previously delineated by H.T. Harvey and Associates but overflow from the pond could enter into that drainage.

Pond 3**:** This pond contained water throughout 1993 (BioSystems 1994) but was completely dry in 1999. Soils in this area are not typical of soils elsewhere on the site and do not exhibit hydric characteristics. The vegetation observed in the pond during the 1999 field surveys included obligate, facultative wetland and facultative plant species.

Pond 4: This pond was not present during previous surveys conducted by H.T. Harvey and Associates and BioSystems Analysis, Inc. but was observed in 1999 and has continued to pond water seasonally each year following. There is little vegetation associated with the pond but a few stems of spikerush (*Eleocharis macrostachya*) were observed around the southern margin of the pond in 1999. The surrounding vegetation consists of annual grasslands and golf course greens.

Pond 5**:** This pond is downslope from Pond 6 and measures about 100 feet by 20 feet. There is no aquatic vegetation associated with the pond and it is surrounded by annual grassland.

Pond 6**:** Pond 6 has a relatively small watershed but it retains water most of the year. There is no aquatic vegetation in the pond and no wetland vegetation along its shores.

Pond 7**:** This pond was created at the base of a swale by constructing an artificial berm. The area that ponds seasonally is approximately 140 feet by 90 feet. Mosquito fern (*Azolla filiculoides*) was observed on the water surface and spikerush and knotweed were observed along the water margin in 1999.

Pond 8**:** This is an artificial reservoir excavated adjacent to the main stem of Drainage D. The reservoir is a relatively large (approximately 0.7 acre at the ordinary high water line), the sides are steep, precluding establishment of perimeter wetland or riparian vegetation. Water is diverted from Drainage D into this reservoir through a culvert and is returned to the channel by way of mechanical valves at the downstream end. The reservoir was excavated on dry land and is regularly maintained as a water diversion/storage facility; as such it may be exempt from Corps jurisdiction.

Pond 9: Pond 9 is a small in-channel pond/settling basin upstream of the diversion culvert for Pond 8 in Drainage D. This pond holds water during the winter storm season but dries in the spring and remains dry until the following winter. It does not support a prevalence of wetland vegetation. The surface area of this pond at the ordinary high water mark is approximately 3,200 square feet.

Pond 10: This large stock pond was excavated at the downstream end of a seasonal drainage course (Drainage E). It holds water throughout most of the summer and thus may be spring fed since no flow was observed in the upstream drainage. Two large willow snags represent about the only vegetation along the banks of this pond, which is heavily used by cattle. The surface area of the pond defined by the ordinary high water line and is about 1.7 acres.

Pond 11**:** This is an historic diversion structure located near the base of a small drainage. It stores water seasonally and does not support submergent, emergent or shoreline vegetation.

Pond 12**:** Area Y is a stock pond that occurs within the proposed open space. The pond is mostly unvegetated and receives heavy use by livestock. Pond Y is approximately 3,500 square feet.

Pond 13**:** Area Z is another stock pond within the proposed open space. This pond is also mostly unvegetated because of being trampled by livestock and is approximately the same size as Pond 12.

4.3 Seasonal Isolated Wetlands

Seasonal wetlands are limited in extent and occur primarily in the relatively flat portions of the site where the duration of soil saturation or surface water ponding is sufficient to establish all

three wetland parameters: wetland plants, soils and hydrology. Five seasonal wetland areas were identified and are described below.

W-1: This area is near the northwestern corner of the property in the west pasture. Water ponds seasonally in this microtopographic depression underlain by Clear Lake clay. At the time of the 1999 surveys, no surface water or soil saturation was observed in this area but the vegetation composition was slightly different than the surrounding grassland and consisted mostly of facultative (FAC) species. As a result, the area was not considered a wetland because the hydrology parameter was not met. Piezometers were installed around the area so that ground water levels could be monitored over time. Based on the piezometer readings from 2000 and 2001 and observations of surface ponding in 2002 and 2003, the hydrology parameter was considered met and the area is now delineated as a wetland.

W-2: This wetland area is actually a series of small isolated depressions situated along a fenceline in the western pasture (Plate 1). These depressions were thoroughly saturated in March and April of 1999 and continued to pond and or contain saturated soils during the growing seasons in 2000 - 2002. The predominant vegetation in these depressions is loosestrife (*Lythrum hyssopifolia*), curly dock (*Rumex crispus*) and common polygonum (*Polygonum arenastrum*)(FAC). The extent of the eight depressions comprising this wetland area is approximately 560 square feet.

W-3: This wetland is another microtopographic depression in the west pasture that is ponded or saturated during the growing season, supports a predominance of wetland vegetation, and is underlain by hydric soils (see data sheets). The area meeting all three wetland parameters is approximately 35 feet by 50 feet (1,750 square feet).

W-4: Wetland W-4 is comprised of a small narrow swale culminating in a low depression that ponds water seasonally and supports hydrophytic vegetation including rabbitsfoot grass (*Polypogon monspeliensis*) and crypsis (*Crypsis schoenoides)*. The swale and the depression are approximately 1,000 square feet in extent.

W-5: This wetland has developed as the result of a road that was cut into the hillside. Water flows off the slope and is trapped by the roadcut creating an approximately 60 square-foot area that remains saturated and supports wetland grasses such as rabbitsfoot grass and crypsis.

4.4 Seeps

Four small seeps were identified on the property in the hills of the upper (southerly) limits of the site. Three of the seeps (Seeps #1, 2, 3) are on the same hillside above an access road and are relatively small in extent. Seep # 1 consists of a narrow channel, approximately 1 foot wide, that widens to about 50 feet where it meets the road and is mostly unvegetated due to trampling by livestock. Seep # 2 is more vegetated and is approximately 35 feet by 50 feet. Seep # 3 is slightly larger, 30 feet by 100 feet, but has essentially the same vegetative composition as the others. Seep #4 is upslope and across the road from the other seeps and is actually part of a larger wetland area that continues off of the property. Only about 100 square feet of the wetland area associated with this seep are within the project boundaries.

Table 1: Extent of Drainages, Ponds, Wetlands and Seeps in the San Juan Golf Club Study Area (excluding golf course features)

Feature[1]	Acreage
Drainage A	0.02
Drainage B	0.02
Drainage C	0.30
Drainage D	0.54
Drainage E	0.09
Drainage F	0.14
Drainage G	0.32
Pond 1	0.29
Pond 2	0.58
Pond 3	1.30
Pond 4	0.37
Pond 5	0.03
Pond 6	0.15
Pond 7	0.15
Pond 8	0.70
Pond 9	0.07
Pond 10	1.67
Pond 11	1.55
Pond 12	0.08
Pond 13	0.08
Wetland 1	1.32
Wetland 2	0.01
Wetland 3	0.04
Wetland 4	0.02
Wetland 5	60 square feet
Seep 1	0.03
Seep 2	0.04
Seep 3	0.07
Seep 4	100 square feet

[1] Each feature is mapped and labeled on Plate 1

5.0 AREAS POTENTIALLY SUBJECT TO CORPS JURISDICTION

Potential jurisdictional waters identified during this assessment are primarily associated with the ephemeral drainages. Drainages D and F are directly connected to Drainage G, which winds through the agricultural fields off the property and eventually empties into San Juan Creek. Drainages A, B and C end in the western pasture and Drainage E ends in Pond 10. These latter four drainages are not directly connected to a waterbody and may be considered isolated.

Most of the ponds on the site are man-made, they were constructed outside of the active channel, and they are not directly linked to the drainages. Because they are seasonal, there is little or no emergent wetland vegetation associated with these ponds but annual herbaceous wetland vegetation is present in some as the water dissipates. These ponds may be exempt from Corps jurisdiction as artificial lakes used for stock watering or as isolated waters. The golf course ponds are perennial and some do support emergent wetland vegetation but these ponds are artificial and were clearly constructed in upland habitat as evidenced by the jurisdictional determination issued for the golf course area by the Corps in 1994/95.

All of the seasonal wetlands observed in the study area are isolated and are not directly linked to the drainages. However, water carried in three of the drainages from the hills to the south flows overland across the west pasture where many of these wetlands are located and probably contributes somewhat to the extent and duration of the ponding in these areas. These isolated wetlands may be exempt from Corps jurisdiction pursuant to the SWANCC decision.

Although the ponds and seasonal wetlands may qualify for exemptions, the Corps has the ultimate authority for determining what is subject to its jurisdiction under Section 404 of the Clean Water Act. Therefore, the Corps will make the final determination of the areas on the San Juan Oaks Resort property over which it will assert jurisdiction.

6.0 REFERENCES

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Hickman, J. C. 1993. The Jepson Manual: Higher Plants of California. University of California Press.

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U.S. Fish and Wildlife Service. 1976. National Wetlands Inventory. Hollister Quadrangle.

APPENDIX A

PIEZOMETER MONITORING RESULTS

APPENDIX B

PLANT SPECIES OBSERVED IN SEASONAL PONDS AND WETLANDS

Plant Species Observed in Seasonal Ponds and Wetlands

Plant Species	Wetland Indicator Status
Asclepias fascicularis	FAC
Azolla filiculoides	OBL
Conyza canadensis	FAC
Crypsis schoenoides	OBL
Cyperus eragrostis	FACW
Eleocharis macrostachya	OBL
Hordeum marinum ssp. *gussoneanum*	FAC
Juncus effusus	FACW
Lactuca serriola	FAC
Lolium multiflorum	FAC
Lotus corniculatus	FAC
Lythrum hyssopifolium	FACW
Malvella leprosa	FAC+
Picris echioides	FAC
Polygonum arenastrum	FAC
Polypogon monspeliensis	FACW+
Rumex crispus	FACW-
Xanthium spinosum	FAC+

APPENDIX C

DATA SHEETS

ZANDER ASSOCIATES

Environmental Consultants

January 17, 2005

Bob Quebedeaux
Regulatory Branch, San Francisco District
U.S. Army Corps of Engineers
333 Market Street
San Francisco, California 94105-2197

File No. 27710S
Pre-Construction Notification
San Juan Oak Golf Club
San Benito County, California

Dear Bob:

On behalf of the Rancho San Justo Company, Zander Associates is submitting a Pre-Construction Notification (PCN) (Attachment A) for the San Juan Oaks Golf Club project in San Benito County, California. The approximately 2,000-acre project site is located roughly three miles southwest of the City of Hollister. It is approximately 1.5 miles south of Highway 156, southwest of Union Road and north of San Juan Canyon Road. The site includes the existing San Juan Oaks Golf Club and associated facilities (approximately 237 acres), and surrounding undeveloped ranchlands and hills. A site location map is provided within the graphics package included in Attachment B.

The proposed project includes a residential subdivision (154 single family homes around the existing golf courses), two ranch estates, inclusionary affordable housing (30 units to be developed, and an area for employee housing to be reserved for future development), a 200-room resort, a private/resort 18-hole golf course, 9,400 square feet of village commercial uses (comprised of three buildings), a 61-acre regional park, 55 acres of agricultural preserve and about 1,163 acres of permanent wildlife habitat/open space. The project received final vesting tentative map approval by San Benito County Board of Supervisors in July 2004. A site plan is provided within the graphic package included in Attachment B.

The Corps verified the extent of §404 jurisdiction on the site on August 7, 2003. According to that determination, approximately 280 linear feet (0.05 acre) of jurisdictional waters and approximately 0.21 acre of wetlands will be filled as a result of the proposed project. As mitigation for the fill, the Rancho San Justo Company will create approximately 0.52 acre of seasonal wetland adjacent to an existing wetland in the northwest corner of the site and along Drainage G in the northern portion of the site. In addition, the applicant will enhance the drainage corridor of Drainage G.

150 Ford Way, Suite 101, Novato, CA 94945 *telephone: (415) 897-8781*
fax: (415) 897-0425

Two federally-listed species, California red-legged frog (*Rana aurora draytonii*) and California tiger salamander (*Ambystoma californiense*), have been found on the site. Also, the site is considered to lie within the historic range of a third federally-listed species, San Joaquin kit fox (*Vulpes macrotis mutica*). Construction of the proposed project could have both direct and indirect impacts on California red-legged frog and California tiger salamander, and temporary and permanent impacts on potential San Joaquin kit fox habitat. Consequently, the Rancho San Justo Company intends to implement appropriate mitigation measures (i.e., permanently protect areas designated as Permanent Wildlife Habitats, pre-construction surveys, worker awareness training, homeowner brochures, etc.) prior to, during and following project construction.

We believe that the project qualifies for consideration under Nationwide Permit 39 and submit this PCN accordingly. We appreciate an expeditious review of this notification package and remain available to discuss the details of the project. Please contact Michael Zander or me at (415) 897-8781 if you have any questions regarding this notification package.

Sincerely,

Aindrea Willson
Senior Biologist

Enclosures.

- Attachment A: Pre-Construction Notification
- Attachment B: Graphics Package:
  - Sheet 1: Site Location Map
  - Sheet 2: Vegetation Type/Wildlife Habitats Map
  - Sheet 3: Site Plan
  - Sheet 4: Jurisdictional Determination and Extent of Area to be Filled
  - Sheet 5: Plan View of Wetland W-1
  - Sheet 6: Plan View of Drainage G
- Attachment C: Letter from Corps Dated August 7, 2003

cc: Scott Fuller, Rancho San Justo Company

PRE-CONSTRUCTION NOTIFICATION
SAN JUAN OAKS GOLF CLUB
SAN BENITO COUNTY, CALIFORNIA

Prepared by:

Zander Associates
150 Ford Way, Suite 101
Novato, California 94945

Submitted to:
U.S. Army Corps of Engineers
333 Market Street, 8th Floor
San Francisco, California 94105-2197

On behalf of:

Rancho San Justo Company
3825 Union Road
Hollister, California 95023

January 2005

PRE-CONSTRUCTION NOTIFICATION
San Juan Oaks Golf Club
San Benito County, California
January 17, 2005

On behalf of Rancho San Justo Company, Zander Associates is submitting this Pre-Construction Notification (PCN) to the District Engineer of the San Francisco District of the U.S. Army Corps of Engineers (Corps) for minor fill in waters of the United States, including wetlands, that will occur as a result of development of a project that includes a residential subdivision, inclusionary affordable housing, a resort, a private/resort golf course, a public par 3 golf course, village commercial uses, a regional park and open space in San Benito County, California known as the San Juan Oaks Golf Club project. The Corps verified its jurisdiction pursuant to Section 404 of the Clean Water Act over waters of the United States, including wetlands, that had been identified on the approximately 2,000-acre project site on August 7, 2003 (Corps File No. 27710S). We believe that the proposed project qualifies for a Nationwide Permit 39 (NWP 39) and, as such, provide the following information in accordance with the notification procedures in the January 15, 2002 Federal Register (67 FR 2020) and Final Regional Conditions for Nationwide Permits issued by the San Francisco District of the Corps in Public Notice Number 02-01 on May 9, 2002.

REQUIRED NOTIFICATION INFORMATION

1. Name, Address, and Telephone Number of Prospective Permittee

Rancho San Justo Company
3825 Union Road
Hollister, California 95023
Attn: Scott Fuller
(831) 636-6118

2. Location and Setting of Proposed Project

The San Juan Oaks Golf Club project site is located in the foothills of the Gabilan Range, at the southeastern end of the San Juan Valley (Attachment B, Sheet 1). It encompasses approximately 2,000 acres of land and includes the existing San Juan Oaks Golf Club and associated facilities, which comprise about 237 acres, and surrounding undeveloped ranchlands and hills. Elevations range from a low of about 215 feet in the relatively flat pasturelands towards the westerly edge of the site to a high of about 1,131 feet in the hills south of the existing golf course. The hills are cut by several prominent ephemeral drainages that carry winter runoff in a more or less northerly direction towards the pasturelands where the channels disappear and the water dissipates as overland flow. These channels are usually dry late spring to early summer. A variety of stock ponds and

water retention basins, mostly associated with ranching operations, and seasonal wetlands and seeps also occur throughout the site.

Four distinct vegetation types have been identified on the site: grassland, oak woodland, mixed riparian forest and ruderal/disturbed (Attachment B, Sheet 2). Grassland is the most extensive of the vegetation types found on the site and most have become compacted and dominated by introduced annual species. However, there are areas within the grasslands where native grasses are locally dominant, but the patches are relatively small and fragmented. The oak woodlands are dominated by various oak species depending on the moisture availability and slope aspect of a particular area. Most of this vegetation type is concentrated in the southern portion of the site. Mixed riparian forest occurs in relatively narrow bands along the ephemeral drainages where the microclimate is moist and the water table is closer to the surface and the ruderal/disturbed areas include the existing golf course and associated facilities, ponds that have been created for stock or irrigation uses and the house occurring in the eastern portion of the existing golf course.

3a. Project Description

The proposed San Juan Oak Golf Club project includes a residential subdivision (154 single family homes around the existing golf courses), two ranch estates, inclusionary affordable housing (30 units to be developed, and an area for employee housing to be reserved for future development), a 200-room resort, a private/resort 18-hole golf course, 9,400 square feet of village commercial uses (comprised of three buildings), a 61-acre regional park, 55 acres of agricultural preserve and about 1,163 acres of permanent wildlife habitat/open space (Attachment B, Sheet 3).

3b. Project Purpose

The purpose of the project is to provide a range of housing, employment and recreational opportunities and tourist facilities while preserving the site's agricultural and wildlife uses and protecting its open space.

3c Direct and Indirect Adverse Environmental Effects Caused by the Project

The extent of vegetation types/wildlife habitats impacted by the project is summarized in Table 1. The two 5-acre ranch estate lots have not been specifically designed and, therefore, habitat loss associated with these areas assumes conversion of the entire five acre lots.

Table 1: Extent of vegetation types/wildlife habitats impacted as a result of project development.

Vegetation Type/Wildlife Habitat	Total in Study Area (acres)	Converted to Golf Course (acres)	Removed for Other Facilities (acres)	Total Impacted (acres)
Grassland	937	279	143[1]	422
Oak Woodland	665	0	5[1]	5
Riparian woodland	63	0	0	0
Jurisdictional Waters and Wetlands				
Pond	0.77	0	0	0
Wetland	1.32	0.21	0	0.21
Seeps	0	0	0	0
Drainage	0.86	0	0.05	0.05
Non-Jurisdictional Waters and Wetlands				
Pond	6.25	0	0	0
Wetland	0.07	0.05	0	0.05
Seeps	0.14	0	0	0
Drainage	0.57	0.26	0.08	0.34
Ruderal/Disturbed	260[2]	0	9	9

[1] Assumes development of one of the two ranch estates disturbs entire five acres.

[2] Includes the existing golf course and associated facilities.

The primary vegetation type impacted by the project is annual grassland. Although a total of approximately 422 acres of the grassland will be removed, over half will be converted to golf course and will continue to provide habitat for some of the wildlife species that currently use this habitat on the site. Annual grassland habitat is common in the region and is not considered sensitive unless it supports special-status species. Because the annual grassland on the site is considered potential habitat for the San Joaquin kit fox (*Vulpes macrotis mutica*), its conversion could result in both temporary and permanent impacts to habitat for this species. As recommended by the California Department of Fish and Game (CDFG), the applicant intents to mitigate at a 3:1 ratio for permanent impacts and a 1:1 ratio for temporary impacts. Mitigation will be provided by utilizing the areas designated as permanent wildlife habitat. No special-status plant species were encountered in the annual grassland habitat during surveys conducted by Zander Associates according to CDFG guidelines (CDFG 1984) on April 13, 1999, April 14, 1999, May 25, 1999, May 4, 2001 and July 31, 2001.

Although the project was designed to incorporate existing oak trees into the on site landscaping and golf course design, the project will result in direct and indirect impacts on oak trees and associated oak woodland vegetation. Direct impacts could include limited removal/relocation of some oak trees and topsoil beneath oak trees, altering the structure and nutrient complexity of the soil and increasing the potential for erosion. Indirect impacts could include encroachment on root zones and tree canopies and increase human activities within and around oak trees and oak woodland habitat. In order to implement policies of San Benito County, the applicant intents to implement various

mitigation measures (i.e., pre-construction tree survey, tree protection plan, tree replacement and monitoring plan, and conserve over 600 acres of oak woodland habitat) to reduce impacts upon oak trees and oak woodlands. In addition, to avoid impacts to potential nesting migratory birds and raptors (birds-of-prey), a pre-construction survey for nesting birds and raptors will be conducted.

Project construction will result in the conversion of both jurisdictional and non-jurisdictional waters and wetlands (Attachment B, Sheet 4). Approximately 0.21 acre of jurisdictional wetland (Wetland W-1) will converted into golf course and approximately 280 linear feet (0.05 acre) of jurisdictional water (Drainage G) will be impacted by construction of lot development. In addition, approximately 0.05 acre of non-jurisdictional wetlands (Wetland W-2 and Wetland W-3) and approximately 0.34 acre of non-jurisdictional waters (Drainages A, B and C) will be converted into golf course features including fairways, watercourses and detention/siltation basin. A segment of Drainage C (approximately 0.08 acre) will also be removed for the construction of lots adjacent to the golf course. Wetland creation and drainage enhancement will be incorporated into the project design in order to mitigate for the loss of these features (for a more detailed discussion see Required Notification Information – *13 Compensatory Mitigation*). In addition, a monitoring plan will be developed and implemented. Because California red-legged frog (*Rana aurora draytonii*) and California tiger salamander (*Ambystoma californiense*) have been found within ponds on the site additional mitigation measures will be implemented prior to, during and following project construction within and adjacent to these features to ensure the long-term protection of these species.

4 Delineation of Affected Special Aquatic Sites

Zander Associates evaluated the site between 1999 and 2002 to determine the extent of Corps jurisdiction. Potential jurisdictional waters, including wetlands, on the site were divided into four separate categories (drainages, ponds, wetlands and seeps). Following are descriptions of each category. Each feature discussed is identified on Sheet 2 of Attachment B and their extent on the site is provided in Table 2.

<u>Drainages</u>

There are three prominent ephemeral drainage systems that convey runoff from the hills in the southern portion of the site northeast through the site (Drainages C, D and F on Sheet 2 of Attachment B). All of these contain incised main stem channels and tributaries that carry runoff from the surrounding oak woodlands onto and through the central part of the site. These drainage channels support an established riparian canopy but typically lack in-channel herbaceous wetland vegetation.

Two less prominent drainages (Drainages A and B) originate off of the site and carry seasonal runoff through small channels that extend about 200 linear feet onto the site where they terminate. Runoff carried in these drainages dissipates as overland flow

through the northwestern portion of the site. A third drainage (Drainage E) originates in a side canyon adjacent to the main stem of Drainage D and empties into a constructed stock pond (Pond 10). Drainage G is a man-made ditch that begins near the maintenance yard for the existing golf course, heads towards the northern site boundary, turns west and follows the length of the northern site boundary. At the northwest corner of the site, the ditch turns north again and follows a course through agricultural fields until it eventually links with San Juan Creek near Highway 156. The ditch is hydrologically connected to Drainage D through newly created creeks and ponds in the golf course and it is connected to Drainage F through overflow/diversions from Pond 11. None of the other drainages are directly connected to Drainage G. There is one side tributary to this drainage that was dug to convey overflow from the golf course ponds off the site.

In addition to the above mentioned drainages, there are numerous erosional gullies located primarily in the steeper hillside areas. These gullies typically do not have identifiable beds, banks or channels, are located in extremely limited watershed areas, do not support any hydrophytic vegetation and are not tributary to any larger drainage systems. Thus, they were not identified in Zander Associates' wetland assessment as potential jurisdictional waters.

Ponds

Almost all of the ponds on the site have been created as water supply/retention areas associated with ranching operations or as golf course features. Outside of the golf course features, 13 ponds were identified on the site varying in size from 1.7 acres to only 0.03 of an acre. All of the 13 ponds are seasonal and typically contain water during the winter months but dry out in the late spring and summer at varying rates. There is no aquatic vegetation associated with these ponds other than occasional algal blooms and aquatic ferns and only marginal shoreline vegetation due to heavy cattle use. A description of each of the 13 ponds identified follows.

Pond 1: This is a former irrigation pond that was filled with well water and was used for the ranching operations. It is no longer supplied with water and does not receive enough overland flow or direct rainfall naturally to be maintained as a pond. It is located adjacent to the golf course maintenance yard and the access road to the yard lies between the pond and the adjacent hillsides. Obligate, facultative wetland, and facultative plant species were observed in the pond in 1999 but no signs of ponding (i.e., algal matting, vegetation matting) were present.

Pond 2: This is a larger stock pond that remains hydrologically connected to the adjacent hillsides and, therefore, continues to pond water seasonally. There is no emergent aquatic vegetation associated with this pond and no well-developed shoreline vegetation. The pond is heavily used by livestock.

Pond 3: This pond contained water throughout 1993 (BioSystems 1994) but, was completely dry in 1999. Soils in the area are not typical of soils elsewhere on the site and

do not exhibit hydric characteristics. The vegetation observed in the pond during the 1999 field surveys included obligate, facultative wetland and facultative plant species.

Pond 4: This is a relatively small pond situated at the base of a hill and adjacent to one of the maintenance roads for the golf course. One decadent willow and a few stems of spikerush (*Eleocharis macrostachya*) were observed around the southern margin of the pond in 1999. The surrounding vegetation consists of annual grasslands and golf course greens.

Pond 5: This pond is downslope from Pond 6 and measures about 100 feet by 20 feet. There is no aquatic vegetation associated with the pond and it is surrounded by annual grassland. It appears to only hold water occasionally and is not consistently present from year to year.

Pond 6: Pond 6 has a relatively small watershed but it retains water most of the year. There is no aquatic vegetation in the pond and no wetland vegetation along its shores.

Pond 7: This pond was created at the base of a swale by constructing an artificial berm. The area that ponds seasonally is approximately 140 feet by 90 feet. Mosquito fern (*Azolla filiculoides*) was observed on the water surface and spikerush and knotweed (*Polygonum* sp.) were observed along the water margin in 1999.

Pond 8: This is an artificial reservoir excavated adjacent to the main stem of Drainage D. The reservoir is a relatively large (approximately 0.7 acre at the ordinary high water line), the sides are steep, precluding establishment of perimeter wetland or riparian vegetation. Water is diverted from Drainage D into this reservoir through a culvert and is returned to the channel by way of mechanical valves at the downstream end.

Pond 9: Pond 9 is a small in-channel pond/settling basin upstream of the diversion culvert for Pond 8 in Drainage D. This pond holds water during the winter storm season but dries in the spring and remains dry until the following winter. It does not support a prevalence of wetland vegetation. The surface area of this pond at the ordinary high water mark is approximately 3,200 square feet.

Pond 10: This large stock pond was excavated at the downstream end of a seasonal drainage course (Drainage E). It holds water throughout most of the summer and thus may be spring fed since no flow was observed in the upstream drainage. Two large willow snags represent about the only vegetation along the banks of this pond, which is heavily used by livestock. The surface area of the pond defined by the ordinary high water line and is about 1.7 acres.

Pond 11: This is an historic diversion structure located near the base of a small drainage. It stores water seasonally and does not support submergent, emergent or shoreline vegetation.

*Pond 12 and Pond 13***:** These are stock ponds that are mostly unvegetated because of being trampled by cattle. They are roughly the same size (approximately 3,500 square feet).

Seasonal Wetlands

The seasonal wetlands are limited in extent and occur primarily in the relatively flat portions of the site where the duration of soil saturation or surface water ponding is sufficient to establish all three wetland parameters: wetland plants, soils and hydrology. Five seasonal wetland areas were identified and are described below.

W-1: This area is near the northwestern corner of the site within the west pasture. Water ponds seasonally in this microtopographic depression. At the time of the 1999 surveys, no surface water or soil saturation was observed in this area but the vegetation composition was slightly different than the surrounding grassland and consisted mostly of facultative (FAC) species.

W-2: This wetland area is actually a series of small isolated depressions situated along a fenceline in the western pasture. These depressions were thoroughly saturated in March and April of 1999 and continued to pond and or contain saturated soils during the growing seasons in 2000 - 2002. The predominant vegetation in these depressions is loosestrife (*Lythrum hyssopifolia*), curly dock (*Rumex crispus*) and common polygonum (*Polygonum arenastrum*) (FAC). The extent of the eight depressions comprising this wetland area is approximately 560 square feet.

W-3: This wetland is another microtopographic depression in the west pasture that is ponded or saturated during the growing season, supports a predominance of wetland vegetation, and is underlain by hydric soils. The area meeting all three wetland parameters is approximately 35 feet by 50 feet (1,750 square feet).

W-4: Wetland W-4 is comprised of a small narrow swale culminating in a low depression that ponds water seasonally and supports hydrophytic vegetation including rabbitsfoot grass (*Polypogon monspeliensis*) and crypsis (*Crypsis schoenoides).* The swale and the depression are approximately 1,000 square feet in extent.

W-5: This wetland has developed as the result of a road that was cut into the hillside. Water flows off the slope and is trapped by the roadcut creating an approximately 60 square-foot area that remains saturated and supports wetland grasses such as rabbitsfoot grass and crypsis.

Seeps

Four small seeps were identified on the site in the hills south of the existing golf course. Three of the seeps (Seeps #1, 2, 3) are on the same hillside above an access road and are relatively small in extent. Seep # 1 consists of a narrow channel, approximately 1 foot

wide, that widens to about 50 feet where it meets the road and is mostly unvegetated due to trampling by livestock. Seep # 2 is more vegetated and is approximately 35 feet by 50 feet. Seep # 3 is slightly larger, 30 feet by 100 feet, but has essentially the same vegetative composition as the others. Seep #4 is upslope and across the road from the other seeps and is actually part of a larger wetland area that continues off of the property. Only about 100 square feet of the wetland area associated with this seep are within the site boundaries.

Table 2: Extent of drainages, ponds, wetlands and seeps on the project site (excluding golf course features which were evaluated by the Corps in 1994/1995(File No. 20688S88)).

Feature	Acreage
Drainage A	0.02
Drainage B	0.02
Drainage C	0.30
Drainage D[1]	0.54
Drainage E	0.09
Drainage F	0.14
Drainage G[1]	0.32
Pond 1	0.29
Pond 2	0.58
Pond 3	1.30
Pond 4	0.37
Pond 5	0.03
Pond 6	0.15
Pond 7	0.15
Pond 8[1]	0.70
Pond 9[1]	0.07
Pond 10	1.67
Pond 11	1.55
Pond 12	0.08
Pond 13	0.08
Wetland 1[1]	1.32
Wetland 2	0.01
Wetland 3	0.04
Wetland 4	0.02
Wetland 5	0.001
Seep 1	0.03
Seep 2	0.04
Seep 3	0.07
Seep 4	0.002

[1] Verified as jurisdictional waters of U.S., including wetlands.

Based on the letter from the Corps dated August 7, 2003 (Attachment C), the Corps asserted jurisdiction over two of the drainages (Drainage D and G) and ponds (Pond 8 and 9) and one of the seasonal wetlands (Wetland W-1). The Corps did not assert jurisdiction over the remaining features either because they were not connected to jurisdictional

waterbodies and, therefore, considered isolated or were considered artificial waterbodies and, therefore, exempted from the Corps jurisdiction.

12 Avoidance and Minimization for Losses of Waters of the United States

The project was designed to minimize fill of the drainages, ponds, seasonal wetlands and seeps on the site. However, in order for the project to be feasible from a design and economic perspective 280 linear feet (0.05 acre) of jurisdictional waters and 0.21 acre of jurisdictional wetland will be filled (Attachment B, Sheet 4). In addition, a total of approximately 0.39 acre of non-jurisdictional waters and wetlands will be filled. The extent and nature of impacts on jurisdictional and non-jurisdictional waters and wetlands is provided in Table 3.

Table 3: Extent and nature of impacts on jurisdictional and non-jurisdictional waters and wetlands.

Jurisdictional Waters and Wetlands					
Feature	Length (ft)	Width (ft)	Area (ft^2)	Acreage	Nature of Impact
Drainage G	280	8	2,240	0.05	Lot development
Wetland W-1	--	--	--	0.21	Golf course construction
Total Area Impacted				0.26	
Non-Jurisdictional Waters and Wetlands					
Feature	Length (ft)	Width (ft)	Area (ft^2)	Acreage	Nature of Impact
Drainage A	496	2	992	0.02	Golf course construction
Drainage B	383	2	766	0.02	Golf course construction
Drainage C	752	1	752	0.30	Golf course construction and lot development
	312	2	624		
	480	3	1,440		
	645	6	3,870		
	459	10	4,590		
	177	11	1,947		
Wetland W-2	6	16	96	0.01	Golf course construction
	3	20	60		
	5	12	60		
	4	6	24		
	6	13	78		
	3	7	21		
	3	15	45		
Wetland W-3	35	50	1,750	0.04	Golf course construction
Total Area Impacted				0.39	

13 Compensatory Mitigation

As mitigation for the loss of waters of the United States, including wetlands, a total of approximately 0.52 acre (a 2:1 replacement ratio) of new seasonal wetlands will be created adjacent to Wetland W-1 and along Drainage G. In addition, the drainage corridor of Drainage G will be enhanced. The new seasonal wetlands will be created by minor recontouring of the existing grades adjacent to Wetland W-1 and Drainage G, to grades consistent with these features. The wetlands will capture and retain direct precipitation and runoff from the golf course after going through vegetated swales. A seed mix of plants suitable for establishment and growth in seasonal wetlands will be hydroseeded in the recontoured areas. A vegetated buffer of approximately 20 feet wide will be planted with appropriate riparian tree and shrub plantings, such as arroyo willow (*Salix lasiolepis*), California sycamore (*Platanus racemosa*), blue elderberry (*Sambucus mexicana*) and California rose (*Rosa californica*), adjacent to Drainage G for enhancement of the drainage corridor.

Following the completion of seeding and planting, a five year monitoring program will commence. Within eight weeks of seeding of the seasonal wetlands and planting of the drainage corridor, an as-built conditions report will be prepared in order to track the success of the mitigation over the five year monitoring period. The report will identify the plant materials used (i.e., species and number) and permanent photo points and include the location of tree and shrub plantings and their initial measurements of height. The seasonal wetlands and drainage corridor will then be monitored quarterly in each of the four seasons for the first two years and semi-annually in the spring and fall in the three remaining years of the five year monitoring period.

During quarterly visits in the winter and spring of the first two years of monitoring, the depth and duration of ponding and percent vegetative cover within the seasonal wetlands and the general health and vigor and percent cover of the installed plantings within the drainage corridor will be monitored. Summer and fall monitoring visits in the first two years as well as in the remaining three years will document plant diversity and percent vegetative cover within the seasonal wetlands and percent vegetative cover and survival rates and heights of the installed plantings in the drainage corridor. An annual report will be prepared and submitted to the appropriate agencies by January 1st of each monitoring year.

At the end of the five year monitoring period the wetland component of the mitigation effort will be considered successful, if 0.52 acre qualify as a wetland using the Corps' multi-parameter approach and the drainage enhancement component will be considered successful, at the end of the five year monitoring period, if 80% of the installed trees and shrubs are surviving.

17 Federally-Listed Threatened or Endangered Species

Two federally-listed species, California red-legged frog (*Rana aurora draytonii*) and California tiger salamander (*Ambystoma californiense*), have been found on the project site (BioSystems 1993, Biological Consulting Services 1999). Also, the site is considered to lie within the historic range of a third federally-listed species, San Joaquin kit fox (*Vulpes macrotis mutica*). The California red-legged frog (CRLF) and the California tiger salamander (CTS) are federally listed as threatened and state designated as California Species of Special Concern. The San Joaquin kit fox (SJKF) is federally listed as endangered and state listed as threatened. A discussion of these species potential for occurrence on the site follows.

Surveys for CRLF and CTS were conducted on the site in April and May of 1999 by Bryan Mori (Biological Consulting Services). Ponds were sampled using dripnets and a fine-mesh seine and a brief visual survey for suitable habitat was conducted along the drainage courses. Adult CRLF were found in association with four ponds – Pond 4, Pond 8 and Pond 9 on Sheet 2 of Attachment B and in the westernmost pond associated with the golf course along the entrance road to the clubhouse. CTS larvae were found in two ponds – Pond 6 and Pond 10 on Sheet 2 of Attachment B – and although few ground squirrel (*Spermophilus beecheyi*) burrows were found in proximity to these ponds, potential aestivation habitat was identified in the surrounding hills. During earlier surveys on the site conducted by BioSystems Analysis, Inc. (BioSystems) in April 1993 CTS larvae were found in four ponds on the site (Pond 3, Pond 4, Pond 7 and Pond 11 on Sheet 2 of Attachment B) and one individual was found in Pond 10.

Surveys for SJKF were conducted on the site in May and July of 1992 by BioSystems Analysis, Inc. (BioSystems) as part of the biological surveys completed for the development of the existing golf course but included some portion of the portion of the property outside of that boundary. Nineteen “potential” kit fox dens (ground squirrel burrows) of suitable size but with no sign of kit fox use were found and no “known”, “natal/pupping” or “atypical” dens were identified. Based on these results, it was determined that SJKF are not present on the site. In addition, no kit foxes have been observed by biologists conducting field surveys on the site since the above mentioned survey. However, the California Department of Fish and Game (CDFG) does not believe that negative findings in surveys obviate the need to mitigate for habitat loss and includes the project site in the 2003 polygon of potential SJKF habitat within the range of the species. The most recent SJKF sighting in the area was in 1992 approximately six miles east of the project site.

Construction of the proposed project will result in both direct and indirect impacts to CRLF and CTS due to the loss of aquatic and upland habitat; creation of potential barriers between breeding and upland sites; changes in water quality and/or quantity of runoff into ponds; increased human activity; predation by domestic pets; and introduction of exotic plant and animal species. Project construction will also result in temporary and permanent impacts to potential SJKF habitat due to the loss of annual grassland habitat.

Impacts resulting from the project to these species will be minimized by permanently protecting the areas designated as Permanent Wildlife Habitats through conservation lands or a deed restriction, development of management plans for the conservation lands and detention basins and implementing appropriate mitigation measures prior to, during and following construction activities (i.e., pre-construction surveys, worker awareness training, erosion and sediment control, appropriate disposal of waste, homeowners brochure etc.).

COMPLIANCE WITH NATIONWIDE PERMIT GENERAL CONDITIONS

1 Navigation

The drainage courses on the site are ephemeral and are not navigable waters. Similarly, the ponds, seasonal wetlands and seeps are not navigable waters.

2 Proper Maintenance

All structure and/or fill associated with the project will be properly maintained in conformance with the County of San Benito's standards and requirements and to ensure public safety.

3 Soil Erosion and Sediment Controls

Appropriate soil erosion and sediment controls will be used and maintained in effective operating condition during project construction, and all exposed soil and other fills, as well as work below the ordinary high water mark, will be permanently stabilized at the earliest practicable date. All work within the drainages, seasonal wetlands and seeps will be conducted during periods of low-flow or no-flow.

4 Aquatic Life Movements

Although no ponds will be directly impacted by the project, there is a potential for the project to disrupt the necessary life-cycle movement of California red-legged frog (CRLF) and/or California tiger salamander (CTS). It is likely that the ponds on the site, as well as the drainages, seasonal wetlands and seeps, act as a habitat complex that CRLF and CTS and other species utilize at different times and their adjacent upland habitat allows for movement between these features. The project may create potential barriers to this connectivity. In addition, it could result in changes in water quality and/or quantity of runoff and the introduction of exotic species and domestic pets all of which could impact aquatic species. Because the applicant intends to implement appropriate mitigation measures prior to, during and following construction, the potential for the above mentioned impacts will be minimized.

5 Equipment

No heavy equipment will encroach into any areas identified as jurisdictional waters or wetlands that will be preserved on the site.

6 Regional Case-by-Case Conditions

The proposed project will comply with the Final Regional Conditions for Nationwide Permits, including regional conditions that apply to all NWPs and NWP 39, issued by the San Francisco District on May 9, 2002.

7 Wild and Scenic Rivers

The ephemeral drainages on the site are not designated as a Wild and Scenic River nor are they connected to components of the Wild and Scenic River System.

8 Tribal Rights

To our knowledge, the site does not include any lands that are subject to tribal rights.

9 Water Quality Certification

A separate application for Section 401 Water Quality Certification will be submitted to the Central Coast Regional Water Quality Control Board.

10 Coastal Zone Management

The project site is not located within the coastal zone nor is it located within areas subject to the San Francisco Bay Conservation and Development Commission (BCDC) jurisdiction.

11 Endangered Species

Two federally-listed species, California red-legged frog (*Rana aurora draytonii*) and California tiger salamander (*Ambystoma californiense*), have been found on the project site (BioSystems 1993, Biological Consulting Services 1999) and the site is considered to lie within the historic range of a third federally-listed species, San Joaquin kit fox (*Vulpes macrotis mutica*). See Required Notification Information – *17 Federally-Listed Threatened and Endangered Species* for a more detailed discussion.

12 Historic Properties

Based on a cultural resource investigation conducted by Archaeological Resource Management in May 2003, no historic or prehistoric sites were identified on the project

site. However, three prehistoric sites were identified adjacent to the site, and it is located in an area of high cultural resource sensitivity.

13a Notification

Notification to the Corps for the project is being submitted as required in the January 15, 2002 Federal Register (67 FR 2020). Information contained in this PCN is submitted to the District Engineer in accordance with the nationwide permit notification procedures in the January 15, 2002 Federal Register (67 FR 2020) and with recommendations provided by the San Francisco District of the Corps in Public Notice Number 02-01.

14 Compliance Certification

Upon completion of the project, Ranch San Justo Company will submit a signed certification stating that the work was completed and any required mitigation was implemented.

15 Use of Multiple Nationwide

The project will not require the use of more than one NWP.

16 Water Supply Intakes

The proposed project will not result in the discharge of any dredged or fill material in the proximity of a public water supply.

17 Shellfish Beds

The site does not contain any shellfish beds.

18 Suitable Material

Materials to be used during project construction will be of clean and suitable material to pose no adverse impacts on water quality or aquatic life.

19 Mitigation

The proposed project was designed to avoid adverse effects to jurisdictional waters and wetland to the maximum extent practicable. However, in order to meet the project's objectives jurisdictional waters and wetlands will be filled and onsite mitigation will be implemented (see Required Notification Information – *13 Compensatory Mitigation* for a more detailed discussion).

20 Spawning Areas

There is no suitable spawning habitat for fish on the site.

21 Management of Water Flows

To the maximum extent practicable, the proposed project was designed to maintain preconstruction downstream flow conditions. In addition, the proposed project will not permanently restrict or impede the passage of normal or expected high flows and the structure and/or discharge of fill material will withstand the expected high flows.

22 Adverse Effects From Impoundments

The onsite detention basins will be designed to the extent possible to minimize restricting flows and to create natural habitat.

23 Waterfowl Breeding Areas

The proposed project will not affect any waterfowl breeding areas.

24 Removal of Temporary Fills

Construction activities will not result in any temporary fill material being placed in waters or wetlands.

25 Designated Critical Resource Waters

Because the project site falls within the proposed Critical Habitat for the California red-legged frog (Federal Register 69, 19619-19642), the drainage courses on the site are designated a critical resource water.

26 Fills Within 100-Year Floodplains

The site is not located within a flood hazard zone, as defined by the Federal Emergency Management Agency (FEMA). It is located several miles south of the 100-year flood zone of the San Benito River, which is the nearest 100-year flood zone to the site.

BIOLOGICAL RESOURCES BASELINE

San Juan Oaks Specific Plan

San Benito County, California

Prepared for:

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Prepared by:

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Figure 1: Vegetation Map on Aerial Base

Appendix A Special Status Species with Potential to Occur on the San Juan Oaks Property

Appendix B Plant species observed on the San Juan Oaks Property on 4/13/99, 5/25/99, 5/4/2001, 7/31/2001, 4/4/13, 4/23/13 and 5/1/13

1.0 INTRODUCTION

This report was prepared by Zander Associates to update the status of baseline biological resources and related permitting on the San Juan Oaks property in San Benito County. We previously described the biological resources, including wetlands, on the property in two companion reports dated 2003 (Zander Associates 2003a/b). Those reports provided a basis for the biological resources impact assessment in the Environmental Impact Report (EIR) for the previously approved San Juan Oaks Golf Club Vesting Tentative Subdivision Map (VTM) Project (Rincon Consultants 2003a/b). The reports were also used for obtaining authorizations from the U.S. Army Corps of Engineers (Corps), the U.S. Fish and Wildlife Service (USFWS), the Central Coast Regional Water Quality Control Board (RWQCB) and other agencies for construction activities associated with the approved VTM.

The VTM was approved by San Benito County in 2004 and received all necessary resource agency approvals by 2007. However, the approved project was not developed.[1] Now the PulteGroup and San Juan Oaks, LLC. propose a Specific Plan for the property with a modified mix of land uses in essentially the same development footprint as the previously approved VTM project.

This report provides a brief summary of previous studies and assessments pertaining to biological resources, updates the 2003 baseline resource documents within the Specific Plan area, and reviews the resource agency permit history and its current status.

1.1 Location and General Site Characteristics

The San Juan Oaks Specific Plan area encompasses approximately 1,993 acres within the foothills of the Gabilan Range of California's central coastal mountains at the southeastern end of the San Juan Valley. The site is located about three miles southwest of the City of Hollister and approximately one mile south of the intersection of Highway 156 and Union Road. The property consists of the existing San Juan Oaks Golf Club, clubhouse and surrounding cultivated fields, undeveloped ranchlands and hills. The existing golf course and associated facilities comprise about 237 acres; the remainder of the property supports cultivated agriculture, grasslands, oak savannah and mixed oak woodlands and is used primarily for grazing and dryland farming. Surrounding land uses include intensive agriculture to the north and northwest, sparsely developed wooded hills to the south and southwest, and San Justo Reservoir and Recreation Area to the east.

Elevations on the property range from a low of about 215 feet in the relatively flat cultivated fields toward the westerly edge of the property to a high of about 1,131 feet in the hills to the south. The hills are cut by several prominent ephemeral drainage courses that carry winter runoff in a more or less northerly direction towards the golf course and agricultural lands. All but a few of the channels disappear as the grade flattens and the water dissipates as overland

[1] One small component of the approved project involving minor wetland fill, as authorized by the U.S. Army Corps of Engineers, was completed in 2012.

flow. Drainage channels flow through a series of ornamental ponds on the golf course and several stock ponds and water retention basins are found throughout the undeveloped portions of the site.

1.2 Previous Studies and Assessments

Numerous surveys and site assessments have been conducted on the San Juan Oaks property over a period of more than 20 years to identify the existing biological resources and determine the presence/absence of special-status species. Some of those assessments were conducted in conjunction with the environmental review for development of the existing golf course. Others were done as part of the environmental review, planning and permitting process for the previously approved VTM. More recent work has been done to comply with resource agency permit requirements and to update the status of baseline conditions on the property.

General and species-specific surveys were conducted in 1992 and 1993 by Biosystems Analysis, Inc. and a wetlands assessment was conducted by H.T. Harvey and Associates in 1994 within the proposed golf course area. Biosystems conducted specific surveys and evaluated habitat on the property for its potential to support San Joaquin kit fox (*Vulpes macrotis mutica*) and also conducted surveys to determine the presence/absence of California tiger salamander (*Ambystoma californiense*) (BioSystems 1993/1994). H.T. Harvey completed a jurisdictional determination of areas that met the definition of "waters of the United States" within the (then) proposed golf course area (Harvey 1994).

Zander Associates began surveys of the San Juan Oaks property in 1999, with the majority of our focused work continuing through 2003. Our study was primarily that portion of the property outside of the (by then) existing golf course, but we also evaluated some ponds, wetlands and other areas within and immediately adjacent to the golf course. We identified, characterized and mapped the different vegetation types on the property; delineated the extent of waters of the United States and wetlands; conducted focused surveys for California red-legged frog (*Rana draytonii*), California tiger salamander, California burrowing owl (*Athene cunicularia*), and special-status plant species. The results of our wetlands delineation were submitted to the U. S. Army Corps of Engineers in March 2003 for verification. We met with Corps representatives on site on July 1, 2003, and the Corps verified the delineation on August 7, 2003. As noted above, our 2003 biological resources assessment was used as the basis for the EIR analysis of the previous development proposal for the property.

In 2005 and 2006, Zander Associates met on site with representatives of the USFWS to confirm site characteristics and discuss endangered species permitting (permits are discussed below). Following direction from the USFWS, we organized and assisted Mr. Bryan Mori with a full season tiger salamander trapping study on the property in the winter and spring of those years (2005-6). The results of that study provided information used in the biological opinion (BO) issued by the USFWS on August 11, 2006 (USFWS 2006) (see below).

Between 2006 and 2012, representatives from the University of California at Davis (Dr. Brad Shaffer et al) visited the San Juan Oaks property to collect tissue samples of tiger salamanders from selected ponds on the property. Preliminary results of the 2006 collections were presented

in a subsequent technical memorandum (Johnson et al. 2008). These collections are part of a long-term (±20 year) regional study of hybridization between native salamanders and non-native introduced species. Future collections are expected to continue.

In October 2012, Bryan Mori monitored an area of minor grading activity in a small seasonal jurisdictional wetland that had been delineated in 2003. The grading was conducted by San Juan Oaks, LLC. in conformance with its Corps permit, originally issued in August 2006 and regularly reauthorized since then (see permit discussion below). Mr. Mori conducted a preconstruction survey of the area on October 8, 2012 and was present during grading activities on October 10, 2012 to train construction personnel and monitor to insure that no California tiger salamanders, California red-legged frogs or San Joaquin kit fox were harmed. The entrances of all small mammal burrows were examined for focal species, sign of use and assessed for habitat suitability. As expected, given the absence of suitable habitat, none of these species was observed in the project area (Mori 2012).

In the spring of 2013, Zander Associates conducted reconnaissance surveys of the entire San Juan Oaks property to confirm that general conditions relative to biological resources on the property have not changed significantly. We also conducted systematic, seasonally-timed floristic surveys within the Specific Plan area and evaluated habitat for special status wildlife species. Details of our methodology are presented below and the updated biological resources baseline is presented in the following sections.

1.3 Update Methodology

Zander Associates reviewed the various documents resulting from the studies described above. We queried the current (2013) California Natural Diversity Database (CNDDB) to update information on special-status plant and animal species recorded in the vicinity of the property (Hollister, San Felipe, San Juan Bautista and Chittenden 7.5 minute quadrangles). We also searched the CNPS Online Inventory for special status plants that have the potential to occur in the general vicinity and reviewed the Draft Program Environmental Impact Report for the 2035 San Benito County General Plan for information on special status species in this portion of the County. Finally, we obtained a new aerial photograph from a recent (June 2013) flyover of the site.

On April 4, 2013, two Zander Associates biologists systematically traversed the site to evaluate general vegetation and wildlife habitat characteristics. We drove on farm and ranch roads, and walked transects across fields and hillsides to compare current conditions with those we described and mapped previously. We checked each of the ponds, previously mapped wetlands, riparian areas and drainages that occur on the property. We looked for any large mammal burrows and carefully observed areas with evident ground squirrel (*Otospermophilus beecheyi*) activity to identify any sign of burrowing owls. We identified all plant species encountered, collecting specimens of species we were unable to identify in the field for later keying in the office. We updated plant names in conformance with the most current version of the Jepson Manual (Baldwin 2012). One botanist returned to the property on April 23, 2013 and again on May 1, 2013 to catch any later blooming species that might have been missed earlier in the season. We did not conduct any further aquatic habitat sampling or other protocol wildlife

surveys, but assumed continued presence of special status species previously documented on the site, including California tiger salamanders, California red-legged frogs and nesting raptors.

We remapped vegetation types on the current aerial photograph of the site (Figure 1), updated the special status species tables provided in our 2003 report (Appendix A) and added to the plant list for the property (Appendix B). The remainder of this report describes the vegetation types, wetlands and wildlife habitats that currently occur within the San Juan Oaks Specific Plan area, consolidates the results of species-specific surveys conducted on the site over a period of many years, and summarizes the resource agency permit history for the previously approved VTM project.

2.0 VEGETATION TYPES, WETLANDS AND WILDLIFE HABITATS

Vegetation types and wildlife habitats identified on the San Juan Oaks property through previous work have not changed significantly over time. The classification system for identification of vegetation types in our earlier (2003) report generally followed Holland's system of classification (Holland 1986) as modified by Sawyer and Keeler-Wolf (Sawyer et al. 1995). Since then, a revised classification system for California vegetation has been established, which replaces Holland's terrestrial communities with vegetation alliances and associations (Sawyer et al. 2009). We continue to describe the vegetation at San Juan Oaks using the more common terrestrial community types derived from Holland, but include references to the more recent classification system where appropriate. The basic characteristics of vegetation types, drainages, ponds, seasonal wetlands, and wildlife habitats within the Specific Plan area are described below and the extent of each in the project area is illustrated on Figure 1. Plant species identified through general floristic and rare plant surveys in 1999, 2001 and 2013 are listed in Appendix B.

2.1 Non-Native Grassland

Non-native grassland (which includes the wild oats and annual brome grasslands of Sawyer et al. 2009) is the most extensive vegetation type in the Specific Plan area (Figure 1). Most of the grasslands have become compacted by cattle grazing and dominated by introduced annual species including rip gut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), wild oats (*Avena* spp.), rat-tail fescue (*Festuca myuros*) and barnyard foxtail (*Hordeum murinum* ssp. *leporinum*). Within the annual grassland at higher elevations and on steeper slopes there are patches of native perennial grasses, primarily purple needlegrass (*Nassella pulchra*) and nodding needlegrass (*Nassella cernua*). There are areas where native grasses are locally dominant, but the patches are relatively small and fragmented and therefore are not distinguished as a separate vegetation type (e.g. the *N.pulchra* herbaceous alliance of Sawyer et al 2009). Native wildflowers observed in the grasslands during spring and summer surveys included blue-eyed grass (*Sisyrinchium bellum*), purple owl's clover (*Castilleja exserta ssp. exserta*), common muilla (*Muilla maritima*), suncups (*Taraxia ovata*), and California poppy (*Eschscholzia californica*).

Grasslands can provide foraging habitat for a variety of animals (in addition to cattle). The numerous invertebrate species often found in grasslands provide a food source for lizards, birds, and some small mammals, including bats. Many of these animals, in turn, serve as prey for

larger species. Animals commonly found in California grasslands include ringneck snake (*Diadophis punctatus*), gopher snake (*Pituophis catenifer*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), Say's phoebe (*Sayornis saya*), western meadowlark (*Sturnella neglecta*), western harvest mouse (*Reithrodontomys megalotis*), Botta pocket gopher (*Thomomys bottae*), lesser mole (*Nannospalax lecodon*), black-tailed jack rabbit (*Lepus californicus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), and black-tailed deer (*Odocoileus hemionus columbianus*)

2.2 Oak Woodlands

The oak woodlands on the San Juan Oaks property are comprised of varying oak and other tree species, depending on moisture availability, slope and aspect of a particular area. Because no one oak species is dominant, the oak woodlands on the site most closely conform to the mixed oak forest (*Quercus* forest alliance) described by Sawyer et al 2009. At the lower elevations and along ephemeral drainages near the canyon bottoms, coast live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*) are almost codominant. Big leaf maple (*Acer macrophyllum*), California bay laurel (*Umbellularia californica*) and blue elderberry (*Sambucus mexicana*) are common associates in these areas. At higher elevations on drier sites and south-facing slopes, blue oak (*Quercus douglasii*) is dominant with black oak (*Quercus kelloggii*), madrone (*Arbutus menziesii*) and coast live oak found in localized areas. Canopy density of the oak woodlands also varies depending on the particular microclimate. The canopy is most dense where the microclimate is moister such as on north-facing slopes, in moderately steep ravines and along canyon bottoms. On south-facing slopes, near the tops of ridges and on open knolls, the canopy is more open and characteristic of an oak savanna. Understory composition also varies depending upon local conditions such as canopy density, moisture availability and soil type. Grassland is the dominant understory in drier areas while common understory species in moister areas include poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), snowberry (*Symphoricarpos albus* var. *laevigatus*), wood rose (*Rosa gymnocarpa*), hedge nettle (*Stachys bullata*) and wood fern (*Dryopteris arguta*).

Oak woodlands provide good habitat for a variety of wildlife species. Oak trees provide nesting sites and cover for many birds and mammals. Cavity-bearing trees supply denning, nesting, and roosting sources. Woody debris and duff in the forest contribute to the structural complexity of the forest floor and provide foraging areas for small mammals and microclimates suitable for amphibians and reptiles. Acorns are a valuable food source for many animal species, including the California quail (*Callipepla californica*) and black-tailed deer. Other representative animal species of oak dominated forests include the arboreal salamander (*Aneides lugubris*), southern alligator lizard (*Elgaria multicarinata*), common kingsnake (*Lampropeltis getula*), western screech owl (*Megascops kennicottii*), scrub jay (*Aphelocoma californica*), and Virginia opossum (*Didelphis virginiana*). The woodland canopy also provides suitable nesting habitat for several bird species, including raptors.

2.3 Mixed Riparian Forest

This vegetation type occurs in relatively narrow bands along drainages where the microclimate is moist and the water table is closer to the surface. The mixed riparian forest is dominated by

open to closed canopies of coast live oak, valley oak and red willow (*Salix laevigata*). Along the more significant drainage in the eastern portion of the site, California sycamore (*Platanus racemosa*) is also a major component of the canopy. Arroyo willow (*Salix lasiolepis*) and cottonwoods (*Populus fremontii*) are interspersed throughout the mixed riparian forest vegetation type in the project area. Common shrubs associated with this vegetation type include poison oak, blue elderberry, snowberry, California blackberry and California rose (*Rosa californica*). Herbaceous vegetation is sparse but there are a number of native grasses and forbs scattered throughout the riparian forest including Douglas' mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica dioica* ssp. *holosericea*), western willow herb (*Epilobium adenocaulon*), miner's lettuce (*Claytonia perfoliata*) and willow dock (*Rumex salicifolia*).

Riparian forests typically provide valuable wildlife habitat because the canopy of trees and shrubs present provide nesting and foraging sites, movement corridors and cover for animals in an area adjacent to a water source. Animal species that are common to riparian habitats include the California newt (*Taricha torosa*), Pacific tree frog(*Pseudacris regilla*), California red-legged frog, bullfrog (*Rana catesbeiana*), arboreal salamander, song sparrow (*Melospiza melodia*), yellow warbler (*Dendroica petechia*), and ornate shrew (*Sorex ornatus*). The cottonwood and sycamore trees included in the mixed willow riparian vegetation could be used by raptors for nesting and roosting, particularly since they are adjacent to grasslands that provide foraging habitat. Reptiles including the western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), and southern alligator lizard are often found in the leaf litter, downed tree branches and fallen logs in riparian areas.

2.4 Cultivated Agriculture

The western portion of the property and several fields just north of the golf course and along the main access road to the property (San Juan Oaks Drive) are actively cultivated for forage, grain and other crops. Most of the forage and grain fields are typically disked and seeded between fall and early spring and harvested (cut) between late spring and early summer. They usually remain fallow until the seasonal cycle begins again. During our initial spring (April 4th) site visit in 2013, winter wheat (*Triticum aestivum*) was the primary crop growing in the fields around the golf course, row crops were growing in the agricultural field east of San Juan Oaks Drive and an olive grove was established on hilly ground at the entrance to the property on Union Road. The large western field was disked but had not been seeded for the 2013 growing season.
Suitable habitat for native plants and wildlife is very limited in cultivated agricultural fields. Aggressive plant colonizers, especially non-native weeds, can become established on cultivated ground. Common rodents, reptiles and other animals could also occur in these areas. But ongoing cultivation restricts the long-term sustainability of any plant communities or wildlife populations. Foraging raptors over open cultivated fields would add to common wildlife population control.

2.4 Developed/Disturbed

The developed/disturbed areas include the existing golf course, clubhouse, associated facilities and the areas immediately surrounding them. There are several ponds within the golf course and most of these are kept supplied with water year-round. Emergent aquatic vegetation and riparian

vegetation has established around the perimeter of a few ponds that are at the edge of the golf course but the ponds in the middle of the fairways are kept relatively free of aquatic vegetation. The fairways and greens are turfed and there is landscaping around the clubhouse and parking areas. Some ruderal (disturbed) areas can be found adjacent to the managed parts of the golf course and support mostly non-native weeds like star thistle (*Centaurea solstitialis* and *C. calcitropa*), hemlock (*Conium maculatum*), ripgut brome and other annual grasses.

The disturbed areas provide limited habitat for wildlife in the vicinity. Deer may browse on the turfed areas and common small mammals including coyotes, opossums, raccoons, and skunks may traverse the open fairways, especially at night. The golf course ponds, especially those at the edge of the course that contain emergent and woody vegetation, provide suitable habitat for amphibians and birds. As a condition of golf course approval, San Juan Oaks does not stock the golf course ponds with mosquito fish (*Gambusia affinis*) to minimize impacts to amphibian larvae that might use the ponds (Scott Fuller, pers. comm.).

2.5 Ephemeral Drainages

Several ephemeral streams convey runoff from the hills in the southern portion of the property northeast through the site. These drainages typically contain incised main stem channels and tributaries that carry runoff from the surrounding oak woodlands onto and through the central part of the property. Mixed riparian forest is associated with the most pronounced of these streams in the upper reaches (see above). With the exception of one of these drainage systems, the defined channels disappear and any seasonal runoff dissipates as the slope flattens. One drainage system flows into a man-made ditch that begins near the maintenance yard for the golf course, heads towards the northern property boundary, turns west and follows the length of the northern property boundary. At the northwest corner of the property, the ditch turns north again and follows a course through agricultural fields until it eventually links with San Juan Creek near Highway 156. Since the ditch is "hydrologically connected" to San Juan Creek, the Corps of Engineers took jurisdiction over it as a "waters of the United States", but exempted the other drainages.[2]

In addition to the drainage channels, there are numerous erosional gullies located primarily in the steeper hillside areas. These gullies typically do not have identifiable beds, banks or channels, are located in extremely limited watershed areas, do not support any hydrophytic vegetation and are not tributary to any larger drainage systems.

2.6 Ponds

Ponds on the property have been created as water supply/retention areas associated with ranching operations or as golf course features. There are 13 ponds not associated with the golf course that vary in size from 1.7 acres to only 0.03 of an acre.[3] Most of these ponds are seasonal, typically containing water during the winter months and drying out in the late spring and summer. There is little aquatic vegetation associated with these ponds, other than occasional algal blooms and

[2] In technical terms, these other drainages are not "hydrologically connected to navigable waters."
[3] See Zander Associates 2003a & b for a complete description of each pond

aquatic ferns, and only marginal shoreline vegetation due to heavy cattle use. The Corps exempted most of the ponds on the property as jurisdictional wetlands and only took jurisdiction over two just south of the golf course because they were associated with the jurisdictional drainage system. Most of these ponds were dry during our spring 2013 site visits, probably because of abnormally low rainfall in the early months of 2013.

Several of the ponds have been documented to support a variety of aquatic organisms including Pacific tree frog, California newt, and most notably, both tiger salamander and red-legged frog (see discussion on special status species below).

2.7 Seasonal Isolated Wetland

A seasonal jurisdictional wetland occurs in the relatively flat, northwest corner of the site where the duration of soil saturation or surface water ponding can be sufficient to establish all three wetland parameters: wetland plants, soils and hydrology. This Corps jurisdictional wetland was partially filled in 2012 and expanded under authorization (nationwide permit) previously granted by the Corps (see below). No special status species or habitat suitable to support them were identified in the vicinity of this area during pre-construction surveys conducted prior to the work (see Section 1.2 above). The newly expanded wetland area was dry during spring surveys in 2013, probably because of abnormally low rainfall in the early months of 2013.

2.8 Seeps

Four small isolated seeps were identified on the property in the hills of the upper (southerly) limits of the site in 2003. Three of the seeps were relatively small and on the same hillside above an access road. The fourth, upslope and across the road from the other seeps, was part of a larger wetland area that continued off the property. All of these areas were evident during our 2013 surveys but were dry and did not exhibit wetland characteristics.

3.0 SPECIAL-STATUS SPECIES

For the purpose of this assessment, we identify special-status species as: those plants and animals listed, proposed for listing, or candidates for listing as threatened of endangered by the USFWS under the Federal Endangered Species Act (ESA); those listed or proposed for listing as rare, threatened, or endangered by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA); plants with a rank of 1A, 1B or 2 of the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2010); and animals designated as “Species of Special Concern” (CSC) by the CDFW.

The California Natural Diversity Database (CDFW 2013) lists occurrences of several special status animal species and six plant species within a five-mile radius of the project site. In addition, other sources, including our 2003 report, identify other plants and animals that may occur in similar habitats in the region. We used all of these sources to develop a list of the special status plant and animal species with some potential to occur on the San Juan Oaks property. This general target list is provided in Appendix A along with a summary of our findings.

2.2.1 Plants

Surveys for special-status plants were conducted in areas outside of the existing golf course on the San Juan Oaks Golf Club property on April 13 and 14, 1999, May 25, 1999, May 4, 2001, July 31, 2001, April 4 and 23, 2013 and May 1, 2013. These surveys were conducted according to CNPS and CDFW botanical survey guidelines (CNPS 2001 and CDFW 2009) and included walking transects through all grassland, woodland and riparian habitat on the site, listing all plant species encountered. Any species that was not identifiable in the field was collected and keyed in the laboratory. A list of all of the plant species identified on the site during these surveys is provided in Appendix B.

No special status plants were found on the property during our earlier surveys or during the more recent 2013 spring surveys. Many of the special status plants known to occur in San Benito County are associated with alkaline or serpentine soils or serpentinite bedrock. There are no marked alkaline areas, serpentine soils or serpentinite bedrock on the site and therefore the species associated with these habitats are not expected to be present. Other species associated with habitats that are found on the project site would have been identifiable at the time of the surveys, which were conducted during the blooming period of these plants. A summary of our conclusions with respect to each target plant species is provided in Appendix A.

2.2.2 Animals

The special status animal species evaluated for their potential to occur on the property and a summary of our findings is provided in Appendix A. A more detailed discussion of listed species and some of the other special status wildlife species with potential to occur in habitats on the site follows.[4]

San Joaquin kit fox (Vulpes macrotis mutica): This small canid is federally listed as endangered and state listed as threatened. USFWS and CDFW consider the Specific Plan area to lie within the historic range of the San Joaquin kit fox (SJKF). However, the known SJKF population centers in the project region, the San Luis Reservoir area (20 miles to the northwest in western Merced County) and the Panoche Valley area (30 miles to the southwest in eastern San Benito County), are far enough away to preclude viable dispersal corridors to the site. In addition, there have been no confirmed records of kit foxes in northern San Benito County within the past 20 years; the majority of the records are around 40 years old and concentrated east of Hollister, based on the 2013 CNDDB.

Nonetheless, grassland habitat at the site is suitable for hunting and denning (abundant ground squirrels and ground squirrel burrows in some areas). Specific surveys for SJKF were conducted in May and July of 1992 by BioSystems Analysis, Inc. focusing on areas that are now incorporated into the existing golf course but including some portion of the property outside of

[4] The California newt *(Taricha torosa)* has been found in several of the ponds on the site. It is considered a California Species of Special Concern in Monterey County and areas south. It is not treated as a special status species in this report but is included on the list in Appendix A.

that boundary (BioSystems 1993). The surveys were conducted following CDFW approved survey methodology.

No kit foxes or evidence of kit foxes were observed during the 1992 surveys. Nineteen potential kit fox dens (ground squirrel burrows) of suitable size but with no sign of kit fox use were found on the property but no known, natal/pupping, or atypical dens were identified. Based on the survey results, it was determined that SJKF were not present on the San Juan Oaks property. The 2006 USFWS biological opinion concluded that the likelihood of SJKF occurring on the site is low but acknowledged that the grassland habitat on the site is suitable for SJKF hunting and denning (USFWS 2006).

California tiger salamander (Ambystoma californiense): The California tiger salamander (CTS) was listed as threatened by the USFWS on August 4, 2004 and subsequently by CDFW on March 3, 2010. CTS breed in seasonal pools in grasslands and lowland hills, but spend most of their lives in subterranean refugia in nearby upland habitat, commonly using small mammal burrows for aestivation (summer dormancy). CTS are known to move up to two kilometers between aestivation sites and breeding pools. For successful breeding, CTS require seasonal pools that hold water for a minimum of four months, to allow CTS larval metamorphosis to occur. Because CTS adults may take four to five years to reach sexual maturity, during which time they are using upland habitat, 95-99% of their life cycle is spent on land (Brad Shafer, pers. comm.), and suitable upland habitat is critical to the survival of the species. Presence of the species is most readily determined by springtime pond surveys or by rainy season nighttime observations.

CTS have been documented from at least six ponds on the San Juan Oaks property since 1994 (USFWS 2006). BioSystems conducted the first surveys in 1993 and found CTS larvae in five breeding ponds (BioSystems 1994). Bryan Mori conducted amphibian surveys in most of the (non-golf course) ponds on the property in the spring of 1999 and found CTS larvae in two ponds (Zander Associates 2003b). He later conducted a drift fence study during the 2005-2006 wintertime rainy season to obtain data on upland and aquatic habitat use and to help assess the potential impacts on CTS of the first development phase of the previously approved VTM project (Mori 2006).

In November 2005 and February 2006, several drift fence and pitfall traplines were installed to study overland movement and determine numbers of CTS moving to and from ponds near the first phase VTM development area around the existing golf course. Thirty-one CTS were captured on 10 nights between December 2, 2005 and March 4, 2006. Data from the capture locations reveals some aspects of upland habitat use by CTS on the property. CTS were captured in all upland traplines, indicating that they were sheltering in or migrating through grassland areas proposed for the first phase of VTM development around the golf course. Data from pond traplines and observations at some ponds indicated that at least two small ponds adjacent to the golf course supported small CTS breeding populations.

Ponds that were not found to contain larvae or individuals are assumed to potentially support CTS because of their proximity to other known habitat. The open grassy hills around the golf

course act as dry season aestivation habitat, especially in areas of ground squirrel activity. It is likely that the ponds act as a habitat complex that CTS utilize at different times, and the existing golf course allows for movement of CTS from the northeastern ponds to the southeastern ponds around the course (Rincon Consultants 2003a).

In 2006, San Juan Oaks, LLC. granted a request for access to the property by representatives of the U.C. Davis Biology Department, Section of Evolution and Ecology for ongoing CTS hybridization studies. The U.C. team collected one larva, eggs, tail tips and excised toes of CTS from several ponds around the golf course in 2006 (Johnson et al 2008). The goal was to use informative DNA markers to determine whether the tissue samples represented native CTS (*A. californiense*), non-native tiger salamanders (*A. tigrinum mavortium)*, or hybrids of the two types. The data indicated that some San Juan Oaks Golf Course ponds exhibit low levels of non-native genotypes. Over 77% of individuals could be described as "pure native" and all individuals were at least 67% native based on the data. The investigators concluded that the genotypes of salamanders present at San Juan Oaks are comprised primarily of native alleles but that the site has been subjected to some invasion by hybrid tiger salamander genotypes. San Juan Oaks was considered typical of other areas investigated where the foothill landscape likely provides appropriate terrestrial habitat that maintains pure native individuals in the population. However, nearby agricultural activities may allow persistent immigration of hybrid individuals from permanent water sources and lead to persistent low levels of introgression or decreasing proportions of pure native individuals in foothill ponds.

California red-legged frog (Rana draytonii): The California red-legged frog (CRLF) is a federally listed threatened species and a California Species of Special Concern. This native frog is a pond-dwelling amphibian occupying perennial and intermittent ponds from sea level up to approximately 4500 feet in elevation. Ponds inhabited by CRLF typically contain some type of vegetation usually willows and/or tules either submergent or overhanging, although frogs have also been observed in ponds relatively devoid of visible vegetation. Deep water (>3 feet) allows the frogs refugia from potential predators, however frogs can be found in more shallow waterbodies as well.

Surveys for CRLF were conducted on the property site on May 6 and May 7, 1999 (Zander Associates 2003b). Adult CRLF were found associated with four ponds around the existing golf course. Two sub adult CRLF were also captured in upland drift fences during the 2005-2006 studies described above (Mori 2006). It is reasonable to assume that CRLF may be found in other ponds on the property, including golf course ponds. CRLF may also use drainages, grasslands, and even golf course fairways as movement corridors, especially during the rainy season.

USFWS re-designated critical habitat for CRLF (for the third time in nine years) in 2010 (USFWS 2010). The revised designation maintained a critical habitat unit for northwestern San Benito County (SNB-1, Hollister Hills) that includes the San Juan Oaks property. San Juan Oaks comprises approximately 14 percent of critical habitat unit SNB-1 (USFWS 2006). Critical habitat is defined as: (1) specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and (2) specific

areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. The designation carries no additional legal protection for CRLF (beyond ESA take prohibitions) for non-federal projects on private lands, but is intended to prevent further fragmentation of habitat in the species range and preserve permanent and ephemeral aquatic habitats suitable for breeding and accessible upland areas for dispersal, shelter and food. The BO for the project considered the approved VTM project's effects on CRLF critical habitat (USFWS 2006).

Invertebrates: Both the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*) and the federally endangered vernal pool tadpole shrimp (*Lepidurus packardi*) are known to occur in vernal pools in San Benito County, primarily in South County. While there are no recorded occurrences of either of these species within five miles of the San Juan Oaks property, there is potential habitat present in some of the ponds. Aquatic sampling of this pond in 1999 did not find these species but did find the more common California linderiella (*Linderiella occidentalis*).

Western spadefoot toad (Scaphiopus hammondii): The western spadefoot toad (WST) is a California Species of Special Concern. These toads have been observed in a variety of habitats, but are typically associated with the sandy, gravelly soils of rain pools and stock ponds found in grassland and oak woodland habitats at elevations below 3,000 feet. These animals are mostly terrestrial and are found in the more arid regions of the state (e.g. Central Valley and southern California). WST enter water only to breed and have the quickest reproduction cycle of any Anuran known in the state (as little as three weeks to metamorphosis if temperature and food sources are favorable). WST have an extended period of subterranean dormancy (8-9 months), emerging with the spring rains to breed in the temporary pools.

Despite numerous surveys conducted within and around the area, western spadefoot toads have not been found north of Hollister, which appears to be the natural limit of the distribution of this organism. Site assessments conducted in 1999 concluded that there is no suitable habitat onsite for WST and that the project-site is out of the range of the species distribution.

Western pond turtle (Clemmys marmorata): The western pond turtle (WPT) is a California Species of Special Concern. It is the only native aquatic (freshwater) turtle found in California. Western pond turtles are found in freshwater (typically perennial) aquatic habitats throughout the state up to elevations of about 4700 feet. Western pond turtles require some slow-water aquatic habitat, and are uncommon in high-flow streams. WPT presence seems to be associated with the presence of basking sites and hatchlings require shallow water habitat with dense vegetation in which to forage.

WPT leave the aquatic site to reproduce, aestivate and overwinter, and so upland habitat is also important for the species. These turtles require an upland oviposition site in the vicinity of the aquatic site and may overwinter on land or may remain active in water during the winter season. WPT on the central coast of California largely appear to remain active year-round. There is very little perennial aquatic habitat for the species on the property and no WPT were observed during any of the biological surveys conducted in 1999-2001, 2005-2006 or 2013.

California burrowing owl (Athene cunicularia): The California burrowing owl is a California Species of Special Concern. The preferred habitat for burrowing owls includes annual and perennial grasslands, deserts and arid scrublands with bare ground or low-growing vegetation. Burrowing owls use rodent burrows (primarily ground squirrel) or other similar refugia for nesting and roosting habitat. No burrowing owls or evidence of burrowing owl use were observed during the course of the 1999-2001 or 2005-2006 field investigations. During Zander Associates recent (2013) site visits, we carefully observed areas with evident ground squirrel activity to identify any sign of burrowing owls. We did not observe any of the characteristics typical of burrowing owl occupancy (e.g. large mounds at entrances, white wash, pellets, bones) at any burrows nor did we hear calls or flush any owls during walking transects through grassland areas.

Migratory birds: Potential nesting sites for birds-of-prey and other migratory birds exist on the property, especially in the mixed oak woodlands and riparian forests. We have observed numerous raptors during our site visits over the years including white-tailed kites (*Elanus leucurus*), red-tailed hawks (*Buteo jamaicensis*), red-shouldered hawks (*Buteo lineatus*), northern harriers (*Circus cyaneus*) and golden eagles (*Aquila chrysaetos*). We flushed several hawks and owls from woodland areas during our 2013 plant surveys and have often watched hawks and eagles foraging over grasslands and fields on the property. We observed a pair of golden eagles in one of the larger oaks in the western cultivated field during our May 1, 2013 site visit.

The Migratory Bird Treaty Act (16 USC 703) prohibits the taking, hunting, killing, selling, purchasing, etc. of migratory birds, parts of migratory birds, and their eggs and nests. As used in the act, the term “take” is defined as meaning, “to pursue, hunt, capture, collect, kill or attempt to pursue, hunt, shoot, capture, collect or kill, unless the context otherwise requires.” Most native bird species on the San Juan Oaks property are covered by this act. The California Fish and Game Code (Section 3511) also provides protection for certain species as listed in the Section. The golden eagle and white-tailed kite are included on that list likely nest on the property. Section 3503.5 of the Fish and Game Code specifically protects the nests and eggs of birds-of-prey and essentially overlaps with the Migratory Bird Treaty Act.

If tree/shrub removal is proposed during the breeding season (generally springtime through midsummer), a preconstruction survey for nesting raptors and other migratory bird species should be completed prior to removal. Removal of trees/shrubs with active nests should be avoided until the young have fledged and the nest is abandoned. Removal outside of the breeding season should not require preconstruction surveys.

Special-status bats: There are four special-status bat species with ranges in San Benito County that could use habitats present on the project site: Townsend's big-eared bat (*Plecotus townsendii*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis*), and western red bat (*Lasiurus blossevillii*). All of these bats are CSC species. The grasslands could serve as suitable foraging areas and the dense oak woodland could provide suitable roosting habitat for the pallid bat, western red bat and western mastiff bat. Roosting habitat for the Townsend’s big-eared bat is limited in the project area.

American badger (*Taxidea taxus*): The American badger, another California Species of Special Concern, is a wide ranging species of plains, prairies and woodlands; it prefers relatively open, uncultivated ground. Badgers have large home ranges, typically from about 395 to 2,100 acres, and are generally solitary aside from temporary family groups, transient mating bonds, and overlapping home ranges. We observed some large mammal (possibly badgers or fox) burrowing activity in the upper areas of the site during our spring 2013 survey work. If preconstruction surveys find active badger dens within any areas proposed for development, potential mitigation measures (e.g. passive relocation, habitat avoidance, probably in consultation with CDFW) should be sufficient to address this species.

4.0 RESOURCE AGENCY PERMIT HISTORY & STATUS

The authorizations (permits) discussed below, with the exception of the CDFW incidental take permit, have been obtained for the previously approved project from regulatory agencies with jurisdiction over wetlands and endangered species. Because CTS was listed as a threatened species at the state level after the previous project was approved and all other permits were obtained, a CDFW incidental take permit (or concurrence with the USFWS BO) is still required.

4.1 Corps of Engineers

A Corps Nationwide Permit (NWP) for minor wetland fill was originally issued for the previously approved project in August 2006. Because no wetland fill occurred prior to permit expiration, the permit was renewed several times over the following years with final expiration in March 2013. In order to be vested in the permit and benefit from its endangered species act coverage (see below), initial grading (i.e. minor fill in the small seasonal wetland in the northwest corner of the property) took place in October 2012. Notice of the fill activity was sent to the Corps on December 18, 2012, with a copy sent to USFWS. A separate notice was sent to the RWQCB (see below). Through subsequent contact, the Corps project manager confirmed that the NWP permit conditions were now in effect and that any further issues relative to compliance with endangered species act conditions should be directed to USFWS (Lisa Mangione, telephone conversation, January 30, 2013).

Corps permit conditions require mitigation, monitoring and reporting for the wetland fill over a five year term as per the mitigation plan submitted with the original application (Zander Associates 2005). Mitigation for the minor fill has been provided by creating a small depression (through grading) next to the existing seasonal wetland and seeding it with appropriate plants. The area has been fenced to exclude cattle and will be regularly monitored over the five year term. An “as-built conditions” report as required by the wetland mitigation plan was submitted to the Corps, RWQCB and USFWS on May 2, 2013. Monitoring and annual reporting will continue for the duration of the five year term. The Corps permit also requires compliance with all conditions of the USFWS BO (see below).

No further action beyond compliance with the wetland mitigation monitoring and reporting requirements appears necessary with the Corps in the foreseeable future.[5] The Corps has acknowledged that the USFWS BO provided endangered species act coverage for the entire development project enabled by the Corps permit. Thus, the Corps will keep its permit file open until project completion. Copies of monitoring reports and other condition compliance documentation will continue to be sent to the Corps. A final *Certification of Compliance for Nationwide Permit* will be filed with the Corps on project completion.

4.2 U.S. Fish and Wildlife Service

A USFWS biological opinion was issued for the previously proposed project in August 2006 pursuant to Section 7 (endangered species act) consultation with the Corps (USFWS 2006). The BO addressed CRLF (and its critical habitat), CTS and SJKF, and provided coverage for incidental take of those species (and impacts to CRLF critical habitat) through the Corps permit. The BO is the functional equivalent of an incidental take permit from USFWS. The BO is very specific in its description of the project and its conditions, which are tied to and enforced through the Corps permit.

The BO assumed a specific development footprint and some specific design elements (e.g. housing "pods" with CTS movement corridors near one of the seasonal ponds), and its conditions require pre-construction surveys for covered species, educational outreach, monitoring during construction and numerous other activities (26 "protective measures"), many by a specifically named biologist. These conditions were followed for the initial grading noted above and documented in the notice sent to the agencies. The new Specific Plan will occur in essentially the same development footprint as the approved VTM and critical design elements (e.g. "pods") are also maintained.

USFWS will be reviewing the new Specific Plan for consistency with the BO in the coming months (Douglass Cooper, telephone conversation, June 18, 2013). Assuming USFWS is satisfied that the BO remains applicable, procedural and noticing requirements in conformance with the conditions of the BO should not be required until the new project is approved and construction is scheduled.

4.3 Regional Water Quality Control Board

RWQCB 401 Water Quality Certification was issued in May 2007 as required by the Corps permit. The 401 certification came with its own conditions of approval, many of which are related to appropriate design and construction of the project relative to water quality protection. Some of the RWQCB conditions require monitoring and reporting on the wetland mitigation and others require formal preservation of open space (conservation easement) and evidence of adequate mitigation funding (performance security). With the exception of wetland mitigation monitoring and reporting, most condition compliance is tied to future events (e.g. prior to final development approval; prior to commencement of grading; prior to issuance of any construction permits).

[5] No additional wetland fill is proposed under the new Specific Plan.

In conformance with RWQCB monitoring and reporting requirements, an initial notice of wetland fill was sent to the RWQCB on December 20, 2012, which was intended to serve as the first report relative to mitigation monitoring. An "as-built conditions" report was submitted to the RWQCB on May 2, 2013. Quarterly monitoring of the wetland area will occur through 2013 and an annual report will be submitted to both the RWQCB and the Corps by January 1, 2014. Similar monitoring and reporting, in conformance with the mitigation plan, will continue for the duration of the five year term. Compliance with other RWQCB conditions should not be required until the new project is approved and construction is scheduled.

4.4 California Department of Fish and Wildlife

CDFW authorization for incidental take of CTS (and possibly SJKF) on the San Juan Oaks property will be required and may be provided in two ways. First, CDFW may issue a notice of concurrence with the federal BO because CTS (and SJKF) is both state and federally listed. Second, CDFW may require a separate (State of California) incidental take permit pursuant to Section 2081 of the California Fish and Game Code.

Zander Associates contacted the local CDFW representative to introduce him to the project and discuss the necessary steps for obtaining take authorization for CTS (Brandon Sanderson, telephone conversation, July 17, 2013). CDFW is reluctant to address state incidental take permit issues through modifications to the USFWS BO. Rather, CDFW prefers issuing take authorization directly through the state (2081) permitting process. The PulteGroup and San Juan Oaks, LLC. intend to work with CDFW so that incidental take authorization is timed with final project approval from San Benito County.

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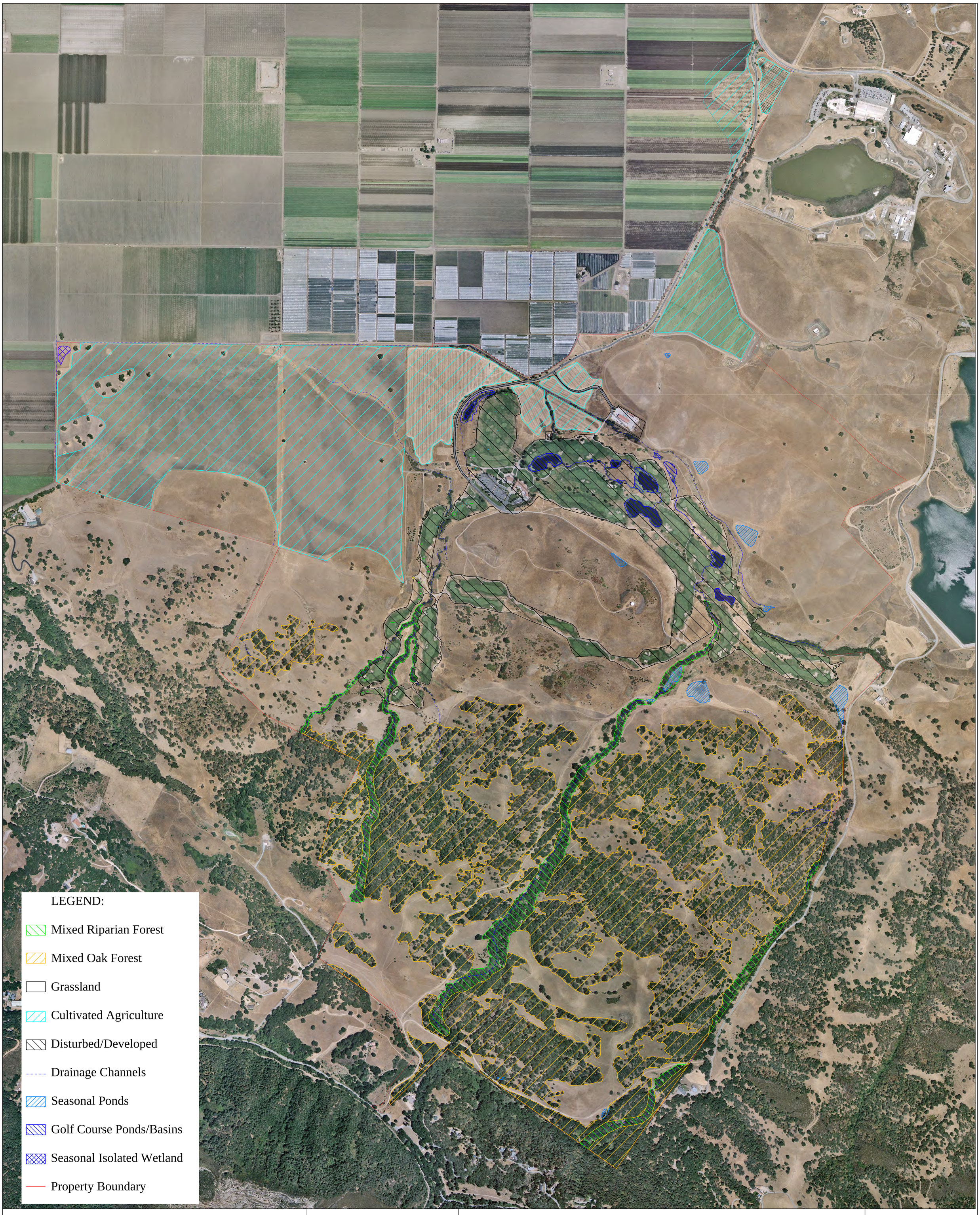

Zander Associates Environmental Consultants 4460 Redwood Hwy, Suite 16-240 San Rafael, CA 94903	N Scale: 1" = 600'	Vegetation Types San Juan Oaks Golf Club San Benito County, California	Figure 1

APPENDIX A

Special Status Species Evaluated for Potential to Occur on the San Juan Oaks Property

Appendix A
Special Status Species Evaluated for the Potential to Occur on the San Juan Oaks Golf Club Property*

Plant Species	Status Fed/CA/CNPS	Habitat	Findings
Arctostaphylos pajaroensis Pajaro manzanita	--/--/1B.1	Chaparral on sandstone outcrops. Blooms December-March.	No suitable habitat on site. Not observed during numerous floristic surveys; not expected to occur.
Astragalus tener var. tener Alkali milk-vetch	--/--/1B.2	Vernal pools (alkaline), valley foothill grasslands. Blooms March – June	No suitable habitat on site. Not observed during numerous floristic surveys; not expected to occur.
Atriplex joaquinana San Joaquin spearscale	--/--/1B.2	Valley foothill grassland, shadscale scrub. Alkali soils required for occurrence. Blooms Apr.- Sept.	No alkaline habitats on site. Not observed during numerous floristic surveys; not expected to occur.
California macrophylla Round-leaved filaree	--/--/1B.1	Valley and foothill grasslands in clay soils. Blooms March – May.	Not observed on the site during numerous floristic surveys.
Camissonia benitensis San Benito evening primrose	T/--/1B.1	Clay or gravelly serpentine soils on alluvial terraces; New Idria area. Blooms May – June.	No serpentine habitats present on site. Not observed on the site during numerous surveys.
Centromadia parryi ssp. congdonii Congdon's tarplant	--/--/1B.1	Alkaline valley foothills and moist grasslands. Blooms June - November	Not observed on the site during numerous floristic surveys.
Delphinium recurvatum Recurved larkspur	--/--/1B.2	Alkaline areas within valley and foothill grasslands. Blooms March – May.	No alkaline grasslands on site. Not observed during numerous floristic surveys.
Eriogonum nortonii Pinnacles buckwheat	--/--/1B	Chaparral and valley foothill grasslands. Blooms May – June	Localized endemic. Not observed on the site during numerous floristic surveys; not expected.
Eryngium aristulatum v. *hooveri* Hoover's button-celery	--/--/1B.1	Vernal pools or lagunas in South Coast Ranges. Blooms in July.	No suitable habitat. Not observed on the site during numerous floristic surveys.
Fritillaria falcata Talus fritillary	--/--/1B.2	Serpentine talus slopes, 1000-3000 ft; inner South Coast Ranges; In cultivation. Blooms Mar – May.	No serpentine habitats and site out of elevational range. Not observed or expected on the site.
Fritillaria liliacea Fragrant fritillary	--/--/1B.2	Heavy soils, open hills and fields near coast below 600 feet; In cultivation. Blooms February – April.	Not observed on the site during numerous floristic surveys.
Holocarpha macradenia Santa Cruz tarplant	T/E/1B.1	Coastal grassland terraces; Monterey and San Francisco Bays on clay soils. Blooms June – Oct.	Localized endemic. Not observed on the site during numerous floristic surveys.
Layia heterotricha Pale yellow layia	--/--/1B.1	Valley foothill grasslands; alkaline or clay soils. Blooms March –June.	Not observed on the site during numerous floristic surveys.
Malacothamnus aboriginum Gray bush-mallow	--/--/1B.2	Chaparral and foothill woodlands on open rocky slopes. Blooms April – October.	Not observed on the site during numerous floristic surveys.
Navarretia prostrata Prostrate navarretia	--/--/1B.1	In wetlands within grasslands. Blooms April – July.	Not observed on the site during numerous floristic surveys.
Plagiobothrys glaber Hairless popcorn flower	--/--/1A	Presumed extinct. Coastal salt marsh, wetland riparian, meadows. Blooms March to May.	Not observed on the site during numerous floristic surveys.
Trifolium hydrophilum Saline clover	--/--/1B.2	Salt marshes, open areas in alkaline sink or wetlands. Blooms April – June.	No suitable habitat. Not observed on site during numerous floristic surveys.

Appendix A
Special Status Species Evaluated for the Potential to Occur on the San Juan Oaks Golf Club Property*

Plant Species (cont.)	**Status Fed/CA/CNPS**	**Habitat**	**Findings**
Streptanthus albidus ssp. *peramoenus* Most beautiful jewelflower	--/--/1B.2	Serpentine soils in chaparral and valley and foothill grasslands. Blooms April – June.	No serpentine habitats present on site. Not observed on the site during numerous floristic surveys.
Animal Species	**Status Fed/CA**	**Habitat**	**Findings**
Invertebrates			
Branchinecta lynchi Vernal pool fairy shrimp	T/--	Temporary pools within grass or mud-bottomed swales; earth slump or basalt-flow depression pools in grasslands.	Potential habitat in some ponds. Not found during aquatic surveys.
Lepidurus packardi Vernal pool tadpole shrimp	E/--	Vernal pools with clear to turbid water in grass-bottomed pools and clear-water sandstone depression pools.	Potential habitat in some ponds. Not found during aquatic surveys.
Amphibians			
Taricha torosa Coast Range newt	--/CSC**	Coastal drainages from Mendocino county to San Diego County. Summers in moist habitats under woody debris, or in rock crevices and animal burrows; will migrate over 1 km to breed in ponds, reservoirs & slow moving streams.	Present on site. Found in several ponds over time. Probably uses adjacent moist riparian woodland habitats during summer.
Ambystoma californiense California tiger salamander	T/T	Grasslands and open oak woodlands; requires seasonal ponds for breeding; uses ground squirrel or gopher burrows in upland areas for aestivation sites	Present on site. Larvae & adults found in several ponds over time and adults found during 2005-2005 drift fence study.
Spea hammondii Western spadefoot toad	--/CSC	Central Valley and foothill. Prefers arid grassland & open woodland in low hills & valleys.	No suitable habitat present. Site is out of distribution range.
Rana draytonii California red-legged frog	T/CSC	Slow-moving streams with plunge pools or oxbows. Freshwater perennial pools and ponds with overhanging vegetation.	Present on site. Found in several ponds over time and assumed to potentially use ponds for breeding.
Reptiles			
Emys marmorata Western pond turtle	--/CSC	Permanent or nearly permanent water in a variety of habitats. Requires upland nesting and basking sites.	Limited potential habitat present. Not observed in 1999-2001, 2005-6 or 2013.
Phrynosoma blainvillii California horned lizard	--/CSC	Found in a variety of habitats, from grasslands to chaparral to riparian oak woodland; most abundant in alluvial fans.	Some potential habitat present. Not observed during numerous surveys.

Appendix A
Special Status Species Evaluated for the Potential to Occur on the San Juan Oaks Golf Club Property*

Animal Species (cont.)	Status Fed/CA	Habitat	Findings
Birds			
Aquila chrysaetos Golden eagle)	--/FP	Breeds on cliffs or in large trees isolated from disturbance. Open mountains, foothills and plains; open country.	Winter and summer range includes all of San Benito County. Observed foraging and potential nesting habitat on site.
Circus cyaneus Northern harrier	--/CSC	Marshes and open grasslands. Nests in marsh vegetation or in tall grass.	Observed foraging on site. No nesting habitat present.
Elanus leucarus White-tailed kite	--/FP	Found in river valleys, riparian woodlands and grasslands along the Pacific coast.	Observed foraging onsite. Potential nesting habitat present.
Haliaeetus leucocephalus Bald eagle	D/E	Found primarily along the coast near rivers and large lakes. During migration, found in mountain range and open country.	Winter range includes all of San Benito County. May forage onsite but no nesting habitat present.
Falco peregrinus anatum Peregrine falcon	D/FP	Found within coastal habitats in open country cliffs.	Potential foraging habitat present. Unlikely to nest onsite.
Athene cunicularia Burrowing owl	--/CSC	Flat grasslands, deserts, and agricultural fields; nests in abandoned ground squirrel burrows	Potential habitat present. No owls or signs of owl use observed on site during numerous surveys over time.
Lanius ludovicianus Loggerhead shrike	--/CSC	Nests in bushes or trees surrounded by open grassland or ruderal habitats.	Observed foraging on the property.
Riparia riparia Bank swallow	--/T	Found near marshes, streams, and lakes. Nests in sand banks.	Known to nest along banks of Pajaro River. Not currently recorded in San Benito River. Not likely to nest along site drainages.
Agelaius tricolor *Tricolored blackbird (nesting)*	--/CSC	Nests in marshes with bulrush, blackberry and cattails.	Potential habitat present around some golf course ponds. Not observed on site to date.
Mammals			
Antrozous pallidus Pallid bat	--/CSC	Variety of habitats, most common in open, dry habitats with rocky areas for roosting. Day roost in mines, caves, crevices and occasionally hollow trees. Night roosts in more open sites; porches open buildings.	Limited potential to occur. May roost in woodland areas.
Corynorhinus townsendii Townsend's Big-eared bat	--/CSC	Northern and central California in mesic coastal environments with caves or man-made structures for roosting. Feeds along riparian habitat edges.	May forage onsite. Suitable roosting habitat limited.

Appendix A
Special Status Species Evaluated for the Potential to Occur on the San Juan Oaks Golf Club Property*

Animal Species (cont.)	Status Fed/CA	Habitat	Findings
Lasiurus blossevilli Western red bat	--/CSC	Broad-leafed woodlands, usually in riparian areas. Roosts primarily in trees in edge habitats adjacent to streams, fields, or urban areas..	Limited potential to occur. May roost in woodland areas.
Eumops perotis californicus Western mastiff bat	--/CSC	Arid to semi-arid habitats including conifer and deciduous woodlands, coastal scrub and grasslands. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Uncommon resident in coast ranges. Limited potential to occur. May roost in woodland areas.
Vulpes macrotis mutica San Joaquin kit fox	E/T	Grasslands in the San Joaquin Valley and adjacent hills of Coast Ranges; occupies dens in open areas with loose-textured soils, often excavated from abandoned ground squirrel burrows.	Within historic range. Current known populations over 20 miles away. Not detected during 1992 protocol surveys. No evidence of kit fox activity onsite to date.
Taxidea taxus American badger	--/CSC	Wide ranging species of plains, prairies and woodlands; prefers relatively open, uncultivated ground. Typically solitary over large home ranges except for temporary family groups, transient mating bonds and overlapping territories.	Potential to occur on site. Some large mammal burrows observed in woodlands during 2013 surveys.

Status Explanations

Federal (Fed):
E listed as endangered under the federal Endangered Species Act
T listed as threatened under the federal Endangered Species Act
D delisted
-- no designation.

California State (CA):
R listed as rare under the California Endangered Species Act
E listed as endangered under the California Endangered Species Act
T listed as threatened under the California Endangered Species Act
CSC designated as a "species of special concern" by CDFW
FP Fully Protected (Fish and Game Code)
-- No designation

California Native Plant Society (CNPS):
1A presumed extinct in California
1B rare, threatened or endangered in California and elsewhere

Threat Rank
0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2-Fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3-Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

*Source: Search of the California Department of Fish and Wildlife's Natural Diversity Database (CDFW 2013) occurrences and the California Native Plant Society's On-line Inventory (CNPS 2010, accessed March 2013) for the Hollister 7.5-minute USGS quadrangle and the surrounding quadrangles (San Felipe, San Juan Bautista and Chittenden). Other sources include BioSystems 1993/4, Zander Associates 2003, San Benito County General Plan DEIR 2013 and others.
**Only considered California Species of Special Concern in Monterey County and areas south.

APPENDIX B

Plant Species Observed on the San Juan Oaks Property

APPENDIX B

Plant species observed on the San Juan Oaks Golf Club Property
4/13/99, 5/25/99, 5/4/2001, 7/31/2001, 4/4/2013, 4/23/13 and 5/1/13

Scientific Name	**Common Name**	**Habitat**[1]
TREES:		
SAPINDACEAE		
Acer macrophyllum	big-leaf maple	R
Aesculus californicus	California buckeye	OW
ERICACEAE		
Arbutus menziesii	madrone	OW
FAGACEAE		
Quercus agrifolia	coast live oak	OW
Quercus douglasii	blue oak	OW
Quercus kelloggii	black oak	OW
Quercus lobata	valley oak	OW
Quercus chrysolepis	canyon live oak	OW
MYRTACEAE		
Eucalyptus globulus	blue gum eucalyptus	OW
PLATANACEAE		
Platanus racemosa	sycamore	R
SALICACEAE		
Populus fremontii	Fremont cottonwood	R
Salix laevigata	red willow	R
Salix lasiolepis	arroyo willow	R
Sambucus mexicana	blue elderberry	OW
UMBELLIFERACEAE		
Umbellularia californica	California bay	OW/R
SHRUBS/ WOODY VINES:		
ANACARDIACEAE		
Toxicodendron diversilobum	poison oak	OW
ASTERACEAE		
Artemisia californica	California sagebrush	OW
Baccharis pilularis var. *consanguinea*	coyote brush	OW
Baccharis viminea	mulefat	R
Corethrogyne filaginifolia	common corethrogyne	G
FABACEAE		
Genista monspessulana	French broom	G/OW
Lotus scoparius	deer weed	G/OW

[1] (G = Grassland; OW = Mixed Oak Woodland and Oak Savanna; R = Mixed Riparian Forest)

Scientific Name	Common Name	Habitat
Lupinus albifrons var. *albifrons*	silver-leaf bush lupine	OW
CAPRIFOLIACEAE		
Lonicera hispidula	hairy honeysuckle	OW
RHAMNACEAE		
Frangula (Rhamnus) californica	California coffeeberry	OW
GROSSULARIACEAE		
Ribes menziesii	gooseberry	OW
Ribes speciosum	fuschia-flowered gooseberry	OW
ROSACEAE		
Heteromeles arbutifolia	toyon	OW
Rosa californica	California rose	OW/R
Rosa gymnocarpa	wood rose	OW
Rubus ursinus	California blackberry	OW
SCROPHULARIACEAE		
Mimulus aurantiacus	sticky monkey flower	OW
SOLANACEAE		
Nicotiana glauca	indian tobacco	G/OW
Solanum umbelliferum	blue witch	OW
Symphoricarpos mollis	creeping snowberry	OW
Symphoricarpos albus var. *laevigatus*	snowberry	OW
HERBACEOUS DICOTS		
AMARANTHACEAE		
Amaranthus albus	Pigweed	G
APIACEAE		
Anthriscus caucalis	bur-chervil	G/OW
Conium maculatum	poison hemlock	G
Eringium amatum	prickly coyote thistle	G
Foeniculum vulgare	fennel	G
Lomatium utriculatum	foothill lomatium	G
Perideridia kelloggii	Kellogg's yampah	OW
Sanicula bipinnatifida	purple sanicle	G
Sanicula crassicaulis	coast sanicle	OW
Sanicula laciniata	cut-leaved sanicle	G/OW
Scandix pecten-veneris	shepherd’s needle	G
Torilis nodosa	knotted hedge parsley	OW
ARACEAE		
Lemna gibba	gibbous duckweed	R

Scientific Name	Common Name	Habitat
ASCLEPIDACEAE		
Asclepias fascicularis	narrow-leaved milkweed	G
ASTERACEAE		
Achillea millefolium	yarrow	G/OW
Achyrachaena mollis	blow wives	G
Agoseris grandiflora	large-flowered agoseris	G
Anaphalis margaritacea	pearly everlasting	G/OW
Anthemis cotula	dog-fennel	G
Artemisia douglasiana	mugwort	OW
Baccharis douglasii	Douglas' baccharis	R
Carduus pycnocephalus	Italian thistle	G/OW
Centaurea calcitrapa	purple star thistle	G
Centaurea melitensis	tocalote	G
Centaurea solstitialis	yellow star thistle	G
Cirsium quercetorum	brownie thistle	G
Cirsium vulgare	bull thistle	G
Conyza canadensis	horseweed	G
Cotula coronopifolia	brass buttons	R
Erigeron philadelphicus	Philadelphia daisy	G
Filago gallica	filago	G
Gnaphalium californicum	California everlasting	G/OW
Gnaphalium luteo-album	weedy cudweed	G
Gnaphalium purpureum	purple cudweed	G
Grindelia sp.	gumweed	G
Hemizonia congesta ssp. luzulifolia	hayfield tarweed	G
Hemizonia corymbosa	coast tarweed	G/OW
Hesperevax sparsiflora var. sparsiflora	erect dwarf cudweed	G
Heterotheca grandiflora	telegraph weed	G
Hypochaeris glabra	smooth cat's ears	G
Hypochaeris radicata	rough cat's ears	G
Lactuca serriola	wild lettuce	G
Madia gracilis	slender madia	G
Matricaria discoidea	Pineapple weed	G
Micropus californicus	slender cottonweed	G
Microseris douglasii ssp douglasii	Douglas’ microseris	G
Picris echioides	bristly ox-tongue	G
Senecio glomeratus	cut-leaved fireweed	OW
Senecio vulgaris	common senecio	G/OW
Silybum marianum	milk thistle	G/OW
Sonchus asper	prickly sow thistle	G/OW
Stephanomeria virgata ssp. pleurocarpa	tall stephanomeria	G
Taraxacum officinale	dandelion	G
Tragopogon porrifolius	salsify	G
Wyethia glabra	mule's ears	OW
Wyethia helenioides	gray mule-ears	OW/G
Xanthium spinosum	spiny cocklebur	G
Xanthium strumarium	cocklebur	G

Scientific Name	Common Name	Habitat
BORAGINACEAE		
Amsinckia menziesii ssp. intermedia	fireweed	G
Cynoglossum grande	Pacific hound's toungue	OW
Heliotropium curassavicum	Chinese pusley	R
Plagiobothrys canescens	Valley popcorn flower	G
Plagiobothrys nothofulvus	popcorn flower	G
BRASSICACEAE		
Brassica rapa	field mustard	
Brassica nigra	black mustard	G
Capsella bursa-pastoris	shepherd's purse	G/OW
Hirschfeldia incana	summer mustard	G
Lepidium nitidum	pepper grass	G
Lepidium draba	heart pod hoary cress	G
Raphanus sativa	wild radish	G
Rorippa nasturtium-aquatica	water cress	G
Sisymbrium officinale	hedge-mustard	G
Thysanocarpus curvipes	hairy fringe pod	G/OW
CARYOPHYLLACEAE		
Cerastium arvense	field chickweed	G
Silene gallica	catch fly	G
Stellaria media	chickweed	G/OW
CHENOPODIACEAE		
Chenopodium album	common lambs quarters	G
CONVOLVULACEAE		
Calystegia subacaulis	hill morning glory	G
Convolvulus arvensis	field bind weed	G
CRASSULACEAE		
Crassula tillaea	pygmy weed	G/OW
CURCURBITACEAE		
Marah fabaceous	wild cucumber	G/OW
EUPHORBIACEAE		
Croton setigerus	turkey mullein	G
FABACEAE		
Acmispon purshianus	Spanish clover	G
Acmispon strigosus	Bishop lotus	G
Acmispon wrangelianus	California lotus	G
Lotus corniculatus	bird's foot trefoil	G
Lupinus bicolor	Lindley's annual lupine	G
Lupinus microcarpus var. microcarpus	valley lupine	G

Scientific Name	Common Name	Habitat
Lupinus nanus	sky lupine	G
Lupinus succulentus	succulent annual lupine	G
Lupinus truncatus	Nuttall's annual lupine	G
Medicago polymorpha	bur-clover	G
Melilotus indica	yellow sweet-clover	G
Rupertia physodes	California tea	OW
Thermopsis macrophylla	false lupine	OW
Trifolium ciliolatum	tree clover	G
Trifolium dubium	hop clover	G
Trifolium gracilentum	pinpoint clover	G
Trifolium hirtum	rose clover	G
Trifolium incarnatum	crimson clover	G
Trifolium repens	white clover	G
Trifolium subterraneum	subterranean clover	G
Vicia americana	American vetch	G
Vicia benghalensis	Bengal vetch	G
Vicia sativa	spring vetch	G
GERANIACEAE		
Erodium botrys	storksbill	G
Erodium cicutarium	red-stemmed filaree	G
Geranium carolinianum	Carolina geranium	G
Geranium molle	dove’s-foot geranium	G/OW
HYDROPHYLLACEAE		
Nemophila menziesii	baby blue-eyes	OW
LAMIACEAE		
Clinopodium douglasii	yerba buena	OW
Stachys bullata	hedge nettle	OW
LYTHRACEAE		
Lythrum hyssopifolia	loosestrife	G
MALVACEAE		
Malva nicaeensis	bull mallow	OW/G
Malvella leprosa	alkali mallow	G
Sidalcea malvaeflora	checkerbloom	G
MELANTHHIACEAE		
Trillium chloropetalum	giant wake robin	OW/R
MONTIACEAE		
Calandrinia ciliata	red maids	G
Claytonia perfoliata	miner's lettuce	OW
ONAGRACEAE		
Clarkia purpurea	winecup clarkia	G

Scientific Name	Common Name	Habitat
Clarkia purpurea ssp. *quadrivulnera*	purple winecup clarkia	G
Epilobium ciliatum	western willow herb	G/R
Epilobium brachycarpum	panicle-flowered willow herb	G
Taraxia ovata	suncups	G
PAPAVERACEAE		
Eschscholzia californica	California poppy	G
PLANTAGINACEAE		
Plantago erecta	California plantain	G
Plantago lanceolata	English plantain	G
Plantago major	broad-leaved plantain	G
POLEMONEACEAE		
Gilia capitata ssp. abrotanifolia	gilia	G
Gilia minor	gilia	G
Leptosiphon ciliatus	whisker-brush	G/OW
Navarretia atractyloides	holly-leaved navarretia	G
POLYGALACEAE		
Polygala californica	milkwort	OW
POLYGONACEAE		
Polygonum arenastrum	common knotweed	G
Eriogonum sp.	buckwheat	G
Rumex acetosella	sheep sorrel	G
Rumex crispus	curly dock	G
Rumex fueginus	golden dock	G
Rumex pulcher	fiddle dock	G
Rumex salicifolia	willow dock	G
PRIMULACEAE		
Anagallis arvensis	scarlet pimpernel	G
Dodecatheon hendersonii	Henderson's shooting star	G
RANUNCULACEAE		
Delphinium gracilentum	woodland larkspur	OW
Ranunculus californicus	California buttercup	G
Ranunculus hebecarpus	downy buttercup	R
Ranunculus muricatus	prickle-seed buttercup	G
ROSACEAE		
Rubus ursinus	California blackberry	OW
RUBIACEAE		
Galium aparine	bedstraw	OW
Galium californicum	California bedstraw	OW
Galium porrigens	climbing bedstraw	OW

Scientific Name	Common Name	Habitat
SAXIFRAGACEAE		
Lithophragma affinis	woodland star	OW
Micranthes californica	California saxifrage	G
SCROPHULARIACEAE		
Bellardia trixago	bellardia	G
Castilleja affinis	coast paintbrush	OW
Castilleja attenuata	valley tassels	G/OW
Castilleja densiflora ssp. densiflora	owl’s clover	G
Castilleja exserta ssp. exserta	purple owl's clover	G
Castilleja rubicundula ssp. lithospermoides	cream sacks	G
Mimulus guttatus	seep-spring monkey flower	G
Triphysaria erianthus	johnny tuck	G
Triphysaria pusilla	dwarf owl's clover	G
Scrophularia californica	California bee plant	OW/R
Veronica anagallis-aquatica	great water speedwell	G/R
URTICACEAE		
Urtica dioica ssp. holosericea	stinging nettle	G/OW
Urtica urens	dwarf nettle	G
VALERINACEAE		
Plectritis congesta	pink plectritis	G/OW
VERBENACEAE		
Verbena lasiostachya	vervain	G
VIOLACEAE		
Viola pedunculata	johnny jump-up	G
VISCACEAE		
Phoradendron villosum	oak mistletoe	OW
ZYGOPHYLLACEAE		
Tribulus terrestris	puncture vine	G
MONOCOTS		
CYPERACEAE		
Carex tumulicola	woodland sedge	OW
Cyperus eragrostis	nut-sedge	G
Eleocharis acicularis	needle spike rush	G
Eleocharis macrostachya	spike rush	G
IRIDACEAE		
Iris douglasiana	Douglas' iris	OW
Sisyrinchium bellum	blue-eyed grass	G

Scientific Name	Common Name	Habitat
JUNCAGINACEAE		
Lillaea scilloides	flowering quillwort	G
Juncus balticus	baltic rush	G
Juncus bufonius	toad rush	G
Juncus effusus	spreading rush	G
Juncus patens	common rush	G
Juncus phaeocephalus	brown-headed rush	G
Juncus tenuis	slender rush	OW/G
Juncus xiphioides	iris-leaved rush	G
Luzula comosa	wood rush	OW
LILIACEAE		
Allium unifolium	one-leaved onion	G
Brodiaea terrestris	dwarf brodiaea	G
Calochortus albus	fairy lantern	OW
Chlorogalum pomeridianum	curly-leaved soap plant	G
Dichelostemma capitatum	blue dicks	G/OW
Muilla maritima	common muilla	G
Maiamthemum racemosa	false Solomon's seal	OW
Triteleia hyacinthina	white brodiaea	G
Triteleia ixioides	golden brodiaea	G
Triteleia laxa	Ithuriel's spear	G
POACEAE		
Cortaderia selloana	pampas grass	G
Aira caryophyllea	silver hair grass	G
Avena barbata	slender wild oats	G
Avena fatua	fat oat	G
Briza minor	little quake grass	G
Bromus carinatus	California brome	G
Bromus diandrus	rip gut	G
Bromus hordeaceus	soft chess	G
Bromus madritensis ssp. rubens	red brome	G
Crypsis schoenoides	crypsis	G
Cynosurus echinatus	dog-tail grass	G
Dactylis glomerata	orchard grass	G
Danthonia californica	California wild oats	G
Elymus glaucus	western ryegrass	G/OW
Elymus tritichoides	Creeping wild rye	G/OW
Festuca myuros	rat-tail fescue	G
Gastridium pheoides	Nit grass	G
Holcus lanatus	velvet grass	G
Hordeum brachyantherum	meadow barley	G
Hordeum marinum ssp. gussoneanum	Mediterranean barley	G
Hordeum murinum ssp. glaucum	glaucous foxtail	G
Hordeum murinum ssp. leporinum	barnyard foxtail	G
Lamarkia aurea	golden-top	G

Scientific Name	Common Name	Habitat
Lolium perenne	Italian ryegrass	G
Melica californica	western melic	G
Melica imperfecta	coast-range melic	G/OW
Nassella pulchra	purple needle grass	G
Nassella cernua	nodding needle grass	G
Poa annua	annual blue grass	G
Poa secunda	pine bluegrass	OW/G
Polypogon monspeliensis	rabbit foot grass	G
Triticum aestivum.	winter wheat	Cultivated

FERNS/ FERN ALLIES:		
Athyrium filix-femina	western lady fern	OW
Azolla filiculoides	fern-like azolla	R
Dryopteris arguta	wood fern	OW
Pentagramma triangularis	golden-back fern	OW
Pteridium aquilinum	Bracken fern	G/ OW
Woodwardia fimbriata	giant chain fern	G/ OW

ZANDER ASSOCIATES

Environmental Consultants

November 27, 2013

Scott Fuller
General Manager, San Juan Oaks Golf Club
3825 Union Road
Hollister, CA 95023

Consistency Review
Del Webb at San Juan Oaks
San Benito County, California

Dear Scott:

At your direction, Zander Associates has completed a consistency review of the Del Webb at San Juan Oaks Specific Plan relative to the U.S. Fish and Wildlife Service (USFWS) biological opinion (BO) issued in August 2006 for the previously approved San Juan Oaks Golf Club project. Specifically, we compared the Vesting Tentative Map (VTM) approved by the San Benito County Board of Supervisors on July 27, 2004, with an amended VTM for the Del Webb project, prepared by Whitson Engineers dated November 7, 2013. We focused on the assessment completed for the BO related to three federally listed species: the San Joaquin fit fox (*Vulpes macrotis mutica*), the California tiger salamander (*Ambystoma californiense*) and the California red legged frog (*Rana draytonii*), including critical habitat for this latter species.

Project Overview

San Juan Oaks, LLC currently owns approximately 1,993 acres in San Benito County, near Hollister, and operates an 18-hole public golf course and clubhouse on the property. The VTM for development of the remainder of the property, approved in 2004, included a residential subdivision of 156 single-family market rate houses, 30 affordable housing units, two ranch estates, an 18-hole private golf course (this is in addition to the existing 18–hole public course), a 9-hole public golf course, a 200-room resort, and 6.7 acre Village Commercial Center adjacent to the existing San Juan Oaks Golf Club. In addition, a 61-acre regional park, a 55-acre agricultural preserve and a 1,163-acre wildlife habitat/open space preserve were proposed (Figure 1).

Pulte Homes and San Juan Oaks, LLC now propose to amend the current VTM through a Specific Plan process with San Benito County. The amended project has been designed within the footprint of the previously approved VTM, but would modify some of the land uses, increase the number of residential units and eliminate the formerly proposed new golf courses (Figure 2).

The amended project consists of two main components. The first component would be developed by Del Webb, a subsidiary of Pulte Homes (the Del Webb component) and would create an active adult community of 1,017 single-family homes and a 17,500 square foot (sf.) to 25,000 sf. Amenity Center on approximately 400 acres on the west side of the San Juan Oaks

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property. The Del Webb component replaces the golf course and residential areas previously approved for that part of the property. The remaining part (east side) of the site would be developed by San Juan Oaks, LLC (the San Juan Oaks component) and would consist of 67 conventional single-family residential units, a 200 room resort hotel, a 65,000 sf. neighborhood commercial center, and an approximately 4-acre assisted living/skilled nursing/memory care facility with up to 100 beds. The proposed land uses (e.g. commercial, residential, resort/hotel) and development footprints of the San Juan Oaks component would closely conform to the previously approved VTM. The estate lots and sewage treatment facility in the approved VTM would be eliminated, but the project would include the creation of a 57.4 acre on-site agricultural preserve and a 153.5 acre off-site agricultural preserve. The existing golf course and clubhouse would remain largely unchanged, with some minor renovations. A conservation easement would be dedicated over 1,249.5 acres of the site, which would be managed as a permanent wildlife habitat area.

Background of USFWS BO

USFWS issued a non-jeopardy opinion on the previously approved VTM through its Section 7 (Endangered Species Act) consultation process with the U.S. Army Corps of Engineers on August 11, 2006. The BO (p. 31) determined that the approved project could affect California tiger salamanders, California red-legged frogs, San Joaquin kit foxes and critical habitat for the red-legged frog. However, the BO (pp. 6, 7, 40, 41) also considered the project's commitment to the development of a conservation easement and management plan that would protect and manage a large percentage of the site as habitat for the above-referenced species. In addition, the BO acknowledged that proposed measures during construction coupled with monitoring, maintenance, restoration and enhancement of habitats would further reduce adverse effects on those species (BO pp. 7, 8, 9, 10, 11, 38, 40, 41, 43). After reviewing the species status, the environmental baseline for the site, the effects of the project, including cumulative effects, USFWS determined that the previously approved project was not likely to jeopardize the continued existence of the species or destroy or adversely modify critical habitat of the California red-legged frog (BO pp 40, 41).

Assessment

The BO assumed specific development footprints and acres of affected habitat for the various elements of the previously approved project, especially those in close proximity to known breeding ponds/aquatic habitat for the California tiger salamander (CTS) and the California red-legged frog (CRLF). While effects on potential habitat for the San Joaquin kit fox (SJKF) were considered in the BO because the site is located at the westernmost edge of its historic range, the BO (pp. 25, 38, 40, 43) acknowledged a low likelihood of SJKF occurring on the site.[1]

[1] The historic SJKF population centers in the project region, the San Luis Reservoir area (over 20 miles to the northwest in western Merced County) and the Panoche Valley area (30 miles to the southwest in eastern San Benito County), are far enough away and separated by human land use patterns (e.g. development, intensive agriculture) to preclude viable dispersal corridors to the site. In addition, there have been no confirmed records of kit foxes in northern San Benito County within the past 20 years; the majority of the records are around 40 years old and concentrated east of Hollister, based on records in the 2013 California Natural Diversity Data Base (CNDDB). Results of protocol level kit fox surveys, conducted at San Juan Oaks in 1992, were negative as expected.

Following is a review of the BO's assessment of the approved project's effects on each species (and CRLF critical habitat) and a comparison with the currently proposed Del Webb at San Juan Oaks Specific Plan. Overlays of the development footprints and lot layouts of both projects are illustrated on Figures 3 & 4.

San Joaquin kit fox

The BO (p. 25) assumed that grassland habitat on the San Juan Oaks property is suitable for SJKF hunting and denning (i.e., it contains abundant ground squirrels and ground squirrel burrows), and reported that non-native annual grasslands were the most extensive habitat on the property, comprising approximately 937 acres. The BO (p. 37) then determined that development and construction activities associated with the approved VTM could result in long-term and short-term SJKF impacts from the permanent removal and conversion of upland (grassland) habitats, noting that the two new golf courses would contribute to approximately 50 percent (210 acres) of the total acreage (422 acres) to be converted. Curiously, the basis for the non-jeopardy conclusion in the BO (Item #4 on p. 41) recalls the 210 acres of grassland loss (from the golf courses) but is silent on the remaining 212 acres of grassland loss from the rest of the project.

The Del Webb project eliminates the golf courses and reduces the total grassland loss by about 60 acres (Figure 4). The footprint of grassland removal and conversion would be smaller in the western part of the site because of additional preservation areas along the southern hills. On the eastern part of the property, the previously approved sewage treatment plant and the estate lots would also be eliminated, resulting in additional grassland preservation. Grassland (and all other habitat) impacts from development of the remaining elements of the Del Webb project would be almost identical to those of the previously approved plan.

Wildlife habitat areas would be permanently managed and protected in the same manner under the Del Webb project. As per the BO's non-jeopardy determination for SJKF (Item #4 on p. 41), the Del Web project includes the development of a conservation easement and management plan that would protect and manage over 1,160 acres of upland habitats that could be utilized by San Joaquin kit foxes for hunting, denning, and dispersal.[2] Any SJKF that could potentially move through the area could find overland routes through the protected habitat areas on the property. The Del Webb project thus maintains future potential for dispersal by San Joaquin kit foxes through portions of the area, consistent with the conclusion in the BO (p. 38). The Del Webb project would also implement the same protective, monitoring, maintenance, restoration and habitat enhancement measures for SJKF during construction and operation as the previously approved project (BO pp. 7-11, 38, 43).

Incidental take of San Joaquin kit fox is expected to be the same (zero) for the Del Webb project as it would have been for the previously approved project (BO p. 43). Nothing in the Del Webb project would affect SJKF in a manner or to an extent not considered in the BO.

[2] The acreage of protected upland habitat (grasslands and oak woodlands) would increase above the 1,160 acres assumed in the BO, primarily because of the additional grassland preservation noted in the text.

California tiger salamander

The BO focused particular attention on the approved project's effects on the metapopulation of CTS occurring in several (six) ponds and in the uplands at the project site (BO p. 23). For upland habitat, the BO (pp. 23, 30-35, 40, 42) assumed that impacts would occur primarily in grasslands within 2,000 feet of the six breeding ponds (Ponds 3, 4, 6, 7, 10 & 11) identified on the easterly side of the property (i.e. around the existing golf course). Based on distances from the known breeding ponds and the lack of aquatic breeding habitat nearby, the BO (p. 32) considered that development on the westerly portion of the property was unlikely to substantially affect CTS. However, the BO (p. 36) did note that the development of permanent water bodies in association with the two new golf courses could provide aquatic habitat beneficial to bullfrogs, which are known CTS predators.

Critical elements of the approved project were redesigned and specific protective measures were developed in coordination with USFWS to reduce adverse effects on CTS (BO pp 3, 7-11, 35). In the originally approved design, 19 1ots were arranged linearly along approximately 10.47 acres of the western edge of the existing golf course, and adjacent to Pond 4. In consultation with USFWS, this design was modified in 2006 to create 52 smaller lots in seven semi-circular clusters ("Phase 1 Pods") with grassland corridors (encompassing approximately 3.98 acres) in between the pods, primarily to facilitate overland movement of CTS (BO p. 3).

The Del Webb project maintains a very similar configuration of development envelopes in critical upland areas, especially in grassland areas around the ponds bordering the existing golf course (Figures 5 & 5a-f). The clustering of residences (Pods) along the western edge of the course along Pond 4 is maintained in the revised plan to allow corridor connections that facilitate overland movement of CTS as assumed in the BO (pp. 3, 35). The approved single family ranch estate lots (including Estate 2 located easterly of Ponds 3 & 7) and the sewage treatment facility (located near Pond 6) have been eliminated in the Del Webb project, reducing the location and extent of effects on CTS upland habitat in close proximity to breeding ponds assumed in the BO (pp. 5, 6, 31-35, 40). Six acres of grassland removal associated with the development of Estate 2 and its 4,000 foot long ($\pm$ 1 acre) access road would not occur, nor would removal of an additional three acres of grassland for the sewage treatment facility, as assumed in the BO (Table 7, p. 34). The Del Webb project would also implement the same protective, monitoring, maintenance, restoration and habitat enhancement measures for CTS during construction and operation as the previously approved project (BO pp. 7-11, 32, 34-36, 40).

Incidental take of CTS is expected to be the same (42) or less (34, based on elimination of Estate Lot 2 and the sewage treatment facility within 2,000 feet of Ponds 3 and 6 respectively) for the Del Webb project as it would have been for the previously approved project (BO p. 33, Table 7, p. 34 & p. 42). All reasonable and prudent measures, terms and conditions, reporting requirements, disposition of specimens and conservation recommendations of the BO (p.43-47) would remain the same. Nothing in the Del Webb project would affect CTS in a manner or to an extent not considered in the BO.

California red-legged frog and critical habitat

The BO (pp. 22-24) assumed that the San Juan Oaks property included at least 1.14 acres of aquatic breeding habitat (Ponds 4, 8 & 9) and approximately 960 acres (grasslands and woodlands) of potentially suitable upland habitat for CRLF dispersal, shelter and foraging. Aquatic habitats suitable for non-breeding activities (e.g., sheltering and foraging) included all of the ephemeral ponds on the property, the wetlands in the western portion of the property; and the seeps in the southern portion of the property (BO p.25).

While the BO (p. 36) considered that any removal of wetland, riparian, and upland habitats could impact CRLF, it also acknowledged that beneficial effects to CRLF could occur during the management of habitat set aside for wildlife in a conservation easement. The BO determined that the most likely effects of the approved project on CRLF would be the construction and development of new residences near Ponds 4, 8, 9 & 10 ("Phase 1 Residential Development") and the construction of a storm water detention basin at Pond 8 (Figure 6).[3] The BO (p. 37) also noted that the development of permanent water bodies in association with the two golf courses could provide aquatic habitat beneficial to bullfrogs, which are known CRLF predators.

The BO (p. 39 & 40) noted that approximately 0.65-acre of proposed fill in both jurisdictional and non-jurisdictional waters of the United States and wetlands could affect non-breeding aquatic CRLF habitat, but determined that no aquatic breeding habitat would be lost as a result of the approved project. The BO (p. 29) characterized the fill areas as ephemeral drainages and seasonal wetlands (small, isolated depressions) on the flat, non-native annual grassland on the western portion of the property; although these wetlands could serve as a non-breeding aquatic habitat for CRLF, the species has not been observed in this area, but rather, has been observed in ponds and uplands on the eastern portion of the property (BO pp. 29 & 40). A proposed wetland and riparian mitigation plan would offset the effects of this habitat loss (BO pp. 3, 7, 39-41). In addition, approximately 8.5 acres of non-breeding aquatic habitat, including ponds, wetlands, and seeps would be protected and managed as habitat set aside for wildlife in a conservation easement (BO p. 39). Monitoring, maintenance, and enhancement of habitats at San Juan Oaks as proposed would also maintain or improve the quality of CRLF aquatic breeding habitat (BO p. 41).

Approximately 400 acres of upland habitat for CRLF dispersal, shelter, and foraging would be converted by the golf courses, residential and other developments (p. 39). According to the BO (p. 39), these development activities would result in the loss of approximately 2.8% of the total critical habitat unit designated in the area (SNB-1).[4] This upland habitat loss would not jeopardize the continued existence of CRLF or substantially affect the function and conservation

[3] Pond 8 is an approximately 0.70 acre artificial reservoir excavated adjacent to a main central drainage (Drainage D) that flows from the south through wooded hills. The sides of the pond are steep, precluding establishment of wetland or riparian vegetation. Water is diverted from Drainage D through a small, in-channel pond/settling basin (Pond 9) upstream of the diversion culvert for Pond 8 in Drainage D. Water is returned to the channel through mechanical valves at the downstream end of Pond 8. Red-legged frogs have been observed in both ponds.

[4] SNB-1 is actually mapped to the south of most of the area proposed for development; impacts to designated critical habitat would be significantly less than estimated in the BO (Figure 7)

role of upland habitat in SNB-1 (BO pp.39, 41). The development of a conservation easement and management plan to protect and manage approximately 1,160 acres of uplands would ensure the long-term availability of habitats that could be utilized by CRLF for sheltering and dispersal (BO p. 41).

The Del Webb project would slightly reduce effects on wetland and upland habitats that could impact CRLF. A small (±280 linear feet) section of a tributary jurisdictional drainage (Drainage G) proposed for fill under the approved VTM and over 60 acres of uplands originally proposed for development (estate lots, sewage treatment facility, golf holes) would be avoided by the Del Webb plan. The Del Webb project also eliminates the golf courses, a potential attractive nuisance ("habitat sink") to CRLF because of its artificial lakes. Otherwise, the development footprint, including development of new residences near Ponds 4, 8, 9 & 10 and the construction of a storm water detention basin at Pond 8, would remain the same as in the approved VTM.

A conservation easement would be dedicated over 1,249.5 acres of the site, an increase with the Del Webb plan of 86.5 acres over the approved VTM. As with the approved VTM, a management plan would be developed to protect and manage upland habitats within the conservation easement area that could be utilized by CRLF for sheltering and dispersal. The Del Webb project would also implement the same protective, monitoring, maintenance, restoration and habitat enhancement measures for CRLF during construction and operation as the previously approved project (BO pp. 7-11, 36-37, 39, 41). Incidental take of CRLF is expected to be the same (2) for the Del Webb project as it would have been for the previously approved project (BO p. 42). All reasonable and prudent measures, terms and conditions, reporting requirements, disposition of specimens and conservation recommendations of the BO (p.43-47) would remain the same. Nothing in the Del Webb project would affect CRLF in a manner or to an extent not considered in the BO.

Conclusion

The development footprint of the Del Webb project conforms very closely to the development footprint of the approved VTM. In fact, there is a reduction in impacts to upland habitat acreage and an increase in acreage dedicated to habitat preservation and management through a conservation easement. These changes only strengthen the non-jeopardy conclusions for each of the species and critical habitat considered in the BO.

While the amended development plan stays within the footprint of the previously approved VTM, it replaces golf courses with a denser residential plan on the western part of the San Juan Oaks property. This land use change would not affect the take assumptions for the species or the critical habitat considered in the BO, nor would it constitute new information that could affect listed species in a manner or to an extent not considered in the BO.

The BO (p. 38) suggested that any SJKF present on the site could find overland routes through the golf courses following construction, and that the golf courses could be available for CRLF foraging and dispersal after development (BO p. 39). But the BO (pp. 39-41) also considered the habitat conversion in the western part of the property (by golf courses) as a permanent impact to

potential upland habitat for both species and non-breeding aquatic habitat for CRLF. Neither of these species, nor the CTS, were assumed to occur in the western part of the site (BO pp. 25, 29, 32, 38, 40, 43), and a robust conservation strategy (i.e. conservation easement over a large land area, adherence to specific minimization and management measures, habitat enhancement, reasonable and prudent measures, etc.) was repeatedly cited as the basis for the BO's determination of effects on the species and critical habitat (BO pp. 2, 5, 7-11, 32, 34-43). To infer that the BO anticipated some residual habitat value for the subject species from the new golf courses following construction is not supported by the assessment and conclusions in the BO. Such an interpretation would promote a standard that favors certain types of development over others when listed species are involved.

In summary, we believe that the Del Webb at San Juan Oaks Specific Plan is consistent with the assessment and conclusions in the USFWS BO for the previously approved San Juan Oaks Golf Club project. We do not believe that there are any "triggers" that would require reinitiation of formal consultation for the Del Webb project.

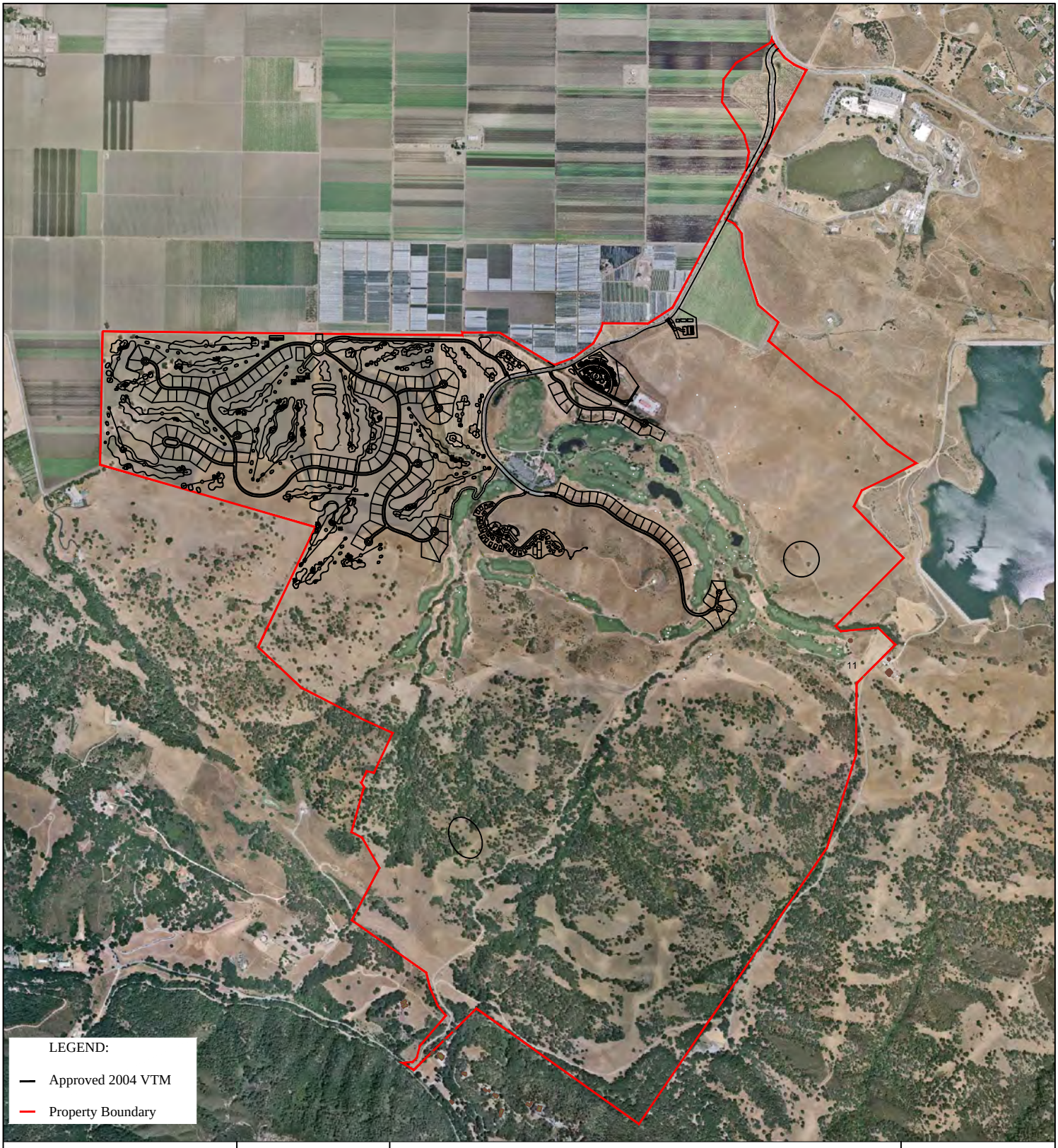
We trust that this assessment will assist you in your discussions with USFWS. Please contact me by email (mzander@zanderassociates.com) or telephone (415 897-8781) if you have any questions.

Sincerely,

Michael Zander
Principal Biologist

Attachments:

Figure 1:	Approved 2004 VTM
Figure 2:	Proposed Del Webb at San Juan Oaks Project
Figure 3:	Overlay of Development Footprints: Del Webb vs. 2004 VTM
Figure 4:	Project Layout Overlay: Del Webb vs. 2004 VTM
Figure 5:	Development within 2,000 Feet of CTS Breeding Ponds
Figures 5a-f:	Development Details within 2,000 Feet of CTS Ponds 3, 4, 6, 7, 10 & 11
Figure 6:	Proposed Detention Basin at Pond 8
Figure 7:	Limits of CRLF Critical Habitat (SNB 1)



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N

Scale: 1" = 2,000'

Approved 2004 Vesting Tentative Map
San Juan Oaks Golf Club
San Benito County, California

Figure
1

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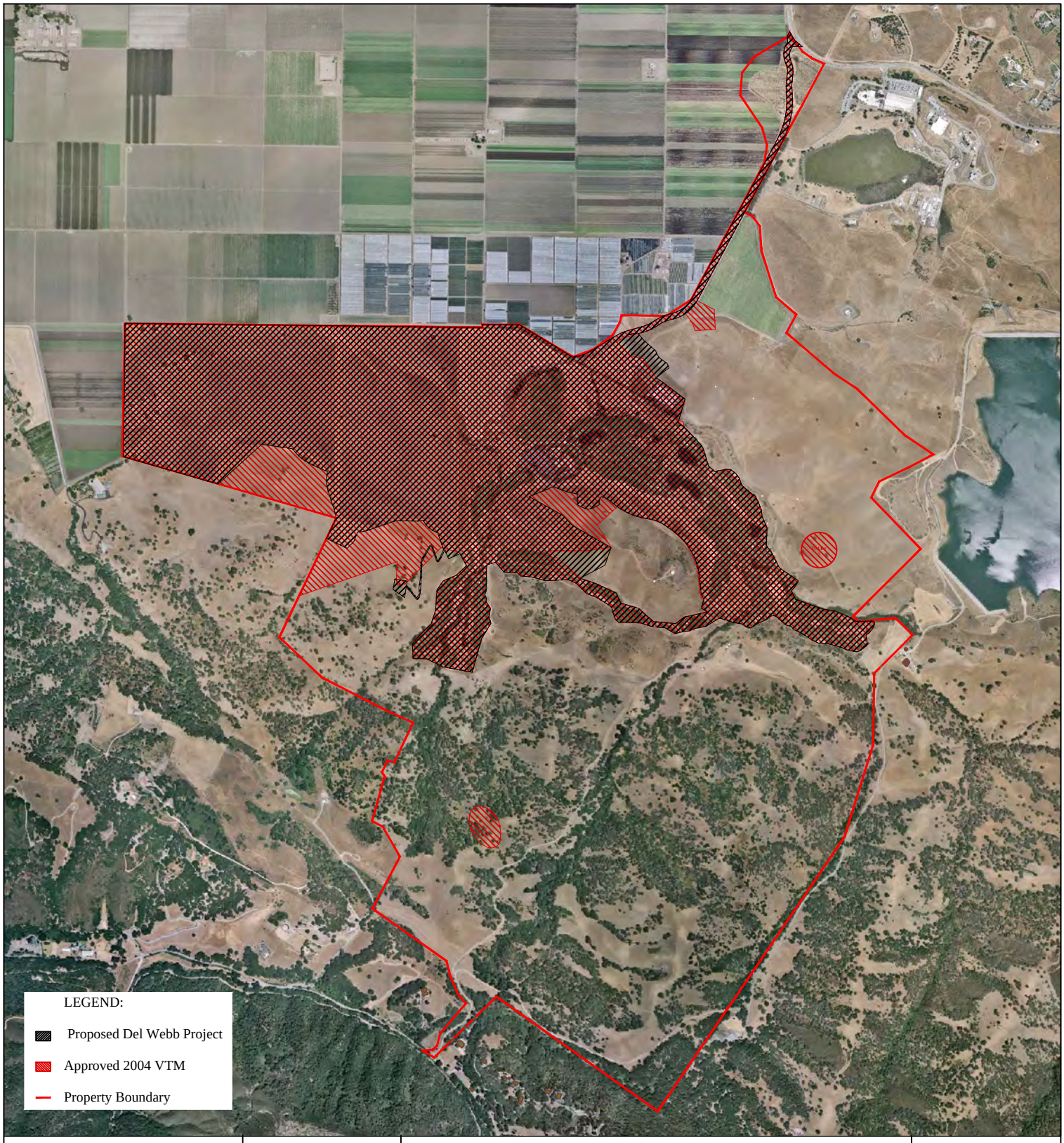
Scale: 1" = 2,000'

Proposed Del Webb Project at
San Juan Oaks Specific Plan
San Juan Oaks Golf Club
San Benito County, California

Figure
2



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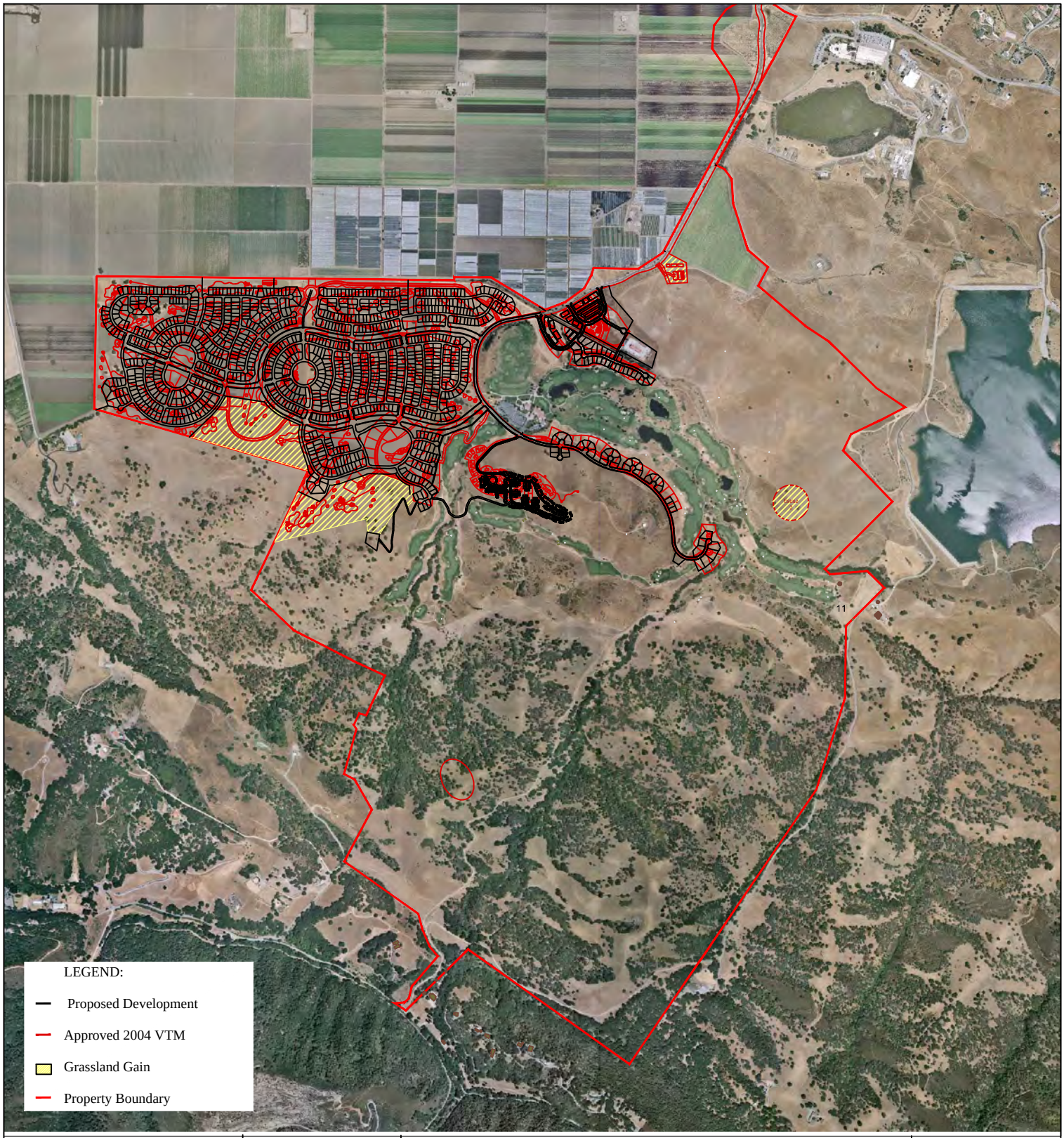
Scale: 1" = 2,000'

Overlay of Development Footprints
Del Webb Project vs Approved 2004 VTM
San Juan Oaks Golf Club
San Benito County, California

Figure
3



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Scale: 1" = 2,000'

Project Layout Overlay
Del Webb Project vs Approved 2004 VTM
San Juan Oaks Golf Club
San Benito County, California

Figure
4

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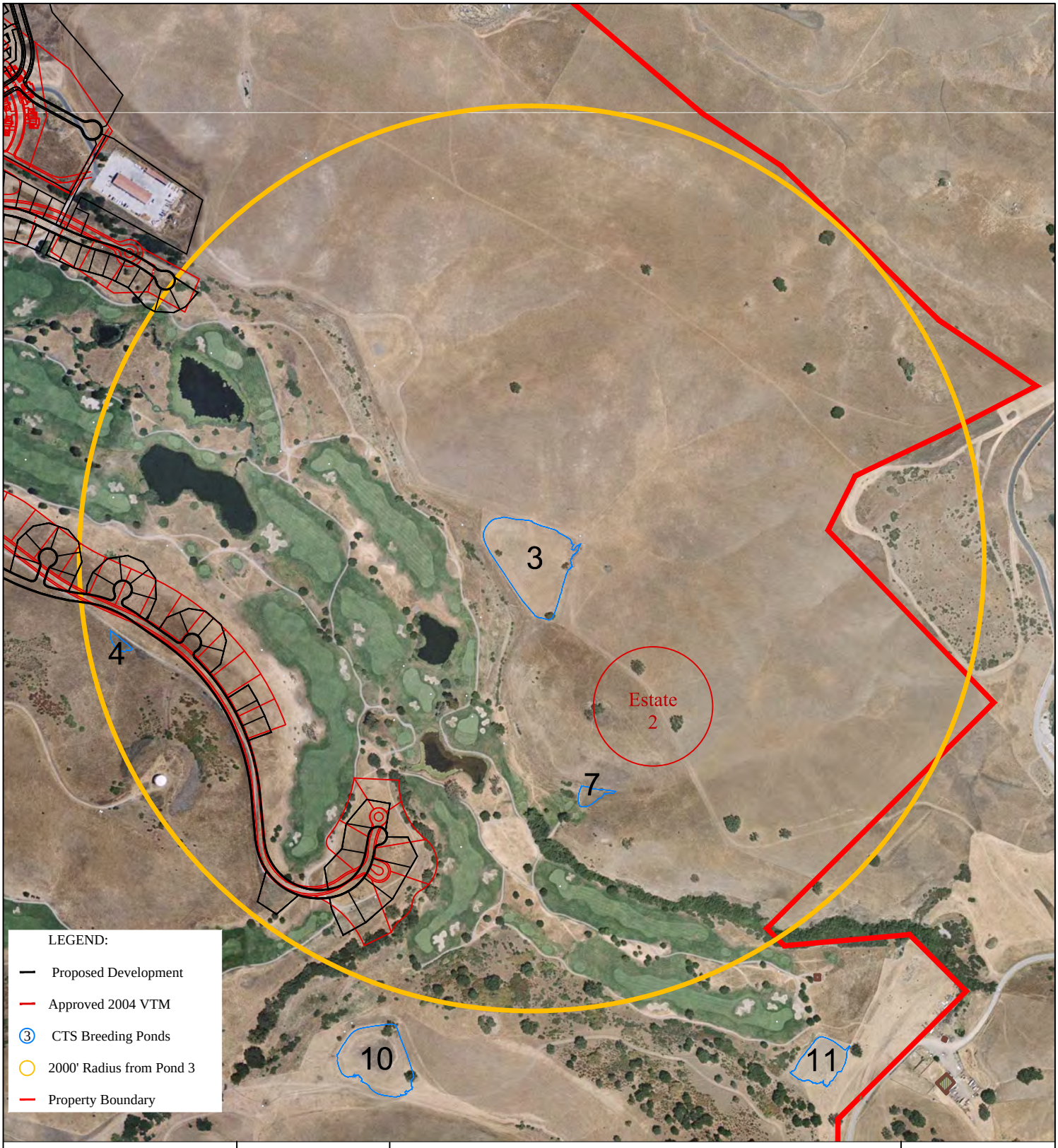
Scale: 1" = 1100'

Proposed Development vs Approved Development
Within a 2000' Radius of CTS Breeding Ponds
San Juan Oaks Golf Club
San Benito County, California

Figure
5



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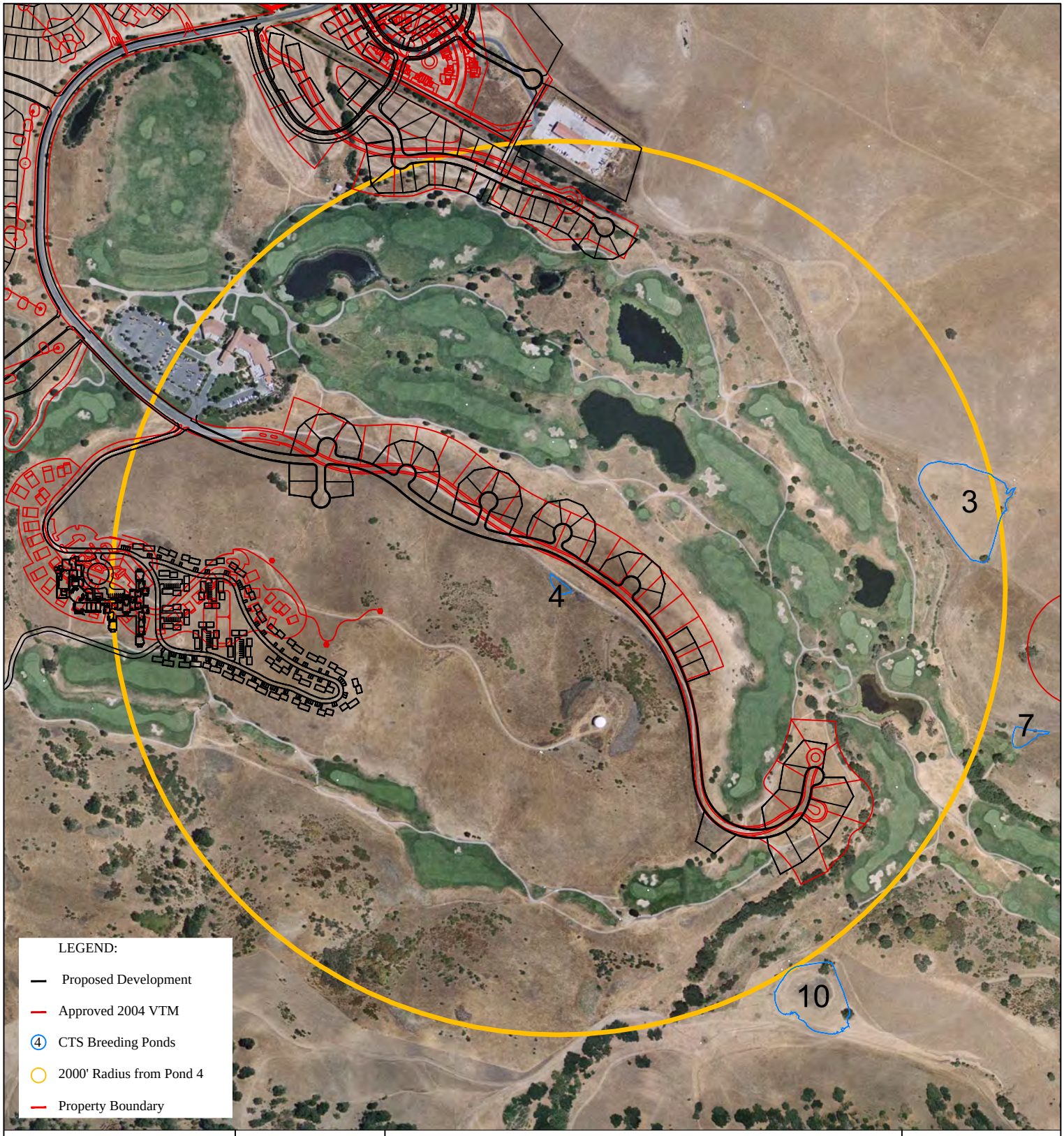
N

Scale: 1" = 600'

Proposed Development vs Approved Development
Within a 2000' Radius of Pond 3
San Juan Oaks Golf Club
San Benito County, California

Figure
5a



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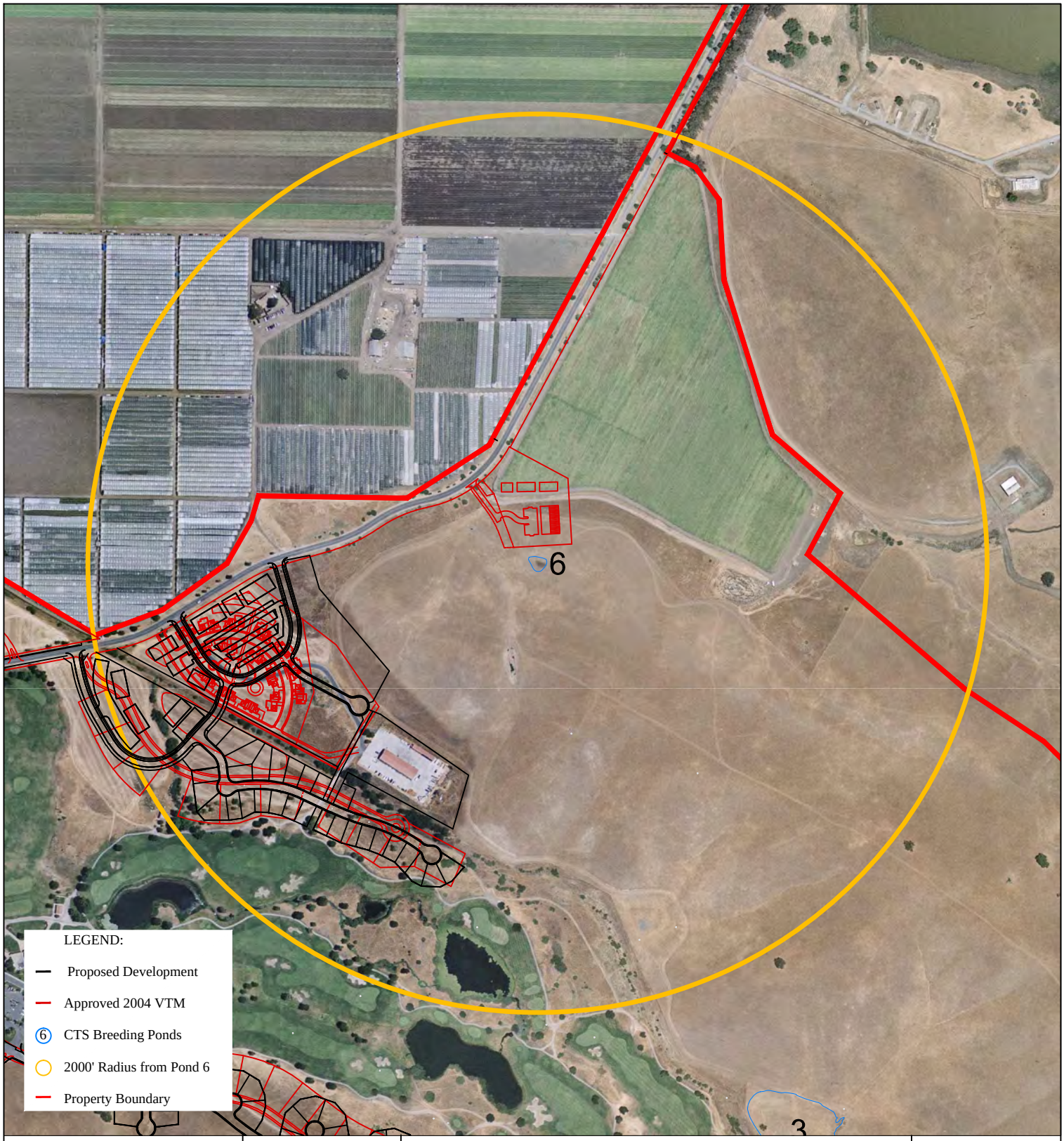
Scale: 1" = 600'

Proposed Development vs Approved Development
Within a 2000' Radius of Pond 4
San Juan Oaks Golf Club
San Benito County, California

Figure
5b



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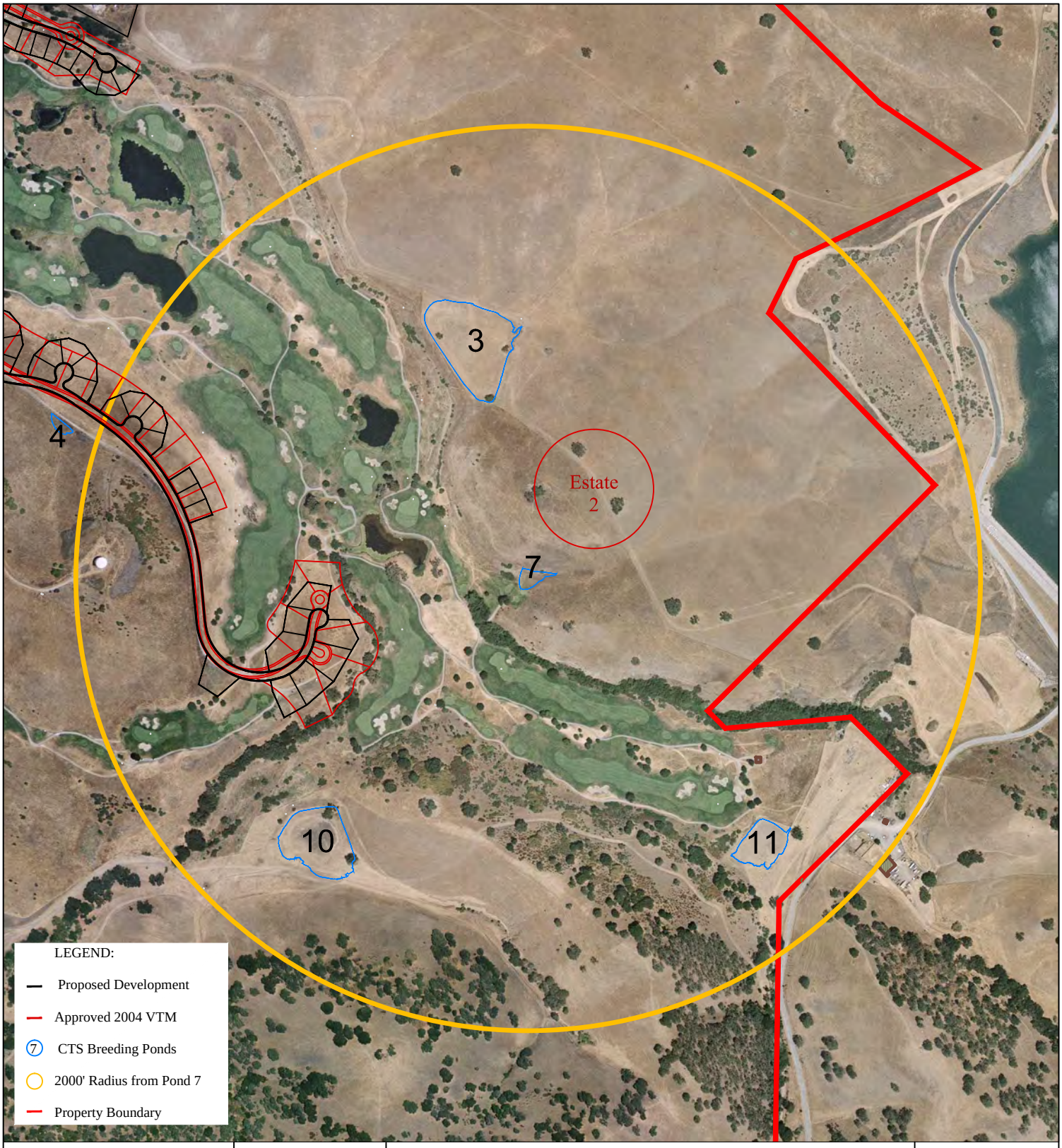
Scale: 1" = 600'

Proposed Development vs Approved Development
Within a 2000' Radius of Pond 6
San Juan Oaks Golf Club
San Benito County, California

Figure
5c



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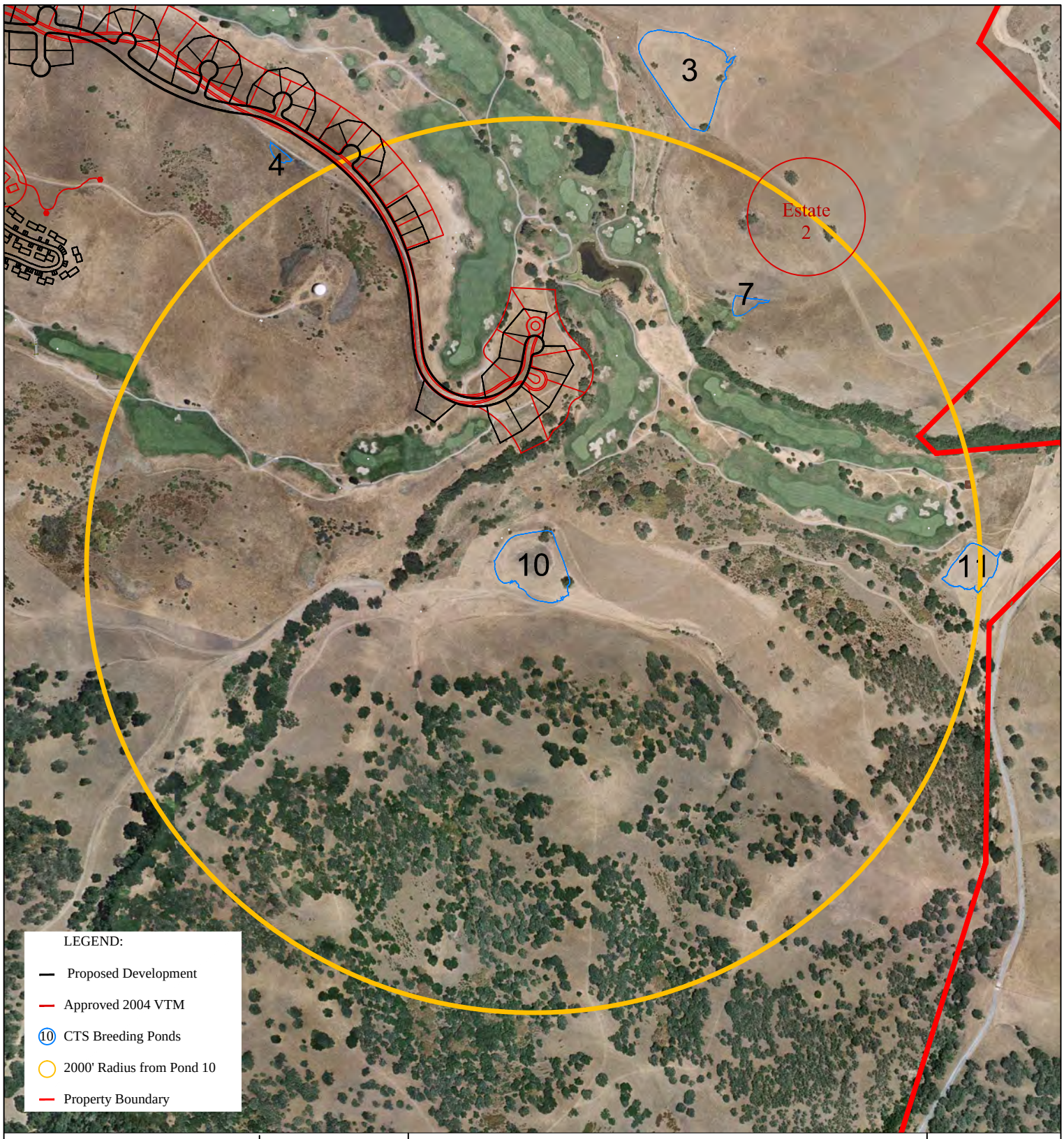
Scale: 1" = 600'

Proposed Development vs Approved Development
Within a 2000' Radius of Pond 7
San Juan Oaks Golf Club
San Benito County, California

Figure
5d



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N

Scale: 1" = 600'

Proposed Development vs Approved Development
Within a 2000' Radius of Pond 10
San Juan Oaks Golf Club
San Benito County, California

Figure
5e

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N

Scale: 1" = 600'

Proposed Development vs Approved Development
Within a 2000' Radius of Pond 11
San Juan Oaks Golf Club
San Benito County, California

Figure
5f

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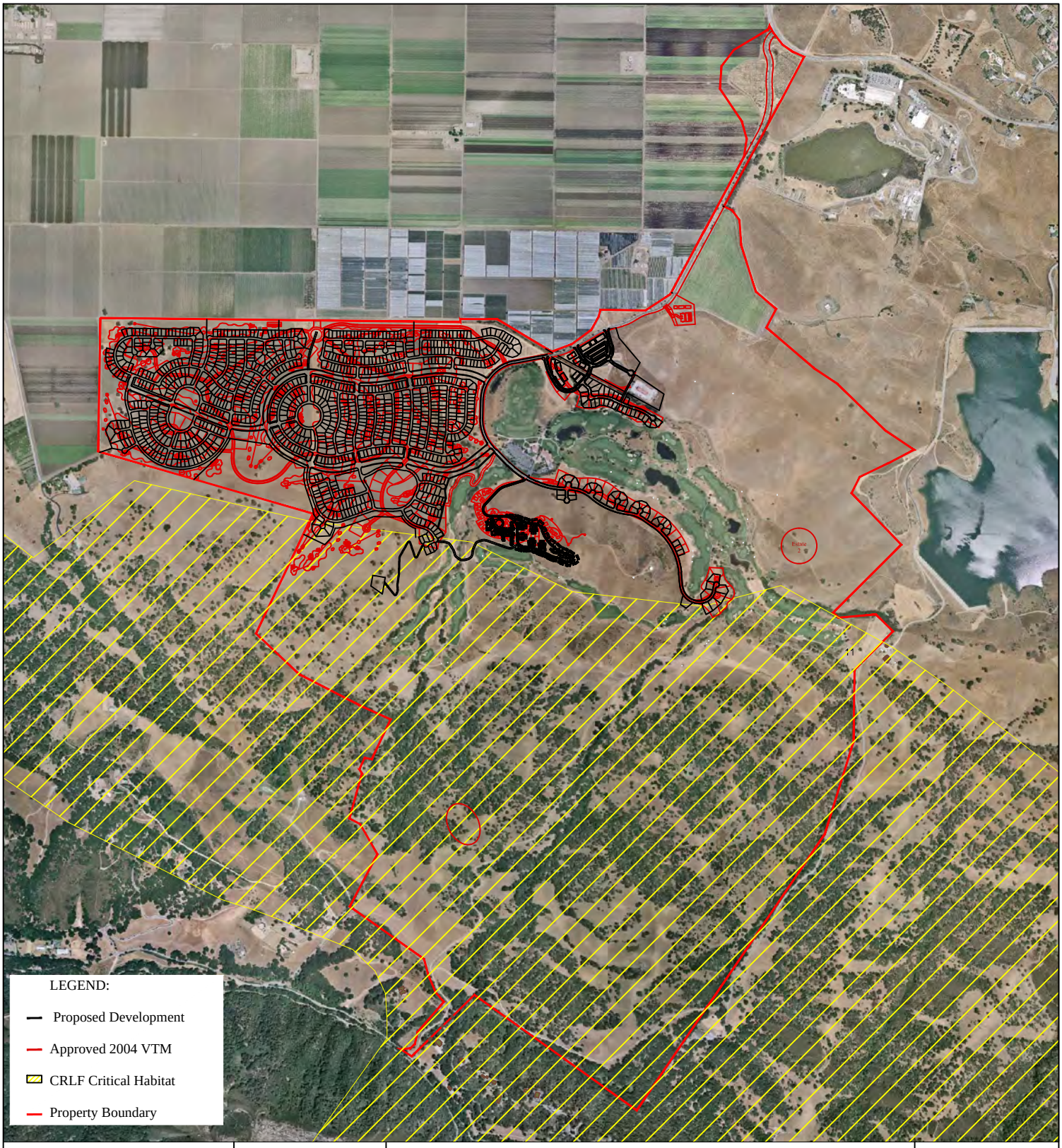
N

Scale: 1" = 600'

Proposed Detention Basin at Pond 8
San Juan Oaks Golf Club
San Benito County, California

Figure
6



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N

Scale: 1" = 2,000'

Limits of California Red-legged Frog Critical Habitat (SNB-1)
San Juan Oaks Golf Club
San Benito County, California

Figure
7

California Tiger Salamander Upland Habitat Impact Assessment
Del Webb Project at San Juan Oaks
San Benito County, California

Introduction

Zander Associates prepared this assessment to evaluate upland habitat impacts of the proposed Del Webb project at San Juan Oaks on California tiger salamander (*Ambystoma californiense* or CTS). The assessment was prepared following direction from the California Department of Fish and Wildlife (CDFW) to meet standards for issuance of an Incidental Take Permit (ITP) under Section 2081 of the California Fish and Game Code.

CTS Habitat Overview

CTS breed in seasonal ponds[1] in grasslands and lowland hills, but spend most of their lives in subterranean refugia in nearby upland habitat, commonly using small mammal burrows for aestivation (summer dormancy). For successful breeding, CTS require seasonal ponds that hold water for a minimum of four months, to allow CTS larval metamorphosis to occur.[2] Juveniles and adults leave the ponds for upland refugia as the spring season progresses and seasonal ponds dry. The upland component of CTS habitat typically consists of grasslands, but includes grassland/oak savannah and grasslands in scrub or chaparral habitats. Because CTS may take four to five years to reach sexual maturity, during which time they are using upland habitat, 95%-99% of their life cycle is spent on land, and suitable upland habitat is critical to the survival of the species.

Dispersal Distances from Ponds

CTS have been found in upland habitats various distances from aquatic breeding habitats. During a mark and recapture study in the Upper Carmel River Valley, Monterey County, Trenham et al. (2001) observed CTS dispersing up to 2,200 feet (670 m) between breeding ponds between years. In research at Olcott Lake, Solano County, Trenham and Shaffer (2005) captured CTS in traps installed 1,312 feet (400 m) from the breeding pond. Other studies at Jepson Prairie found that adults and juvenile CTS routinely move 0.62 mi (1 km) from the breeding site (Searcy and Shaffer 2008). In a five year trapping study in Contra Costa County, a small number of CTS were captured as far as 1.36 miles (2.2 km) from the nearest breeding pond (Orloff 2011).

Trenham and Shaffer (2005) derived models that would reflect CTS distribution and simulate the population-level effects of upland habitat loss/conversion around an isolated breeding pond. They modeled adult dispersion from aquatic habitat based on direct observations and radio

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[1] Historically, natural ephemeral vernal pools were the primary breeding habitats for CTS. However, with the conversion and loss of many vernal pools through farmland conversion, and urban and suburban development, ephemeral and permanent ponds that have been created for livestock watering are now frequently used by the species during the winter breeding season.

[2] Perennial ponds can accumulate a diverse array of aquatic predators including non-native fishes and bullfrogs resulting in unsuitable CTS breeding habitat. Also, in the Central Coast region where hybridization with non-native tiger salamanders is an issue, perennial ponds that hold water most years are much more likely to be highly genetically invaded by non-naïve genes than ponds that dry every year.

tracking and also determined that the spatial distribution of sub-adults in upland habitats appeared to be different than that of adults. Results from their models suggested that that 50%, 90%, and 95% of adults were within 492 feet (150 m), 1,608 feet (490 m), and 2,034 feet (620 m) of the pond, respectively. Their data also suggested that 50% of dispersing CTS sub-adults were within 1,246.4 feet (380 m) and 95% of sub-adults were within 2,067 feet (630 m) of the pond, but that 85% of this life stage was concentrated between 656 feet (200 m) and 1,968 feet (600 m) from the pond.

CTS at San Juan Oaks

CTS have been documented from at least six seasonal ponds (Ponds, 3, 4, 6, 7, 10, and 11) on the San Juan Oaks property since 1994. Aquatic (seining & dip-netting) studies have been conducted in most of the non-golf course ponds on the property. Upland (drift fence and pitfall trap) studies were conducted during the 2005-06 wintertime rainy season to study overland movement and determine numbers of CTS moving to and from ponds near the proposed development area around the existing golf course. Data from the capture locations revealed some aspects of upland habitat use by CTS on the property. CTS were captured in all upland traplines, indicating that they were sheltering in or migrating through grassland areas proposed for development around the golf course. Data from pond traplines and observations at some ponds indicated that at least two small ponds (#4 & #7) adjacent to the golf course supported small CTS breeding populations.

Seasonal ponds that were not found to contain larvae or individuals are assumed to potentially provide suitable CTS breeding habitat because of their proximity to other known habitat.[3] The open grassy hills around the golf course act as dry season aestivation habitat, especially since ground squirrel activity is widespread throughout the property. It is likely that the ponds act as a habitat complex that CTS utilize at different times, and the existing golf course allows for movement of CTS from the northeastern ponds to the southeastern ponds around the course.

Assessment Methodology

Following CDFW guidance, we established four concentric circles around each of the seasonal ponds on the property.[4] The radius of each circle was determined based on the studies of CTS upland dispersal distances noted above: 380 m (0.24 mi), 630 m (0.39 mi), 1km (0.62 mi), 2.1 km (1.3 mi). The first 380 meter distance covers upland habitat in which greater than 50% of dispersing CTS adults and approximately 50% of dispersing CTS sub-adults would be found according to the Trenham and Shaffer (2005) models. The second 630 meter distance covers upland habitat in which greater than 95% of dispersing CTS (both adult and sub-adult) would be found based on the same models. The third distance is responsive to the studies that found adults and juveniles routinely moving greater than 1 km (Searcy and Shaffer 2008). The final radius accommodates the findings that adult CTS have been found to move as far as 2.1 km to and from breeding ponds (Orloff 2007).

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[3] Golf course ponds are presumed to be unsuitable as CTS breeding habitat since they are perennial and support bullfrogs and other aquatic predators.

[4] Two seasonal ponds in the hills on the extreme southern part of the property (far removed from any proposed development) were not included in this assessment.

We combined the perimeters of each circle to create separate polygons on an aerial base map for each of the dispersal distances and calculated the area within each polygon (Figure 1 and Table 1). We assumed that the existing developed golf course and associated facilities did not constitute suitable upland habitat for CTS and backed those areas out of the calculations.[5] All other areas within the circles (grasslands, oak savannah, open scrub) were considered suitable CTS upland habitat; we have observed abundant ground squirrel activity in all habitat types on the property over years of work on the site. We then overlaid the proposed Del Webb development footprint on the aerial base map and calculated the impact area within each of the polygons (Table 1). Remaining upland habitat available for CTS dispersal and aestivation and the percentage of upland habitat loss that would result from the Del Webb project were then calculated. The results are summarized on Table 1 with details of the calculations presented on the attached spreadsheet (Attachment 1)

Table 1: Upland Habitat Acreages within Concentric Circle Polygons

	380 m Circle (Acres)	630 m Circle (Acres)	1 km Circle (Acres)	2.1 km Circle (Acres)	Total (Acres)
Total Area	532	265	337	790	1,992
Existing Golf Course	89	35	40	7	172
Existing Upland Habitat	443	230	297	782	1,752
Upland Habitat Loss with Development	-23	-26	-50	-215	-315
Habitat Remaining After Development	419	205	246	567	1,438
% Habitat Loss	-5%	-11%	-17%	-28%	

Results

Approximately 443 acres of suitable upland, primarily grassland, habitat occurs within 380 meters (approximately ¼ mile) of the seasonal ponds on the San Juan Oaks site. Residential and some commercial development around the golf course, proposed as part of the Del Webb project, would affect approximately 23 acres or about 5% of that habitat. The remaining 419 acres of upland habitat in this first circle polygon would continue to be available for CTS dispersal and aestivation in perpetuity through dedication of a conservation easement and management as permanent wildlife habitat. (The golf course would also continue to provide dispersal area for CTS).

The second polygon (at 630 m) comprises an additional 230 acres of suitable upland habitat, 26 acres of which would be removed for development of the proposed resort hotel and some residential and commercial areas around the golf course. Approximately 205 acres of upland habitat or about 89% of the total available habitat area in this polygon (excluding the golf course)

[5] While ground squirrel activity is very limited (controlled) within the golf course, CTS likely use the course for movement from the northeastern ponds to the southeastern ponds around its perimeter according to the FWS BO.

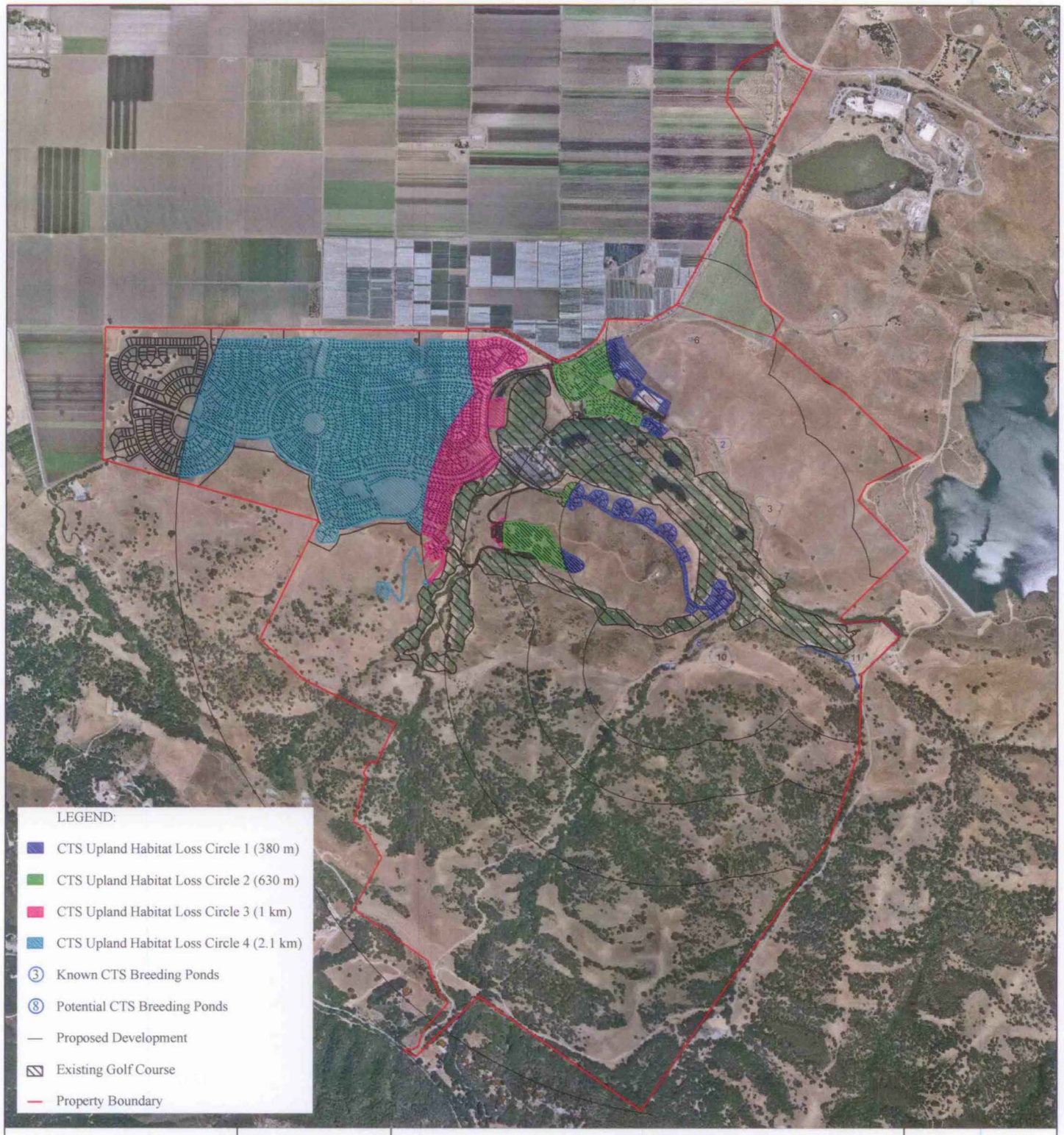
would remain after development. The first two circles represent habitat availability for about 95% of dispersing CTS according to the Trenham and Shaffer models. Combined, these areas currently provide about 673 acres of suitable uplands for CTS. Following development of the proposed project, about 624 acres, or about 93% of the total uplands in this critical dispersal area, including all of the hills to the east of the pond complex, would be preserved.

Between 630 meters and 1 kilometer, the impacted acreage west of the golf course increases to about 50 acres, due largely to development of the Del Webb Community. Nonetheless, over 83% (approximately 246 acres) of the uplands within this polygon would remain available for CTS dispersal after development. Most of those uplands are located in native grassland and oak savannah habitat included in the open space preservation area south of the golf course.

The largest impact on uplands occurs in the westerly field of the property (fourth polygon) between 1 kilometer and 2.1 kilometers from the breeding ponds. This area is an actively cultivated agricultural field, but does support ground squirrel activity. Approximately 215 acres or about 28% of the existing habitat at this distance from breeding ponds would be lost as a result of the project. Based on distances from the known breeding ponds and the lack of aquatic breeding habitat nearby, the U.S. Fish and Wildlife Service (Biological Opinion 2006) considered that development on the westerly portion of the property was unlikely to substantially affect CTS. In addition, approximately 567 acres of suitable upland habitat within this polygon would be preserved as part of the project, including areas around the two southerly ponds not evaluated here (see footnote 4).

Conclusion

The Del Webb project would result in the loss of about 315 acres of potentially suitable upland habitat for CTS. The largest losses would occur in cultivated fields at a considerable distance (between 1 km and 2.1 km) from known or potential breeding ponds. Losses of upland habitat would be reduced (about 7% loss) in those critical areas closer (within 630 m) to the ponds where 95% of dispersing CTS are expected to be found. The minimal losses at closer distances combined with a robust conservation strategy (i.e. preservation of all breeding ponds, conservation easement over a large, 1,249-acre land area, adherence to specific minimization and management measures, habitat enhancement, etc.) should reduce impacts to CTS to a less than significant level.



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Scale: 1" = 2,000'

Loss of Grassland with Proposed Development
Within 380m, 630m, 1km and 2.1km Radius
of Known and Potential CTS Breeding Ponds
San Juan Oaks Golf Club
San Benito County, California

Figure
1

Total area within Circle	circle 1	circle 2	circle 3	circle 4	Total	Property Total
sq ft	23,183,419	11,555,183	14,663,958	34,395,070	83,797,630	86,763,568
ac	532	265	337	790	1,992	

Existing development	circle 1	circle 2	circle 3	circle 4
	95,571	1,177,828	1,746,847	235,976
	3,447,674	343,823		77,558
	349,914			
Total existing development (sq ft)	3,893,159	1,521,651	1,746,847	313,534
Total existing development (ac)	89	35	40	7

	circle 1	circle 2	circle 3	circle 4	Total
Total area within Circle	23,183,419	11,555,183	14,663,958	34,395,070	83,797,630
Existing development	-3,893,159	-1,521,651	-1,746,847	-313,534	-7,475,191
Total existing habitat (sq ft)	19,290,260	10,033,532	12,917,111	34,081,536	76,322,439
Total existing habitat (ac)	443	230	297	782	1,752

Grassland loss with Development	circle 1	circle 2	circle 3	circle 4
	318,340	113,821	21,181	9,315,144
	62,574	161,006	2,020,244	58,601
	571,250	424,308	59,882	
	65,686	47,095	86,885	
		373,737	4,260	
Total grassland loss with development (sq ft)	1,017,850	1,119,967	2,192,452	9,373,745
Total grassland loss with development (ac)	23	26	50	215

Summary (sq ft)	circle 1	circle 2	circle 3	circle 4	Total
Total existing habitat	19,290,260	10,033,532	12,917,111	34,081,536	76,322,439
Total grassland loss	-1,017,850	-1,119,967	-2,192,452	-9,373,745	-13,704,014
Total habitat remaining	18,272,410	8,913,565	10,724,659	24,707,791	62,618,425

Summary (ac)	circle 1	circle 2	circle 3	circle 4	Total
Total area within Circle	532	265	337	790	1,992
Total existing development	89	35	40	7	172
Total existing habitat	443	230	297	782	1,752
Total grassland loss	-23	-26	-50	-215	-315
Total habitat remaining	419	205	246	567	1,438
% Habitat Loss	-5%	-11%	-17%	-28%	

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June 6, 2006

Bill McIver
US Fish and Wildlife Service
Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003

RE: San Juan Oaks 2005-06Winter California Tiger Salamander Minimization Monitoring Program (File No. 125-02)

Dear Bill:

This letter-report presents the results of the winter 2005-06 California tiger salamander (*Ambystoma californiense*) (CTS) take minimization monitoring program conducted at the San Juan Oaks Golf Club (SJOGC) property in Hollister, California (Figure 1).

PURPOSE

Several CTS breeding ponds are located in the vicinity of the Phase I development site, as documented during previous studies (Biosystems 1994; B. Mori, pers. obs.). Of these, Pond 4 is immediately adjacent to the southwestern edge of the development site (Figure 1). In addition, several potential breeding ponds are located on the adjacent golf course. Although CTS breeding was confirmed on the property, information on upland habitat use was lacking. Therefore, a CTS take minimization program was conducted on the Phase I site to: (1) provide information on upland habitat use on the project site to promote effective conservation measures of the species; and (2) minimize the mortality of CTS on the project site as a result of development.

METHODS

The study was performed under Federal Permit TE778668-5 and State Scientific Collection Permit No. 00192 and was approved by the US Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG), prior to the initiation of the monitoring program.

The CTS drift fence study was performed in two stages. The first stage was designed and implemented to look at patterns of CTS upland occurrence and distribution in the proposed Phase I subdivision development site, as well as breeding activity in the adjacent Pond 4. Additionally, the first stage included a drift fence around Pond 7, another known CTS breeding pond, for general comparative purposes. The first stage involved installing approximately

2,784 linear feet of drift fence along the northeastern border of the project site immediately adjacent to the golf course and around the perimeters of the Ponds 4 (~369 linear feet) and 7 (~606 linear feet) (Figure 2). The placement of the upland fence was intended to intercept CTS moving from and toward the project site, while the fences at Ponds 4 and 7 were intended to document breeding activity. Prior to the installation of the drift fence, the locations of the fence lines were marked in the field, using a topographic site map and aerial map as references. The drift fences were installed from 8 - 18 November 2005 by Perma-Green Hydroseeding Incorporated, while the installation was monitored by Bryan Mori (permit holder). The fence line was excavated primarily by a large trencher. In areas where fence lines passed through tall, dense stands of ruderal vegetation, vegetation removal was performed by the golf club maintenance crew using a mower. The drift fences were constructed from standard plastic-weave silt fence material with attached wooden stakes. The fence was buried a minimum 6 inches into the ground and extended 2 - 3 feet above grade. Fence segments were approximately 66 feet with 10 foot gaps. Paired, plastic 2-gallon paint buckets (traps) were installed approximately every 33 feet along the fence lines for a total of 284 traps. Each trap contained a ~3 in. x 3 in. moistened sponge to help prevent desiccation. A plywood coverboard was used at each trap to provide cover from predators while the traps were open. When traps were closed, coverboards and bricks were used to help secure the trap lids. A 1-foot long piece of twine was attached to the underside of each cover board to aid the escape of small mammals incidentally captured. Each trap was numbered for identification and "Do Not Disturb" placards, with a brief description of the study, permit numbers and contact information written in English and Spanish, were stapled to the fence near each trap location. The fence lines and traps were recorded on a GPS unit.

CTS were documented along the upland fence line and at Ponds 4 and 7 through January 2006. In response to the initial CTS observations, a site meeting with Bill McIver, USFWS representative, took place on 26 January 2006. Based on discussions at the meeting, a second stage of the study was developed and implemented. The study was expanded and modified to minimize take of adult and sub-adult CTS, prior to the anticipated start of grading on the Phase I project site in summer 2006. The new fences included a separate enclosure near the southeastern end of the project site (a.k.a. Ranch line) and a continuous line along the southwestern perimeter of the project site (a.k.a. Southwest line), which included an additional enclosure at the northwestern end of the project site (Figure 3). These additional fence lines were established based on the anticipated grading limits identified by the project proponent, with the Southwest line extending to as high as practicable on the slope where some contour grading may occur outside the additional fence line. (S. Fuller, pers. comm.). The length of the new fences totaled ~5,926 feet (Ranch = ~2,234 feet; SW = ~3,692 feet). The fences were installed by Perma-Green from 2 - 14 February. Traps along the new lines were placed only on the side facing development, with the intent of relocating captured individuals outside of the grading limits. In addition, all gaps along the original upland line (a.k.a. Main line) were closed to prevent CTS movement from the east onto the project site and ~ 396 additional feet were added near the clubhouse. Fence gaps along the northeastern side of Pond 4 also were closed to create a barrier against metamorph movement from the pond towards the project site. For the new fences, an additional 109 traps were placed every 66 feet, rather than the recommended 33 feet, in order to facilitate monitoring, and only traps spaced every 66 feet were opened along the Main upland fence from 18 February through the remainder of the study. Since the intent

of the study shifted from solely gathering data to take minimization, monitoring at Pond 7 was halted after 15 March, the protocol termination date.

Monitoring was performed from 29 November 2005 to 1April 2006. Traps were opened during the afternoon on rainy days or when rain was predicted for that night, then checked the following morning and closed if no further rain was expected, or left open if rain was in the forecast. All wildlife species captured were identified and recorded in a field notebook. Captured CTS were measured, photographed, toe-clipped for tissue samples and released. During the first stage of the study, all CTS were released in suitable habitat on the opposite side of capture. During stage two, all CTS and other species, were released in suitable habitat in areas outside of the grading limits. Photographs were used to identify individual salamanders and determine recaptures. Tissue samples were deposited with Dr. Brad Shaffer, Department of Evolution and Ecology, UC Davis.

The fence lines and traps were periodically maintained during the study by Perma-Green and the monitoring biologist. In addition to when the traps were opened, the fences were checked during periods without rainfall for vandalism or disturbance by predators.

Rainfall data during the study period was obtained from the California Irrigation Management Information System (CIMIS) station located at SJOGC and is presented on Table 1.

All traps, except for the inside traps around Pond 4, were permanently closed on 1April, despite continued rain beyond 1 April, since CTS were not captured after 4 March during 14 subsequent sampling days, including some days with significant rainfall. Monitoring at Pond 4 will resume in late May/June to gather data on dispersal patterns of metamorphic individuals; a report of the results will be prepared as a separate document.

Preliminary information on CTS movement from other CTS upland studies in the Hollister region were obtained for general comparative purposes.

RESULTS

The traps were monitored for 38 nights between 29 November 2005 and 1April 2006, for a total of 10,459 trap-nights (i.e., Pond 4 - 1064 trap-nights; Pond 7 - 1276 trap-nights; Main - 5956 trap-nights; Ranch - 735 trap-nights; and Southwest - 1428 trap-nights). On a few sampling nights, some traps were temporarily closed due to flooding.

Thirty-one CTS were captured on ten nights between 2 December 2005 and 4 March 2006: four were captured at Pond 4, three at Pond 7, and 19 at all upland fences combined (Figures 4 and 5). Of the thirty-one, five were recaptures, making the total number of *separate* CTS individuals captured 26. Sixty-one percent (19) of the total was juveniles, 29% (9) females and 10% (3) males (Figure 6). The snout-vent lengths (SVL) ranged from 100 – 125mm for females, 115mm for males, and 65 – 95mm for juveniles (i.e., metamorphic individuals and sub-adults) (Table 1). The highest number of CTS captured on a given day was ten and occurred on 2 December 2005 (Figure 5). Based on trap array locations, 77% (24) were captured along the upland arrays, 13% (4) at Pond 4 and 10% (3) at Pond 7 (Figure 7). Based on capture locations

at upland arrays, CTS were distributed widely throughout the study area, although the great majority were captured along or in proximity to the original drift fence line. (Figure 4).

During a routine maintenance check of the trap lines, CTS eggs were first discovered at Pond 4 on 11 January 2006, then at Pond 7 on 14 January while monitoring traps. CTS eggs began hatching by 31 January.

Table 1. Summary of CTS captures at Pond 4, San Juan Oaks Golf Club, Hollister, CA.

Date	Site	Trap No.	Male	Female	Juvenile	SVL (mm)	TL (mm)	Recap (Trap No.)	Precip
12/2/05	Pond 4	65	x			115	220		0.91
12/2/05	" "	57		x		100	180		-
12/2/05	Pond 7	42	x			115	235		-
12/2/05	" "	36			x	85	135		-
12/2/05	Upland	101		x		110	200		-
12/2/05	" "	141			x	75	115		-
12/2/05	" "	213			x	90	145		-
12/2/05	" "	213			x	85	150		-
12/2/05	" "	264			x	75	120		-
12/2/05	" "	156			x	75	130		-
12/8/05	" "	128			x			(141)	0.03
12/18/05	Pond 4	68			x	65	95		0.06
12/18/05	" "	70	x					(65)	-
12/18/05	Upland	169			x	85	150		-
12/19/05	" "	214			x	65	105		0.41
12/19/05	" "	221			x	80	135		-
12/19/05	" "	240			x			(169)	-
12/19/05	" "	245			x	75	125		-
1/29/06	" "	222			x	65	90		0.01
2/27/06	Pond 7	43		x		125	235		0.12
2/27/06	Upland	307		x		125	225		-
2/27/06	" "	210		x		110	210		-
2/28/06	" "	371			x	85	145		0.37
2/28/06	" "	73			x	95	155		-
2/28/06	" "	89		x		115	210		-
2/28/06	" "	182			x	80	135		-
3/2/06	" "	73		x		105	190		0.00
3/2/06	" "	97		x				(89)	-
3/2/06	" "	161			x	80	125		-
3/3/06	" "	73		x				(89)	0.18
3/4/06	" "	311			x	-	-		0.61

Notes: Upland = Main, Ranch and Southwest fence lines combined; Juvenile = sub-adult and metamorphic individuals.
Rainfall data from CIMIS Meteorological Station 126 during the 24-hr period from 24:00 – 24:00.

Other Wildlife Species

Fourteen other non-target wildlife species were captured during the study; these included California Newt (*Taricha torosa*), ensatina (*Ensatina ensatina xanthoptica*), arboreal salamander (*Aneides lugubris*), California slender salamander (*Batracoceps attenuata*), western toad (*Bufo boreas*), Pacific treefrog *(Hyla regilla*), California red-legged frog (*Rana draytonii*), bullfrog (*R. catesbeiana*), western fence lizard (*Sceloporus occidentalis*), northern alligator lizard (*Elgaria coerulea*), shrew (*Sorex* sp.), California meadow vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus* sp.) and western harvest mouse (*Reithrodontomys megalotis*).

A total of five sub-adult California red-legged frogs were captured during the study: three at Pond 7 and two along the Main upland line. In addition, several sub-adult bullfrogs were captured along the Main upland line and at Pond 7, where large adults also were recorded.

Other Regional CTS Studies

Three other CTS upland studies were conducted concurrent to this study in the project region: one along Union Road within two miles of SJOGC; one near the entrance to Ridgemark Golf and Country Club approximately six miles from the study site; and one near Thomas Road approximately 11 miles from the site (D. Bland, pers. comm.; B. Mori, pers. obs.). The Union Road and Thomas Road studies revealed the presence of CTS. Preliminary observations from these two studies, together with the SJOGC study, indicate that CTS movement in the region was initiated by heavy rainfall during the first week of December. At the three sites, CTS were first observed on 2 December 2005 (D. Bland, pers. comm.; B. Mori, pers. obs.).

DISCUSSION

The primary goal of the study was to obtain information on CTS upland habitat use in the Phase I project area. Prior to the study, observations of CTS upland use on the golf course property were lacking, including negative results of burrow excavations performed in 1996, as part of CTS mitigation measures for the development of the golf course (M. Zander, pers. comm.). A secondary goal was to document breeding activity at Ponds 4 and 7, for which positive data on CTS presence was lacking since they were first recorded at these ponds in 1992 (Biosystems 1994), including negative results during aquatic sampling conducted in1999 (B. Mori, pers. obs.). Both of these goals were achieved through the study. CTS use of upland habitat within the project site was confirmed through captures at the various upland arrays and breeding information was obtained at both Ponds 4 and 7.

Through the course of the study, however, the goals of the study shifted from obtaining presence/absence data in the uplands and at the ponds to that of take minimization for the implementation of Phase I, as recommended by the USFWS. The degree of success in achieving the intent of the salvage program is difficult to determine, however, for two main reasons. First, CTS require from 3-4 years before reaching sexual maturity and females do not necessarily breed every year. Therefore, only adults in breeding condition or recently metamorphosed individuals dispersing away from ponds are likely to be captured, while non-

breeding adults and sub-adults may not necessarily move overland significant distances. Secondly, the exclusionary fences were installed during the latter-half of the study, thus, allowing individuals to pass freely between fence segments and enter into the project area. Both of these factors suggest that an unknown number of CTS likely continue to occupy the Phase I site. With extensive effort to install the additional exclusion fences in a timely manner and minimize the likelihood of take, however, the take minimization monitoring was successful in intercepting several CTS and removing them from the project area.

Upland Habitat Use at the Phase I Site

Results from captures along the upland arrays indicate that CTS are widely distributed within the Phase I project area. The origin and/or destination of individuals, however, could not be conclusively determined, as no individuals were captured at both pond and the upland arrays. Based merely on the juxtaposition of ponds and available upland habitat, the presumption is that CTS captured along the upland arrays were moving northeast to southwest and visa versa. A few known CTS breeding ponds are present to the northeast of the Main upland line, as well as a number of golf course ponds, which also may provide breeding habitat. Therefore, CTS that occupy the Phase I uplands likely are comprised of individuals from these ponds. The high percentage of metamorphic-sized juveniles captured along the Main line tends to support this assumption.

On the other hand, some individuals inhabiting the Phase I uplands, may have originated from Pond 4 to the southwest. This assumption, however, was not confirmed during the study, as no individuals were captured at both the Main upland and Pond 4 arrays. But the distribution of captures at Pond 4, albeit low, do suggest that CTS movement tends northeastward from the pond rather than southwestward upslope, as the four captures at Pond 4 all were along the northeastern-half of the pond.

CTS Breeding Chronology and Relative Population Sizes at Ponds 4 and 7

The chronology of the arrival of breeding adults, egg-laying and hatching was pieced together from observations collected incidental to pitfall trap monitoring at Ponds 4 and 7, as well as capture data. Adults were detected at Ponds 4 and 7 on 2 December 2005, following the first substantial rainfall of the season. Both ponds, however, were completely dry through the end of December, thus preventing breeding. Scheduling conflicts prevented the operation of traps for a brief period at the beginning of the year, but, apparently, both ponds filled during the significant storm-event of 1 January 2006. Eggs were first observed on 11 January at Pond 4 and 14 January at Pond 7, and hatching was observed at Pond 4 beginning 31 January. Based on the lack of captures throughout the remainder of the study, including periods of significant rainfall from the end of February through 1 April, breeding activity at these ponds likely was focused on or about the 1 January storm.

Capture data at both Ponds 4 and 7 were similar. Only four CTS were captured at Pond 4, of which one was a recapture. The three separate individuals at Pond 4 included only one male and one female. Similarly, three individuals, including only one male and one female, were captured at Pond 7. These findings suggest small breeding populations at both ponds.

Although traps were not in operation during the 1 January storm-event, during which both ponds filled and additional inward bound CTS could have been recorded, the absence of outward bound observations at both ponds following the storm event suggests that however many individuals were missed, the overall numbers of breeding adults were likely low. Whether the low numbers of adults observed at Ponds 4 and 7 represent typical or atypical breeding season activity cannot be determined, given that no information on breeding activity levels from previous years at the ponds are available for making relative comparisons. The low numbers, however, appear to be consistent with preliminary observations at other CTS breeding ponds in the central coastal region of California (B. Shaffer and B. Fitzpatrick, pers. comm.) and simulations of a population model based on a CTS population in Monterey County (Trenham and Shaffer *in prep.*) which suggest that small ponds are likely to support low numbers of breeding adults.

CTS Predators

Bullfrogs: Of high concern is the prevalence of bullfrogs in the study area, since they are known to prey on CTS and have been identified as a significant factor in the population decline of CTS, where the two species co-exist (USFWS 2004). Previously, no bullfrogs were observed in the ponds of the study area in 1993, during focused surveys for the then proposed golf course (Biosystems 1994), or in 1999, during follow up focused surveys (B. Mori, pers. obs.). However, incidental observations of adult bullfrogs in the golf course ponds were common during the course of the study, and the observations of metamorph bullfrogs in the pitfall trap arrays confirm that a breeding population is present. In addition, large adults were observed at Pond 7. Since bullfrogs are known to travel up to 1.6 miles from breeding sites (USFWS 2004), the source of this species is likely San Justo Reservoir, which is within dispersal distance.

Although the bullfrogs are likely to be centered at the golf course ponds, the recent colonization of the study area by bullfrogs is considered a serious threat to the local CTS population. Bullfrogs are likely to prey on CTS that attempt to breed at the golf course ponds. Additionally, their presence at Pond 7, which is a seasonal pond, suggests that bullfrogs may utilize seasonal ponds opportunistically as a foraging site, since bullfrogs require permanent water sources for breeding, further impacting the CTS population.

Mosquitofish: Mosquitofish (*Gambusia affinis*) have been identified as a serious threat to CTS populations and studies have shown that CTS are largely excluded from ponds that support this species (USFWS 2004). A mitigation measure to prohibit the stocking of mosquitofish into ponds and lakes on the property was recommended as part of the original mitigation plan for the development of the golf course (Biosystems 1994). This mitigation measure has been strictly adhered to during the 10 years the golf course has been in operation, despite attempts by the State Department of Health to introduce mosquitofish at the golf course to help combat the spread of West Niles Virus (S. Fuller, pers. comm.). The implementation of this measure undoubtedly has helped to protect and maintain the CTS population on the property and its continued application is strongly encouraged.

RECOMMENDATIONS

The following recommendations are provided for consideration as part of Phase I mitigation and for inclusion into a property-wide CTS management plan.

Phase I

1. Continue to maintain the exclusion fences through the construction period to keep CTS from entering into the work areas. The fences should be monitored one to two times per month to identify areas in need of repair, with the fence repaired in a timely manner.
2. In the event that preliminary grading of the Phase I project site is not completed before October 2006, continue with the take minimization/salvage program during the 2006/07 CTS breeding season, beginning in mid-October. This is intended to remove individuals from the Phase I sites that may not have moved during the 2005-06 season or were not excluded from the Phase I site due to the late implementation of the exclusion fencing. Traps should be placed on the inside only or devise one-way exits along the fence through which salamanders can leave the project area but not enter.
3. Install FWS approved CTS tunnel crossings along the access road for the new development.
4. Monitor the tunnel crossings for 5 years to determine their effectiveness.
5. Monitor CTS breeding activity at Pond 4 through a combination of egg mass searches and spring larval surveys for 5 years.
6. During years when egg-laying has been documented at Pond 4 but, due to lack of rain, water levels are determined to be unsuitable to support successful reproduction, supplement the pond through periodic releases from the water tank, as directed by the monitoring biologist.
7. The uplands surrounding Pond 4 and the remnant upland swaths intended to provide CTS movement corridors should be managed to promote burrowing mammals. The vegetation height should be mowed regularly to encourage use by ground squirrels. No herbicides (e.g., Roundup) should be used within 150 feet of Pond 4, and no discing should be allowed as a means of vegetation control.
8. No street night lighting should be installed directly above the tunnel crossings. Where street lighting is used, use lights and shields and design the light standards such that illumination over a broad area will be limited to the greatest extent practical.
9. The tunnel crossings should be maintained regularly such that entrances are free of obstructions (e.g., debris) and that predator screens are in place.
10. Install interpretive signs at Pond 4. The signs should identify the pond as breeding habitat for CTS and *Linderiella occidentalis* and as seasonal habitat for CRF, and encourage the protection of these species.

Property-wide Management Measures

1. Implement a long-term bullfrog control program to manage the bullfrog population on the golf course. The efforts should be focused at the golf course ponds, where the bullfrogs are likely to be concentrated due to the perennial nature of the ponds.

2. Continue to prohibit the introduction of mosquito fish into the golf course ponds and ponds within the wildlife preserves as a method of mosquito control. Other methods of mosquito abatement, such as bacterial toxins and/or methoprene, should be used, if necessary, in consultation with the Service.
3. Monitor CTS breeding activity at all ponds within the wildlife conservation areas set aside for CTS mitigation through a combination of egg mass searches and spring larval surveys for 5 years.
4. The uplands within the wildlife conservation areas should be managed to promote burrowing mammals. The vegetation height should be managed through a combination of mowing at the lower elevations and cattle and horse grazing at higher and steep elevations where topography and access preclude mowing to encourage use by ground squirrels. No herbicides (e.g., Roundup) should be used within 150 feet of ponds and no discing should be allowed as a means of vegetation control.
5. If a SJO personnel finds a CTS during the course of maintenance activities, they should immediately contact the FWS-approved monitoring biologist, who would either salvage the salamander (if found dead) or move the salamander to appropriate habitat.

If you have any questions or comments regarding this letter-report, please call me anytime.

Sincerely,

Bryan Mori
Wildlife Consultant

cc: Scott Fuller, San Juan Oaks Golf Club; Michael Zander, Zander Associates; Serge Glushkoff, CDFG.

REFERENCES\PERSONS CONTACTED

Biosystems. 1994. California tiger salamander surveys and mitigation plan for the proposed San Juan Valley Golf Course, San Benito County, California. Prepared for Coats Consulting, Aptos, CA.

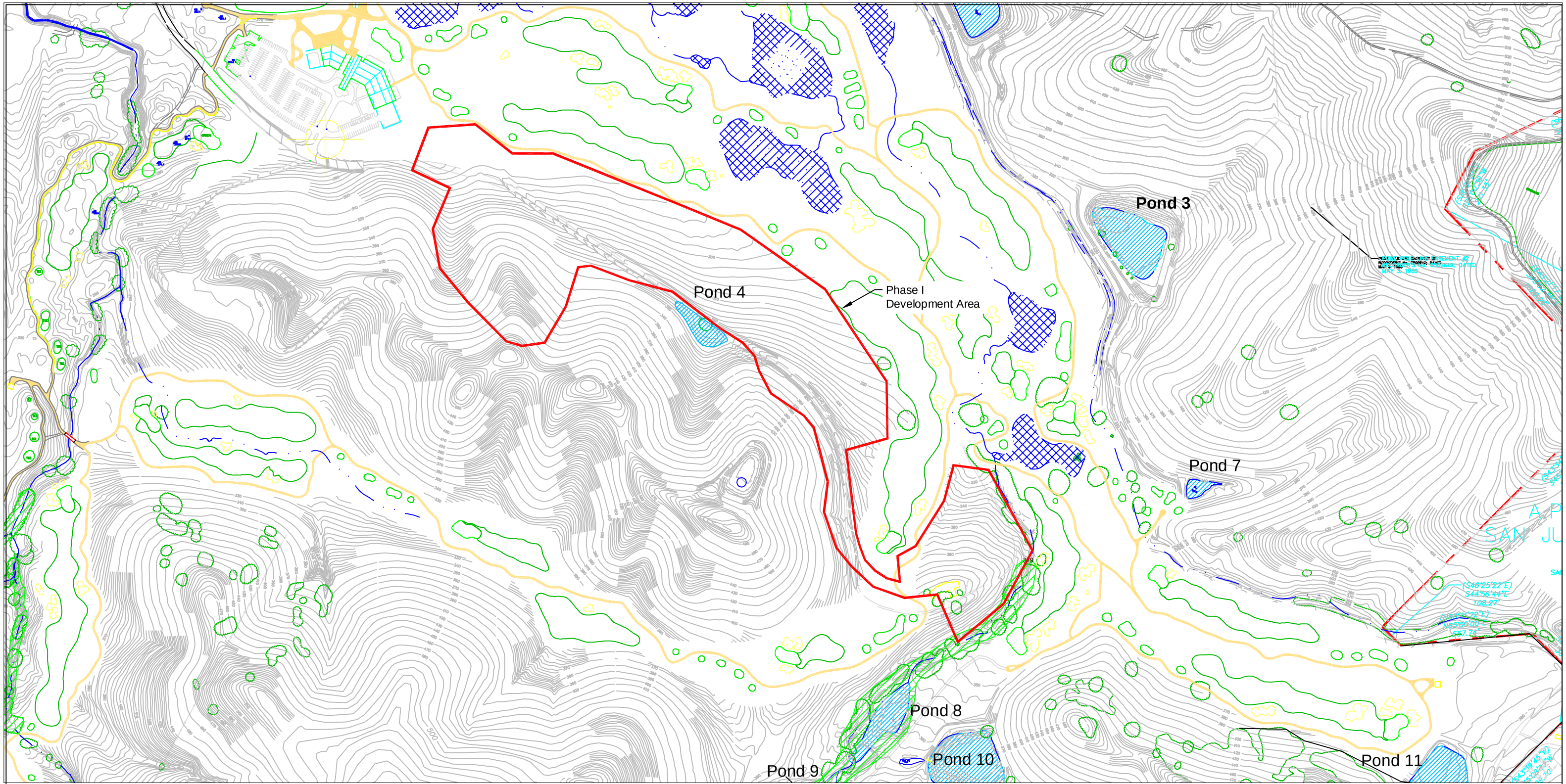
Trenham, P. C. and H. B. Shaffer. *In Prep*. Upland Spatial Distribution and Habitat Use in a Declining Amphibian.

Trenham, P. C., Shaffer, H. B., Koenig, W. D. and M. R. Stromberg. 2000. Life History and Demographic Variation in the California Tiger Salamander (*Ambystoma californiense*. Ecology, 82(12), pp. 3519-3530.

United States Fish and Wildlife Service (USFWS). 2004. Federal Register: August 4, 2004, Volume 69, Number 169.

Personal Communications:

Dana Bland, Dana Bland and Associates, Aptos, CA.
Ben Fitzpatrick, Ecology and Evolutionary Biology, University of Tennessee, Knoxville, TN.
Scott Fuller, San Juan Oaks Golf Club.
Brad Shaffer, Center for Population Biology, University of California, Davis, CA.
Michael Zander, Zander Associates, Novato, CA.



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Map prepared by Zander Associates
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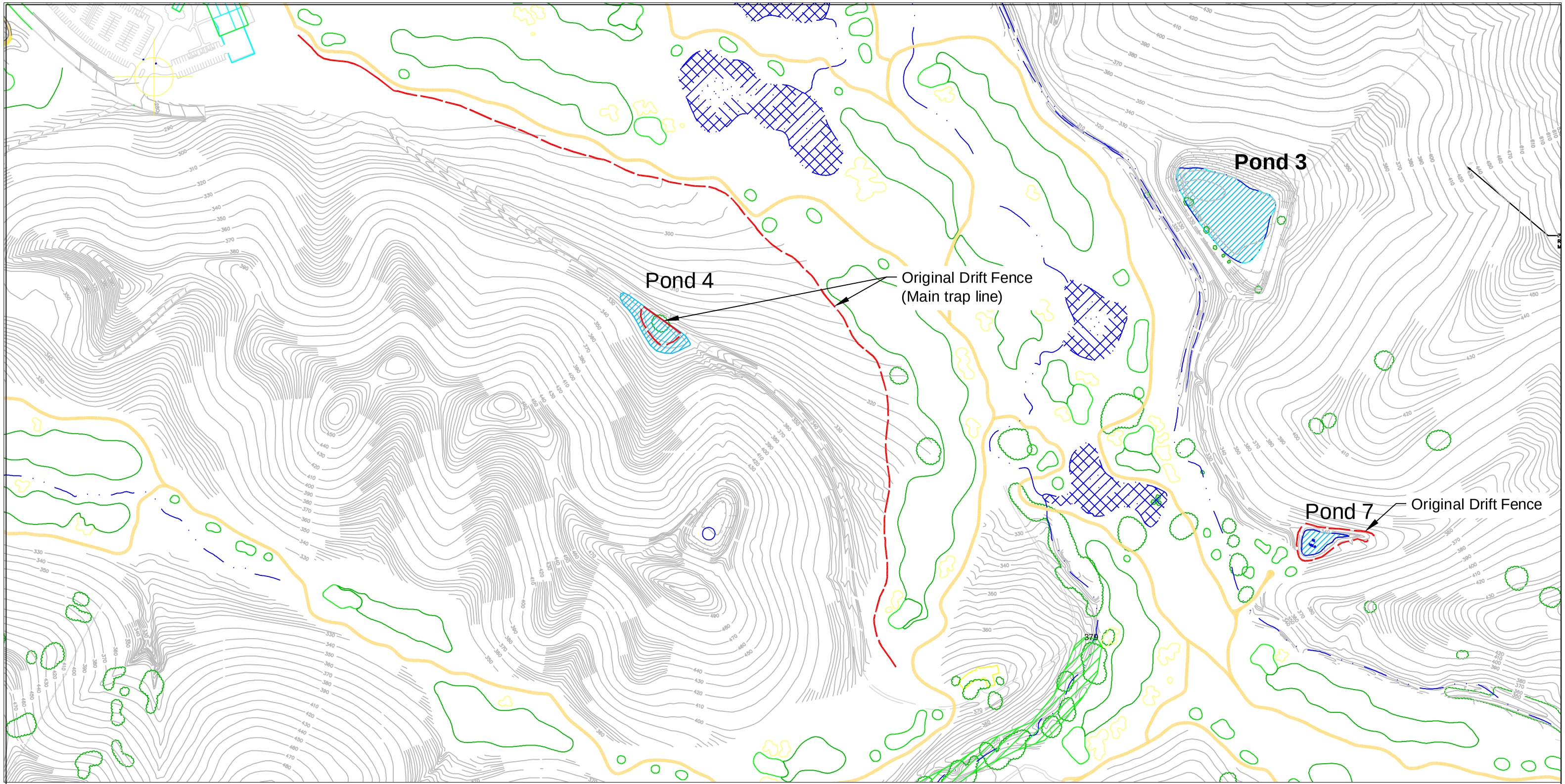
150 Ford Way, Suite 101
Novato, CA 94945

Scale: 1" = 400'

California Tiger Salamander Development Area
San Juan Oaks Golf Club
January 2006

Figure
1



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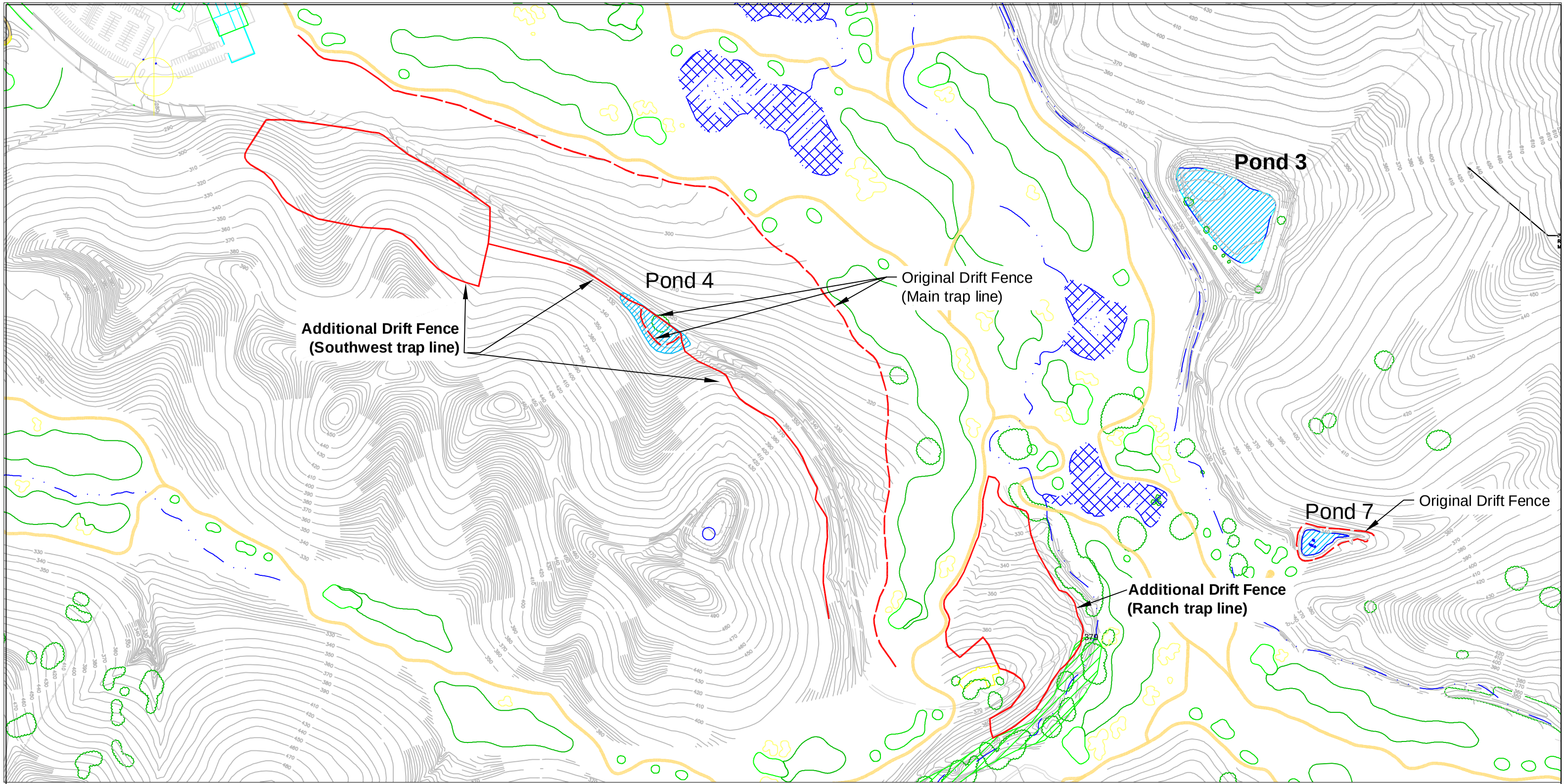
Scale: 1" = 300'

California Tiger Salamander Drift Fence
San Juan Oaks Golf Club
January 2006

Figure
2



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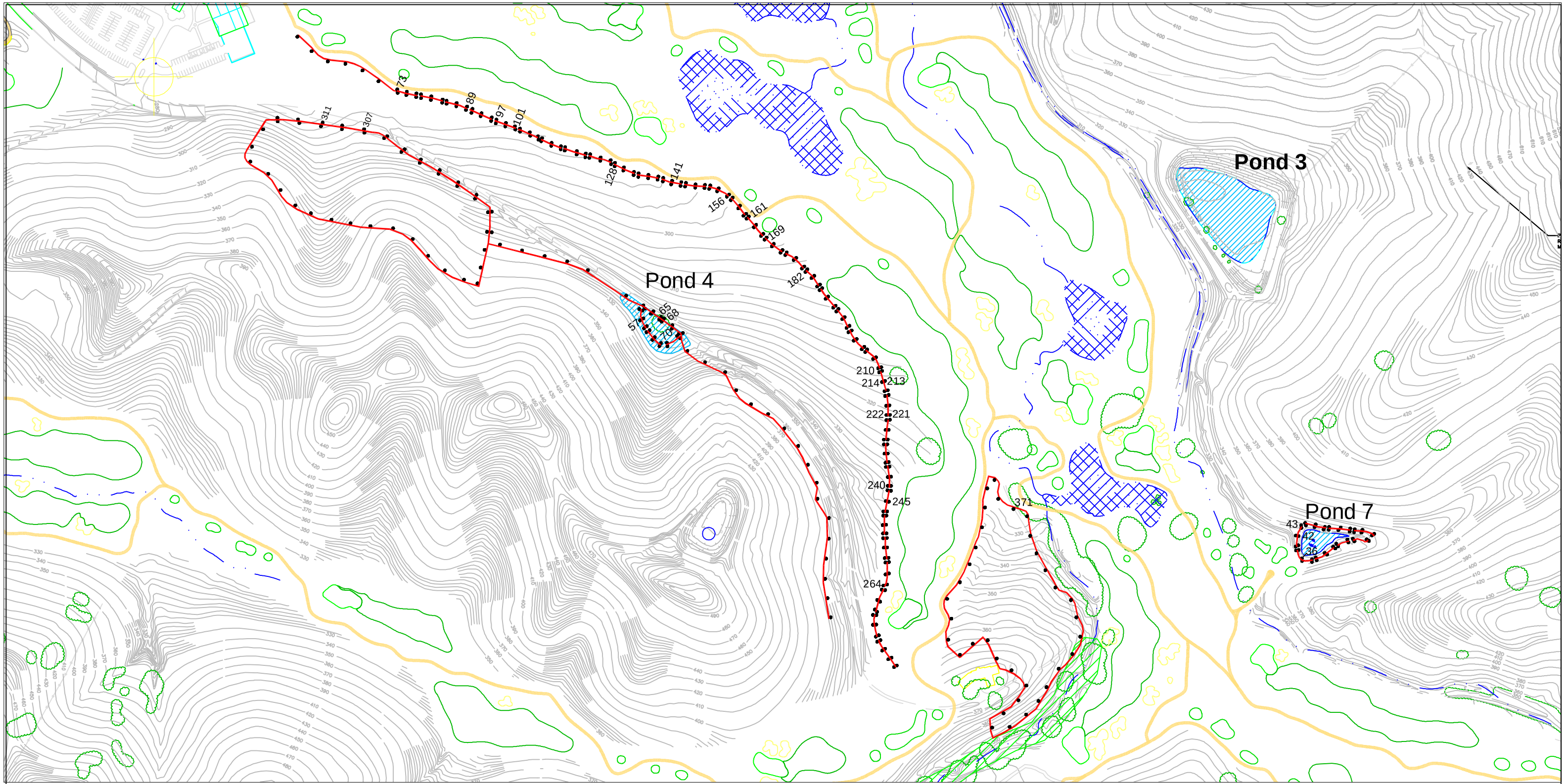
Scale: 1" = 300'

California Tiger Salamander Additional Drift Fence
San Juan Oaks Golf Club
March 2006

Figure 3



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Scale: 1" = 300'

65 ● Trap number where CTS were found

Trap Locations where
California Tiger Salamander were Found
San Juan Oaks Golf Club
March 2006

Figure
4

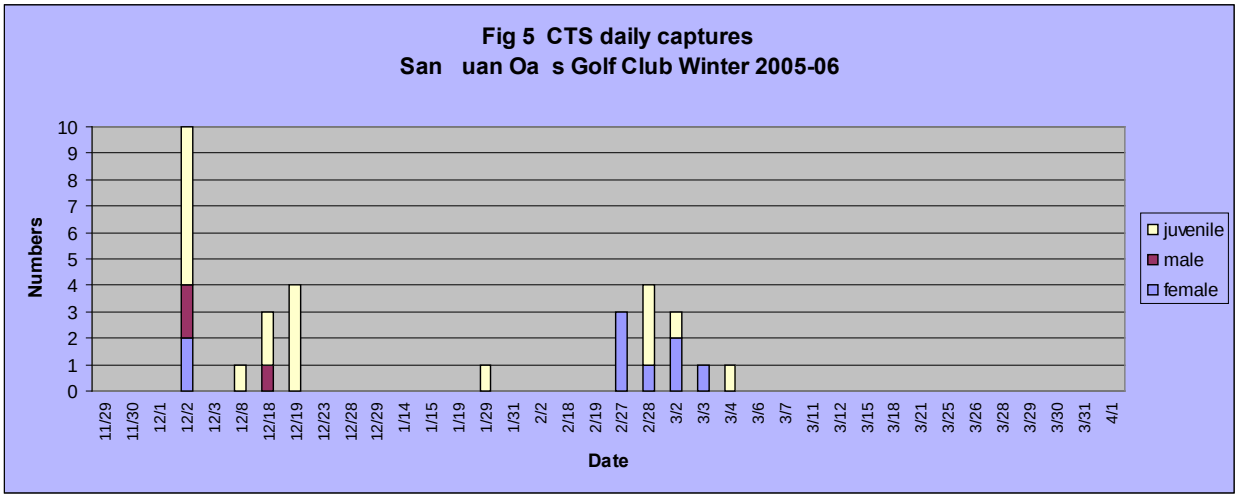
Fig 5 CTS daily captures
San uan Oa s Golf Club Winter 2005-06
Numbers
Date
juvenile
male
female

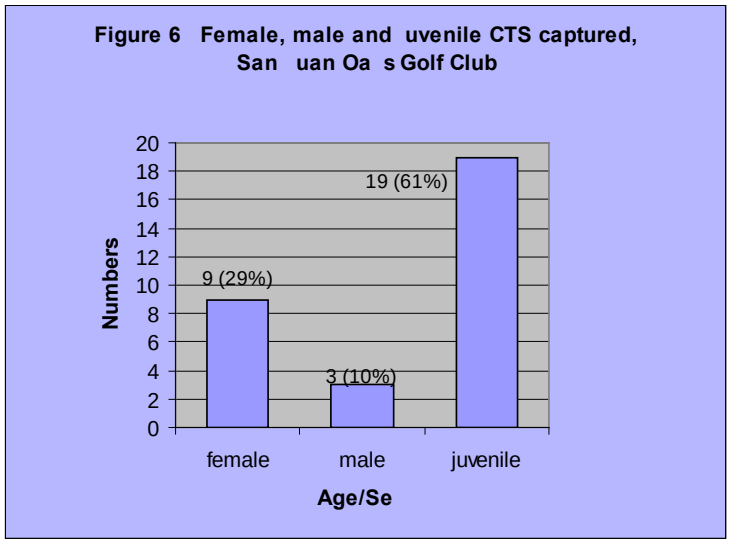
Figure 6 Female, male and uvenile CTS captured,
San uan Oa s Golf Club
Numbers
9 (29%)
3 (10%)
19 (61%)
female
male
juvenile
Age/Se

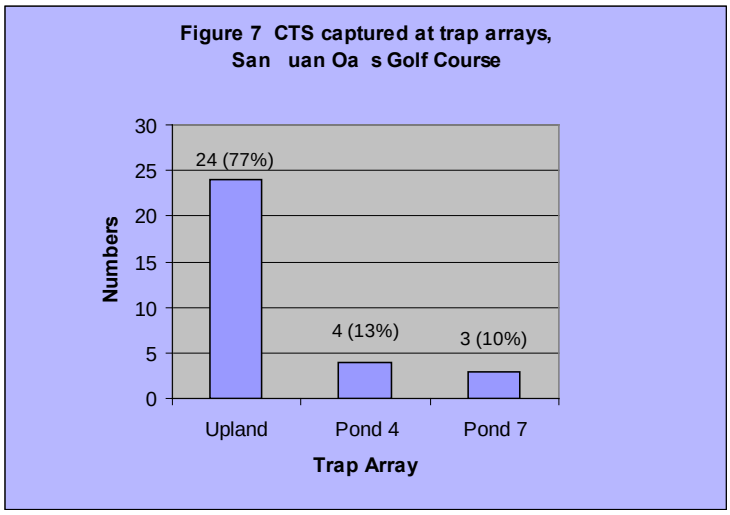
Figure 7 CTS captured at trap arrays,
San uan Oa s Golf Course
Numbers
24 (77%)
4 (13%)
3 (10%)
Upland
Pond 4
Pond 7
Trap Array

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October 16, 2012

Michael Zander
Zander Associates
4460 Redwood Highway, Suite 16-240
San Raphael, CA 94903

RE: WETLANDS FILL AND EXPANSION – BIOLOGICAL MONITORING REPORT

Dear Michael:

This letter-report presents the results of biological monitoring performed at the San Juan Oaks Wetlands Fill and Expansion site in San Benito County. The monitoring was performed in accordance with the US Fish and Wildlife service Biological Opinion (1-8-06-F-32) issued for the project. Focal species included California tiger salamander (CTS) (*Ambystoma californiense*), California red-legged frog (CRF) (*Rana draytoni*) and San Joaquin kit fox (*Vulpes macrotis mutica*).

In summary, no endangered species were observed at the project site during a pre-construction survey and monitoring of ground disturbance activities.

METHODS

Pre-Construction Survey

A pre-construction survey of the project site was performed on 8 October 2012. The project site and immediate surrounding area was traversed, following transects spaced approximately 25 feet apart. The entrances of all small mammal burrows were examined for focal species, sign of use and assessed for habitat suitability.

The project site consisted of a seasonal wetland within a cattle-grazed, annual grassland and oak savannah landscape. The ground was completely dry and cracked during the pre-construction survey, with no evidence of surface water in the recent past. The project site was generally lacking in small mammal burrows, except for a few, localized gopher burrows, while ground squirrel burrows were distributed beyond the margins of the project site. No CTS or CRF were observed at the burrow entrances and none of the ground squirrel burrows were suitable as

potential kit fox dens (e.g., all burrows were under 4 inches diameter at the entrance).

Workers Education

The worker's education training was presented to the work crew members of Gabilan Rock on 10 October 2012, prior to the start of grading activities. Handouts were provided to each worker (see Attachment), describing the identification, legal status and natural history of California tiger salamander, California red-legged frog and San Joaquin kit fox, as specified in the BO. The handouts also included the protection measures summarized from the BO that were relevant to the project. Following the presentation, each member signed the worker's education handouts and all copies were given to the superintendent to be kept on-site during the project.

Monitoring

Grading of the wetlands expansion area was started and completed on 10 October. During grading, recently graded areas and spoils were examined for wildlife. Photos were taken to document changes in site conditions. The spoils from the cut were to be placed in the wetlands fill area on 11 October. The fill area did not supports any small mammal burrows, thus additional monitoring was determined to be unnecessary.

Photo 1. View of the project site looking northward.

Photo 2. Grading of wetland expansion area 90% completed.

During the monitoring, no endangered species were observed at the project site, as expected, given the lack of suitable habitat. In fact, no vertebrates of any type were observed (e.g., lizards, snakes, rodents). The results of the monitoring strongly suggest that construction activities did not result in the take of endangered species.

If you have any questions or comments regarding this letter-report, please contact me anytime.

Sincerely,

Bryan Mori
Consulting Biologist

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
PAS 1921.4321.5739

August 11, 2006

Jane M. Hicks, Acting Chief
Regulatory Branch, San Francisco District
U.S. Army Corps of Engineers
333 Market Street
San Francisco, California 94105-2197

Subject: Biological Opinion for the San Juan Oaks Golf Club, San Benito County, California (1-8-06-F-32)

Dear Ms. Hicks:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of your proposed authorization, pursuant to section 404 of the Clean Water Act, of the San Juan Oaks Golf Club and Residential Development project, San Benito County, California, and its effects on the federally threatened California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana aurora draytonii*), the endangered San Joaquin kit fox (*Vulpes macrotis mutica*), and critical habitat for the California red-legged frog in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Your request for formal consultation, dated May 24, 2006, was received by our office on May 30, 2006.

This biological opinion is based on information which accompanied your request for consultation, including a biological assessment and mitigation plan (BioSystems Analysis, Inc. (BioSystems) 1994); a draft environmental impact report (Rincon Consultants, Inc. (Rincon) 2003a); a final environmental impact report (Rincon 2003b); and a pre-construction notification (Zander Associates (Zander) 2005). We also relied upon information in our files. A complete administrative record of this consultation is available at the Ventura Fish and Wildlife Office.

CONSULTATION HISTORY

The U.S. Army Corps of Engineers (Corps) confirmed, in a letter dated August 7, 2003, the extent of the Corp's jurisdiction at the proposed project area (Zander 2005). According to that

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determination, approximately 280 linear feet (0.05 acre) of jurisdictional waters and approximately 0.21 acre of wetland would be filled as a result of the proposed project. In a letter dated January 31, 2005, and received in our office on February 2, 2005, the Corps requested our concurrence that the proposed construction activities would not likely adversely affect the California red-legged frog or the California tiger salamander. The Corps also requested that we consider the January 31, 2005, letter a request for formal consultation, should we not concur with their determination of informal consultation. On May 9, 2006, we sent you a letter, which stated that we did not concur with your determination that the proposed project activities would not adversely affect the California red-legged frog and California tiger salamander. We requested additional information before we could proceed with a formal consultation on the proposed project, and we recommended you initiate formal consultation with us regarding the effects of the proposed action on the California tiger salamander, San Joaquin kit fox, and the California red-legged frog and its critical habitat.

BIOLOGICAL OPINION

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification of critical habitat" at 50 *Code of Federal Regulations* 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the analysis with respect to critical habitat that is contained in this biological opinion.

DESCRIPTION OF THE PROPOSED ACTION

Overview

The proposed project encompasses approximately 2,000 acres, and is located approximately 1.5 miles south of California Highway 156, southwest of Union Road, and north of San Juan Canyon Road. The Rancho San Justo Company (Applicant) proposes to construct a residential subdivision of 156 single-family houses, 30 affordable housing units, 2 ranch estates, an 18-hole private golf course, a 9-hole public golf course, a 200-room resort, and commercial-use buildings adjacent to the existing San Juan Oaks Golf Club, located approximately 3 miles southwest of the city of Hollister, San Benito County, California (Rincon 2003a). In addition, the Applicant proposes to create a 55-acre agricultural preserve, and a 1,163-acre wildlife habitat/open space preserve.

The proposed development and construction activities would occur in six phases, which are scheduled to be implemented over six consecutive years, from 2006 through 2012. The Applicant expects all activities in each phase of the project to require about one year to complete. Construction of the following elements is scheduled to commence accordingly: housing during all six phases; the private golf course not later than Phase 3; and the public golf course, commercial center, clubhouse, and first 100 rooms of the resort not later than Phase 5. An original proposal included the development of a 61-acre regional park on the eastern portion of the property. However, based upon discussions between the Applicant and the San Benito County Planning commission and Board of Supervisors, the regional park will likely be removed

from the proposal, and the land would revert to the adjacent parcel. The land would be used primarily for grazing, and future use (not associated with this proposed project) could include the construction of an amphitheater (Fuller 2006b, 2006c). As mitigation for the fill of jurisdictional waters of the United States, the Applicant has proposed to create approximately 0.52 acre of seasonal wetland adjacent to an existing wetland and along an existing drainage, and also enhance habitat along an existing drainage corridor (Zander 2005).

Development of Residential Subdivisions

The first phase of development (Phase 1) is proposed to begin in the summer of 2006. Phase 1 would include the development and construction of 57 lots and houses on approximately 14.11 acres of grassland (mostly) and ruderal habitat; an additional lot would be developed at later date (Figure 1). In the original design of Phase 1, 19 lots were arranged linearly along approximately 10.47 acres of the western edge of the existing golf course, and adjacent to Pond 4. This design was modified in 2006 to create 52 smaller lots in seven semi-circular clusters ("Phase 1 Pods") with grassland corridors (encompassing approximately 3.98 acres) in between the pods, primarily to facilitate overland movement of California tiger salamanders (Fuller 2006a).

The Phase 1 Pods, and the associated road, utilities, and landscaping would be constructed on approximately 7.71 acres (3.12 hectares) of non-native grasslands, and the road would occur approximately 50 feet from the edge of Pond 4 (BioSystems Analysis, Inc. (BioSystems) 1994; Rincon 2003a). Six of the pods would occur east of the road on approximately 6.49 acres of grassland adjacent to the existing golf course (Figure 1). The seventh pod would occur on the west side of the road on approximately 1.22 acres of grassland. Dirt fill would be added to the Phase 1 Pods such that they would be slightly elevated in relation to the adjacent grassland corridors. Also, during grading and construction, the pods would be contoured (slightly graded) with the grassland corridors to create a natural landscaped appearance. As a result, during grading and construction, grading and construction vehicles may drive along the edges of the areas proposed as grassland corridors. However, to the extent practicable, during grading and construction activities, construction-related vehicles would be kept out of the grassland corridors, and the current maintenance road (proposed San Juan Oaks Drive) would be used by vehicles to move equipment and materials between pods.

During Phase 1, six houses would also be built on approximately 5.0 acres of grassland and ruderal habitat along the southwestern edge of the existing golf course, at the site of a former ranch house; approximately 1,100 feet southeast of Pond 4, and 320 feet north of Pond 10. In 2006, trenching is expected to begin in June or July, followed by grading in July or August, and paving in August, continuing into the autumn months (Fuller 2006b). Housing construction would occur until approximately June or July of 2007.

During initial Phase 1 road grading, the Applicant would install salamander underpass culverts at various locations along San Juan Oaks Drive, to facilitate overland migration of California tiger salamanders between Parcel M, Pond 4, and Parcel K. The culverts would be designed to include openings in the top to minimize large temperature and moisture gradients at the culvert

entrances. The culverts would be placed adjacent to grassland corridors between the housing pods. Street lights along San Juan Oaks Drive would be installed as far from the grassland corridors and underpass culverts as is feasible, to facilitate use of the culverts by California tiger salamanders during migration events. Curbs or drift fences measuring at least 8 inches in height would be installed near culverts, to direct California tiger salamanders towards the culverts. Screens with a mesh size no greater than 1 inch would be installed and secured to the culvert entrances, to preclude entry by adult raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), spotted skunks (*Spilogale gracilis*), or domestic cats (*Felis domesticus*). The culverts would not be used to convey runoff, and approaches to the culverts would be designed with gentle slopes, to prevent the accumulation of water at the entrances or in the culverts. Wildlife crossing signage would be installed on both sides of San Juan Oaks Drive southeast of the southernmost housing pod.

The second phase of development (Phase 2) is proposed to begin in the summer of 2007, and would include the development and construction of 30 lots and houses on approximately 7.4 acres of non-native annual grassland. Twenty houses would be constructed on the northwestern portion of the property, approximately 1.0 mile northwest of Pond 4. Ten houses would be constructed on approximately 7.4 acres (3.0 hectares) of grassland along the northern edge of the existing golf course, approximately 1,300 feet southwest of Pond 6. In addition, 30 affordable housing units would be constructed on approximately 6.8 acres (2.8 hectares) of grassland north of the existing golf course, approximately 1,200 feet west of Pond 6. The affordable housing units were originally proposed to be constructed during Phase 1, but proposed construction of these units was rescheduled to occur during Phase 2 (Fuller 2006b). The timing (within year) of trenching, grading, and paving activities during Phase 2 would likely be similar to the proposed schedule of these activities during Phase 1. Housing construction would occur until approximately June or July of 2008.

The third through sixth phases of development (Phases 3, 4, 5, and 6) are proposed to begin in the summers of 2008, 2009, 2010, and 2011, respectively, and would include the development and construction of 68 lots and houses, on approximately 120 acres of land on the western portion of the property. The timing (within year) of trenching, grading, and paving activities during Phases 3-6 would likely be similar to the proposed schedule of these activities during Phase 1. Housing construction during each phase would continue until approximately June or July of the following year.

Development of Two Ranch Estates

The construction of two 5-acre ranch estates is proposed on the hillsides in the southern and eastern portions of the site (Rincon 2003a). Two alternative locations (Estates 1A and 1B) are proposed for one estate among oak woodlands in the southern hills. Estate 1A would be located approximately 1,600 feet northeast of the four seeps in the southwest corner of the property, and approximately 2,000 feet southwest of Pond 9. Estate 1B would be located in oak woodlands approximately 1,300 feet southwest of Pond 10. A 5-acre ranch estate (Estate 2) is proposed in the eastern hills bordering the existing golf course, and would be located approximately 200 feet

north of Pond 7, and approximately 400 feet southwest of Pond 3 (Figure 1). Each of the proposed estate lots would contain one single-family residential unit.
The access road to Estate 1A or 1B would be constructed from the proposed San Juan Oaks Drive and/or from the San Juan Canyon Road, located immediately south of the property. If constructed from San Juan Oaks Drive, the access road would measure approximately 1,600 feet in length, follow the course of an existing dirt/gravel road, would likely require grading, and may be paved. If constructed from San Juan Canyon Road, the access road would also follow the course of an existing dirt/gravel road, would measure approximately 3,200 feet in length to Estate 1A, and approximately 1 mile in length to Estate 1B.

The access road for Estate 2 would be constructed from San Juan Oaks Drive, measure approximately 4,000 feet in length, and wind through the grasslands east of Ponds 3 and 7. The road would occur within 80 feet of Pond 6, and remove approximately 1.1 acres of grassland. An exact timeframe for construction of the estates and access roads was not provided in (Rincon 2003a), but would likely occur by the summer of 2011 (Phase 6).

Storm Water Detention Basins

The Applicant proposes to convey drainage by either surface flow or closed conduit to detention basins and golf course water features (Rincon 2003a). The detention basins would filter the runoff by routing flows across grassy areas to remove silts and oils from paved surfaces. Detention basins are proposed to occur adjacent to Ponds 8 and 11. Storm water detention basins would be designed such that 1) each basin is sized to provide capacity for 100-year storm event; 2) each basin is free draining, without pumps; 3) maximum slopes are four horizontal to one vertical on interior slopes, and two horizontal to one vertical on exterior slopes; 4) an emergency overflow spillway is sized for the peak 100-year storm runoff, and the spillway is engineered and constructed of reinforced concrete; 5) a maintenance ramp accesses each basin; and 6) the County reviews and approves the basins for public safety and mosquito abatement. Based on visual inspection of figure 2-4 in Rincon (2003a) and comparison to known pond acreages, the detention basin adjacent to Pond 8 would be constructed on approximately 0.7 acre of grassland, and the detention basins adjacent to Pond 11 would be constructed on 1.5 acres of grassland.

Development of Golf Courses

Two golf courses are proposed to be constructed on approximately 210 acres (85.0 hectares) in the northwestern portion of the property and adjacent to the existing golf course. The private golf course would encompass approximately 170 acres, and its development would begin no later than Phase 3 (summer 2008). The public golf course would encompass approximately 40 acres, and its development would begin no later than Phase 5 (summer 2010). Thirteen permanent bodies of water would be constructed in association with the new golf courses. A clubhouse would be constructed no later than Phase 5 (summer 2010), and would be located on the private golf course located in the northwest portion of the property. The San Juan Oaks Golf Club would extend its current golf course maintenance program, which includes an integrated pest-management program, to the proposed golf courses. The pest-management program would

include the use of resistant varieties of plants and turf, turf and habitat manipulation, and use of pesticides and herbicides. The use of pesticides would be dependent upon a threshold of pests observed on site at particular locations, and not based solely on presence of pests. Pesticides and herbicides would not be applied within 15 feet of aquatic areas. Invasive weeds within aquatic areas would be removed by hand to the maximum extent practicable, and bio-stimulant materials would be used instead of herbicides in these areas. Organic fertilizers would be applied to turf landscape areas three times a year, and synthetic fertilizers would applied twice a year. All pesticides, herbicides, and fertilizers would be stored on-site in a chemical storage building at the proposed maintenance facility.

Development and Construction of Resort and Other Developments

The Applicant proposes to construct a 200-room resort on about 15 acres of a 27-acre parcel of non-native annual grassland, located approximately 1,100 feet west of Pond 4. Development and construction of the resort could begin as early as July 1, 2006 (during Phase 1), and must start, according to County permit conditions, by the start of development activities associated with the Applicant's 88th building permit (i.e., by July 1, 2008).

The Applicant proposes to build a village commercial center on approximately 6.7 acres of non-native grassland north of the existing golf course, and approximately 3,000 feet northwest of Pond 4. Construction of the commercial center would begin no later than Phase 5 (summer 2010). A 2.72-acre sewer treatment facility would be built either next to an existing maintenance building, or on parcel of land approximately 500 feet east of Pond 6 (Zander 2005).

Establishment of Permanent Wildlife Habitat Area

The Applicant also proposes to designate three parcels of land (named Parcels K, L, and M), encompassing approximately 1,160 acres, as a permanent wildlife habitat area. Portions of parcels K and L would be protected as mitigation for temporary and permanent impacts to habitat suitable for San Joaquin kit foxes (Rincon 2003a). With the exception of building lots 1A, 1B, and 2, and associated access roads, these parcels would be designated as non-buildable areas through deed restrictions or another similar method. A conservation easement would be placed on these parcels, and an endowment would be established by the Applicant, to fund management activities of the easement in perpetuity. Parcel K comprises approximately 153 acres of grassland, 6 acres of which would be developed as Estate 2; hence, approximately 147 acres of Parcel K would be set aside in a conservation easement. Parcel L comprises approximately 955 total acres, of which approximately 5 acres would be developed; hence, approximately 950 acres would be set aside in a conservation easement. Approximately 95 acres of grassland occurs in Parcel L. Parcel M comprises approximately 54 acres of grassland, of which approximately 1.2 acres would be developed as one of the Phase 1 Pods; hence, approximately 53 acres would be set aside in a conservation easement. In total, approximately 295 acres of grassland would be available for use by California ground squirrels (*Spermophilus beecheyi*), and by association, California tiger salamanders.

Managed grazing of cattle and horses, and horse riding and hiking on designated areas and trails would occur in the wildlife habitat areas. Establishing the permanent wildlife habitat would provide corridors through the property; prohibit the development of the area, including agricultural development (except for managed grazing); prohibit removal or alteration of native plants or animals; prohibit use of the area for agricultural staging activities or storage of any kind; allow for scientific investigation; allow for flood control and stream bank stabilization activities; and not allow for or imply public access. The Applicant would provide a management plan for the conservation lands and the sediment basins in the permanent wildlife habitat area. The plan would include, but not be limited to: managed grazing or mowing to maintain low grass height; fencing; and reduction of non-native species. In addition, the underpass culverts would be maintained regularly to prevent accumulation of debris, repair exclusionary screening, and control vegetation growth at culvert entrances.

Corps Jurisdictional Waters

The Corps verified the extent of its jurisdiction on the site on August 7, 2003 (Zander 2005). According to that determination, approximately 0.05 acre of jurisdictional waters and approximately 0.21 acre of wetlands would be filled as a result of the proposed project. As mitigation for the fill, the Applicant would create approximately 0.52 acre of seasonal wetland adjacent to an existing wetland in the northwest corner of the property. In addition, the Applicant would enhance the drainage corridor of Drainage G by planting appropriate riparian tree and shrub plantings, such as arroyo willow (*Salix lasiolepis*), California sycamore (*Platanus racemosa*), blue elderberry (*Sambucus mexicana*), and California rose (*Rosa californica*) (Zander 2005).

Protective Measures

The Corps and the Applicant, in coordination with the Service, have developed the following protective measures into the project description to reduce adverse effects to the California tiger salamander, California red-legged frog, San Joaquin kit fox, and critical habitat for the California red-legged frog:

1. Only Mr. Bryan Mori or another Service-approved biologist will participate in activities associated with the capture, handling, and monitoring of California tiger salamanders and California red-legged frogs.

2. If another biologist instead of Mr. Mori is selected by the Applicant, ground disturbance will not begin until written approval is received from the Service that the replacement biologist is qualified to conduct the work.

3. All exclusionary fences (and orange plastic construction fencing (see measure #8)) will be inspected regularly by the qualified biologist(s) to ensure that these devices are in place and functioning as intended. Any repair or maintenance to the fencing deemed

necessary by the biologist(s) will be completed immediately under the biologist's supervision.

4. A Service-approved biologist will survey the project site 48 hours before the onset of work activities. If any life stage of the California red-legged frog or California tiger salamander is found and these individuals are likely to be killed or injured by work activities, the approved biologist will be allowed sufficient time to move them from the site before work activities begin. The Service-approved biologist will relocate the California tiger salamanders and California red-legged frogs the shortest distance possible to a location that contains suitable habitat and will not be affected by activities associated with the proposed project. The Service-approved biologist will maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs [digital preferred]) to assist him or her in determining whether translocated animals are returning to the original point of capture.

5. Before any activities begin on a project, a Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the California tiger salamander, California red-legged frog, San Joaquin kit fox, and their habitats, the specific measures that are being implemented to conserve the California tiger salamander, California red-legged frog, and San Joaquin kit fox for the current project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

6. A Service-approved biologist will be present at the work site until any identified life stages of California tiger salamanders and California red-legged frogs have been removed (as described in measure 4 above), workers have been instructed, and disturbance of habitat has been completed. After this time, the local sponsoring agency will designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist will ensure that this monitor receives the training outlined in measure 4 and in the identification of California tiger salamanders and California red-legged frogs.

7. If the monitor or the Service-approved biologist recommends that work be stopped because California tiger salamanders, California red-legged frogs, San Joaquin kit foxes, or critical habitat of the California red-legged frog would be affected, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation by eliminating the effect immediately or require that all actions which are causing these effects be halted. If work is stopped, the Service will be notified as soon as is reasonably possible.

8. Temporary staging areas will be located within construction zones and the boundaries established by the exclusionary fences to prevent encroachment into additional habitats of

the California tiger salamander and California red-legged frog. Environmentally sensitive areas (e.g., Pond 4) will be identified by the qualified biologist and marked with orange plastic construction fencing or equivalent, which will be maintained until construction is complete.

9. The construction areas, staging areas, and the entire lengths of the exclusionary fencing will be surveyed if a substantial rain event occurs during construction to avoid affecting California tiger salamanders and California red-legged frogs that may have emerged from their burrows and moved into harm's way (i.e., under equipment or adjacent to fences).

10. During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

11. All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from riparian habitat or water bodies and not in a location from where a spill would drain directly toward aquatic habitat. The monitor will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the applicant will ensure that a plan is in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

12. If possible, all staging areas will be sited to avoid dense concentrations of burrows of ground squirrels and gophers.

13. Project sites will be revegetated with an assemblage of native riparian, wetland, and upland vegetation suitable for the area. Locally collected plant materials will be used to the extent practicable. Invasive, exotic plants will be controlled to the maximum extent practicable. This measure will be implemented in all areas disturbed by activities associated with the project, unless the Service and Corps determine that it is not feasible or practical. (For example, an area disturbed by construction that would be used for future activities need not be revegetated.)

14. Habitat contours in riparian zones will be returned to their original configuration at the end of project activities. This measure will be implemented in all areas disturbed by activities associated with the project, unless the Service and Corps determine that it is not feasible or modification of original contours would benefit the California tiger salamander and California red-legged frog.

15. The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Environmentally sensitive areas will be established to confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to California

red-legged frog habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.

16. The Applicant will attempt to schedule work activities for times of the year when impacts to the California tiger salamander and California red-legged frog would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain California red-legged frogs through the driest portions of the year would be avoided, to the maximum degree practicable, during the late summer and early fall. The Applicant will seek assistance from the Service regarding the need for habitat assessments, surveys, and other activities during project planning that will assist in scheduling work activities to avoid sensitive habitats during key times of the year.

17. To control sedimentation during and after project implementation, the Applicant will implement best management practices outlined in any authorizations or permits, issued under the authorities of the Clean Water Act that it receives for the specific project. If best management practices are ineffective, the applicant will attempt to remedy the situation immediately, in coordination with the Service and other agencies, as appropriate.

18. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent California red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. The methods and materials used in any dewatering will be determined in coordination with the Service on a site-specific basis. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the stream bed will be minimized to the maximum extend possible; any imported material will be removed from the stream bed upon completion of the project.

19. All reasonable measures will be implemented to minimize the attractiveness of construction-related impoundments to California red-legged frogs. Permanent water features will be managed in concert with an overall management program for the project developed in consultation with the Service.

20. A Service-approved biologist will implement an exotic species removal program as part of the overall management program for the project. Individuals of exotic species, such as bullfrogs (*Rana catesbeiana*), crayfish, and centrarchid fishes will be removed from the project area and populations of these species controlled, to the maximum extent possible. The management program will be developed in coordination with the Service and the Service-approved biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.

21. To ensure that diseases are not conveyed between work sites by the Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.

22. All project-related vehicles will be restricted to established roads, construction areas, and other designated areas to the maximum extent feasible during construction. Project-related vehicles will observe a speed limit of 20 miles per hour in all project areas, except on county roads and state and federal highways. Off-road traffic outside of designated project areas will be prohibited.

23. To prevent inadvertent entrapment of San Joaquin kit foxes, California red-legged frogs, or California tiger salamanders during the proposed project, all excavated, steep-walled holes or trenches more than 2 feet deep will be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps (for kit foxes) constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.

24. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for San Joaquin kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, this section of pipe will not be moved until the Service has been consulted. If necessary, and under the direct supervision of the Service-approved biologist, the pipe may be moved once to allow the fox to escape into an area free of construction activity.

25. No construction personnel will be allowed to have firearms on the project site.

26. No construction personnel will be allowed to have pets on project sites.

STATUS OF THE SPECIES/CRITICAL HABITAT

California Tiger Salamander

Regulatory Status

The Service recognizes three distinct populations of the California tiger salamander; in Sonoma County (68 Federal Register (FR) 13498), in Central California (69 FR 47212), and in northern Santa Barbara County (65 FR 57242). On September 21, 2000, we listed the Santa Barbara County distinct population of the California tiger salamander as endangered (65 FR 57242). On March 19, 2003, we listed the Sonoma County distinct population segment of the California tiger salamander as endangered (68 FR 13498). On August 3, 2004, we published a final rule listing the California tiger salamander as threatened range wide, including the previously identified Sonoma and Santa Barbara distinct population segments (69 FR 47212). On August 19, 2005, U.S. District Judge William Alsup vacated the Service's downlisting of the Sonoma and Santa

Barbara populations from endangered to threatened. Thus, the Sonoma and Santa Barbara populations are once again listed as endangered, and the Central California populations are listed as threatened. On November 24, 2004, we designated critical habitat for the Santa Barbara County population of California tiger salamander (69 FR 68568). On August 23, 2005, we designated critical habitat for the California tiger salamander, Central population, in four regions: Central Valley, Southern San Joaquin Valley, East Bay, and Central Coast (70 FR 49380). On December 14, 2005, we designated critical habitat for the Sonoma County distinct population segment of the California tiger salamander (70 FR 74138).

Distribution

The California tiger salamander is endemic to the grassland community found in California's Central Valley, the surrounding foothills, and coastal valleys (Fisher and Shaffer 1996). Three distinct populations are recognized by the Service: in the coastal ranges of Sonoma County; in Central California including the San Francisco Bay area, the Central Valley, southern San Joaquin Valley, and the Central Coast Ranges; and in northern Santa Barbara County. The distribution of breeding locations of this amphibian does not naturally overlap with that of any other species of tiger salamander (Loredo et al. 1996, Petranka 1998, Stebbins 2003).

Species Description

The California tiger salamander was first described as *Ambystoma californiense* by Gray in 1853, based on specimens that had been collected in Monterey, California (Grinnell and Camp 1917). Storer (1925) and Bishop (1943) also considered the California tiger salamander to be a distinct species. Dunn (1940), Gehlbach (1967), and Frost (1985) believed the California tiger salamander was a subspecies of the more widespread tiger salamander (*A. tigrinum*). However, based on recent studies of the genetics, geographic distribution, and ecological differences among the members of the *A. tigrinum* complex, the California tiger salamander has been determined to represent a distinct species (Shaffer and Stanley 1991, Jones 1993, Shaffer et al. 1993, Shaffer and McKnight 1996, Irschick and Shaffer 1997).

The California tiger salamander is a large and stocky terrestrial salamander with small eyes and a broad, rounded snout. Adults may reach a total length of 208 millimeters (mm) (8.2 inches (in)), with males generally averaging about 203 mm (8 in) in total length, and females averaging about 173 mm (6.8 in) in total length. For both sexes, the average snout-to-vent length is approximately 91 mm (3.6 in) (65 FR 57242).. The small eyes have black irises and protrude from the head. Coloration consists of white or pale yellow spots or bars on a black background on the back and sides. The belly varies from almost uniform white or pale yellow to a variegated pattern of white or pale yellow and black. Males can be distinguished from females, especially during the breeding season, by their swollen cloacae (a common chamber into which the intestinal, urinary, and reproductive canals discharge), larger tails, and larger overall size (need another citation, Loredo and Van Vuren 1996).

Habitat

Historically, natural ephemeral vernal pools were the primary breeding habitats for California tiger salamanders (Twitty 1941, Fisher and Shaffer 1996, Petranka 1998). However, with the conversion and loss of many vernal pools through farmland conversion, and urban and suburban development, ephemeral and permanent ponds that have been created for livestock watering are now frequently used by the species (Fisher and Shaffer 1996, Robins and Vollmar 2002).

California tiger salamanders spend the majority of their lives in upland habitats and cannot persist without them (Trenham and Shaffer 2005). The upland component of California tiger salamander habitat typically consists of grassland savannah, but includes grasslands with scattered oak trees, and scrub or chaparral habitats (Shaffer et al. 1993, 65 FR 57242). Juvenile and adult California tiger salamanders spend the dry summer and fall months of the year in the burrows of small mammals, such as California ground squirrels and Botta's pocket gopher (*Thomomys bottae*) (Storer 1925, Loredo and Van Vuren 1996, Trenham 1998, Pittman 2005). The creation of burrow habitat by ground squirrels and utilized by California tiger salamanders suggests a commensal relationship between the two species (Loredo et al. 1996).

Movement of California tiger salamanders within and among burrow systems continues for at least several months after juveniles and adults leave the ponds (Trenham 2001). California tiger salamanders cannot dig their own burrows, and as a result their presence is associated with burrowing mammals (Seymour and Westphal 1994). Active ground-burrowing rodent populations likely are required to sustain California tiger salamanders because inactive burrow systems become progressively unsuitable over time (69 FR 47212). Loredo et al. (1996) found that California ground squirrel burrow systems collapsed within 18 months following abandonment by, or loss of, the mammals.

California tiger salamanders have been found in upland habitats various distances from aquatic breeding habitats. In a trapping study in Contra Costa County, California tiger salamanders were trapped approximately 2,625 feet (800 m) to 3,940 feet (1,200 m) away from potential breeding habitat (69 FR 47212). During a mark and recapture study in the Upper Carmel River Valley, Monterey County, Trenham et al. (2001) observed California tiger salamanders dispersing up to 2,200 ft (670 m) between breeding ponds between years. In research at Olcott Lake, Solano County, Trenham and Shaffer (2005) captured California tiger salamanders in traps installed 1,312 feet (400 m) from the breeding pond.

Trenham and Shaffer (2005) derived models that would reflect the distribution of California tiger salamanders and simulate the population-level effects of upland habitat loss/conversion around an isolated breeding pond. They found that adult dispersion from aquatic habitat appeared to be greater than what was indicated by earlier projections based upon direct observations and radio-tracking. Second, the spatial distribution of sub-adults in upland habitats appeared to be different than that of adults. Results from their models suggested that that 50 percent, 90 percent, and 95 percent of adults were within 492 feet (150 m), 1,608 feet (490 m), and 2,034 feet (620 m) of the pond, respectively. Their data also suggested that 95 percent of subadults were within 2,067 feet

(630 m) of the pond, but that 85 percent of this life stage was concentrated between 656 feet (200 m) and 1,968 feet (600 m) from the pond.

Pittman (2005) attempted to characterize and quantify subterranean habitat use by California tiger salamanders, through hand excavation of burrows, during a California Department of natural Resources project in Alameda County, California, during 2001-02. He reported fewer California tiger salamanders in study plots containing refugia (rodent burrows) densities < 14 refugia/0.25 acre (14 refugia/0.1 hectare). Furthermore, adult California tiger salamanders were 4 times more abundant within high-density sites, identified as areas > 23 refugia/0.25 acre (23 refugia/0.1 hectare), than within low-density sites. Pittman (2005) concluded that the density and availability of upland refugia sites directly affected local densities of California tiger salamanders, and presumably, population carrying capacity. He surmised that areas with the highest refugia densities may possess considerably greater conservation value for California tiger salamanders than previously recognized. Pittman (2005) found California tiger salamanders in plots with average slopes <5°, while slopes in plots without salamanders were >14°. He also observed California tiger salamanders in upland refugia occurring on level ridgetop plots located within 1,640 feet (500 meters) of breeding ponds, and surrounded by steep terrain. Based on his burrow excavations, Pittman (2005) estimated an overall density of 0.9 adult California tiger salamanders/acre (2.2 adult California tiger salamanders/ha), and surmised that this was most likely characteristic of uplands within 328-1,640 feet (100-500 meters) of breeding ponds in his study area. Because of the difficulty in finding California tiger salamander using the technique of burrow excavation, he considered these estimates lower bound densities that should be expected to fluctuate seasonally and annually from changes in pond productivity, rainfall cycles, animal movement patterns, or other factors.

Reproduction and Development

Adults enter breeding ponds during fall and winter rains, typically from October through February (Storer 1925, Loredo and Van Vuren 1996, Trenham et al. 2000). Males migrate to the breeding ponds before females (Twitty 1941 Shaffer et al. 1993, Loredo and Van Vuren 1996, Trenham 1998). Males usually remain in the ponds for an average of about six to eight weeks, while females stay for approximately one to two weeks. In dry years, both sexes may stay for shorter periods (Loredo and Van Vuren 1996, Trenham 1998).

Females attach their eggs singly or, in rare circumstances, in groups of two to four, to twigs, grass stems, vegetation, or debris in the water (Storer 1925, Twitty 1941). In ponds with little or no vegetation, females may attach eggs to objects, such as rocks and boards on the bottom (Jennings and Hayes 1994). In drought years, the seasonal pools may not form and the adults may not breed (Barry and Shaffer 1994). The eggs hatch in 10 to 14 days with newly hatched salamanders (larvae) ranging in size from 11.5 to 14.2 mm (0.5 to 0.6 in) in total length (Petranka 1998). The larvae are aquatic. Each is yellowish gray in color and has a broad fat head, large, feathery external gills, and broad dorsal fins that extend well onto its back. The larvae feed on zooplankton, small crustaceans, and aquatic insects for about six weeks after hatching, after which they switch to larger prey (J. Anderson 1968). Larger larvae have been

known to consume smaller tadpoles of Pacific treefrogs (*Hyla regilla*) and California red-legged frogs (J. Anderson 1968). The larvae are among the top aquatic predators in the seasonal pool ecosystems.

The larval stage of the California tiger salamander usually lasts 3 to 6 months, because most seasonal ponds and pools dry up during the summer (Petranka 1998). Amphibian larvae must grow to a critical minimum body size before they can metamorphose (change into a different physical form) to the terrestrial stage (Wilbur and Collins 1973). Larvae collected near Stockton in the Central Valley during April varied from 47 to 58 mm (1.9 to 2.3 in) in length (Storer 1925). Feaver (1971) found that larvae metamorphosed and left the breeding pools 60 to 94 days after the eggs had been laid, with larvae developing faster in smaller, more rapidly drying pools. The longer the inundation period, the larger the larvae and metamorphosed juveniles are able to grow, and the more likely they are to survive and reproduce (Semlitsch et al. 1988, Pechmann et al. 1989, Morey 1998). The larvae perish if a site dries before they complete metamorphosis (P. Anderson 1968, Feaver 1971). Pechmann et al. (1989) found a strong positive correlation between inundation period and total number of metamorphosing juvenile amphibians, including tiger salamanders.

Metamorphosed juveniles leave the breeding sites in the late spring or early summer. Like the adults, juveniles may emerge from these retreats to feed during nights of high relative humidity (Storer 1925, Shaffer et al. 1993) before settling in their selected upland sites for the dry, hot summer months. While most California tiger salamanders rely on rodent burrows for shelter, some individuals may utilize soil crevices as temporary shelter during upland migrations (Loredo et al. 1996). Mortality of juveniles during their first summer exceeds 50 percent (Trenham 1998). Emergence from upland habitat in hot, dry weather occasionally results in mass mortality of juveniles (Holland et al. 1990).

Lifetime reproductive success for California and other tiger salamanders is low. Trenham et al. (2000) found the average female bred 1.4 times over a lifetime, and produced 8.5 young that survived to metamorphosis, per reproductive effort. This resulted in approximately 12 metamorphic offspring over the lifetime of a female. Trenham et al. (2000) also reported that most California tiger salamanders in their study did not reach sexual maturity until four or five years old, and that less than 5% of juveniles survived to reach sexual maturity.

Population Estimates

The total number of individual California tiger salamanders rangewide is not known, and estimating the total number of California tiger salamanders is difficult due to limited data and understanding concerning the life history of the species (69 FR 47212). Estimates of population numbers of California tiger salamanders are lacking because the species is difficult to detect, the animals spend much of their lives underground, and only a portion of the total number of California tiger salamanders migrate to pools to breed each year (Storer 1925, Feaver 1971, Shaffer et al. 1993, Trenham et al. 2000). In the absence of estimates of the total number of California tiger salamanders, the Service primarily relies upon measures of habitat availability as

well as current and future habitat status as an indication of the status of the species (69 FR 47212).

Threats

The California tiger salamander is threatened primarily by the destruction, degradation, and fragmentation of upland and aquatic habitats, primarily resulting from the conversion of these habitats by urban, commercial, and intensive agricultural activities (65 FR 57242, 68 FR 13498, 69 FR 47212). Additional threats to the species include hybridization with introduced non-native barred tiger salamanders (*A. tigrinum mavortium*) (65 FR 57242, 69 FR 47212), destructive rodent-control techniques (e.g., deep-ripping of burrow areas, use of fumigants) (68 FR 13498), reduced survival due to the presence of mosquitofish (Leyse and Lawlor 2000), and mortality on roads due to vehicles (65 FR 57242).

Management of Stock Ponds

The following description of stock pond management is an excerpt from the final rule designating the California tiger salamander as threatened (69 FR 47212). Management of stock ponds determines their suitability as breeding habitat for California tiger salamanders. As is true of natural vernal pools, the inundation period of stock ponds can be so short that larvae cannot metamorphose (e.g., when early drawdown of irrigation ponds occurs). However, in contrast to natural vernal pools, stock ponds may contain water throughout the year, or for sufficiently long periods, that predatory fish and bullfrogs can colonize the pond and establish self-sustaining breeding populations. The presence of bull frogs and fish are negatively correlated with salamander populations and so it is possible that extirpation of a salamander population is likely if fish and other predators are introduced.

Inappropriate management of ponds can threaten California tiger salamander habitat. Natural soil erosion, sometimes increased by pond breaching, berm failure, stock animal impacts, and inadequate management practices can result in increased sedimentation of the pond, thereby reducing their quality as salamander habitat. Alternatively, ponds with insufficient turbidity provide inadequate cover for larvae. Stock ponds may be geographically isolated from other seasonal wetlands occupied by California tiger salamanders, and newly created ponds may be located beyond the maximum dispersal distances of juvenile or adult salamanders. However, because the species can live for more than a decade (Trenham et al. 2000), and individuals migrate between aquatic and upland habitats, colonization of newly-created and geographically isolated ponds may be possible, provided the intervening habitat can be successfully traversed by dispersing salamanders.

Metapopulation Theory

The following discussion of metapopulation theory is an excerpt from the final rule designating the California tiger salamander as threatened (69 FR 47212). Metapopulation biology may help us predict the effects of future habitat loss and fragmentation for taxa that have a metapopulation

structure (Marsh and Trenham 2001 and references cited therein). A metapopulation is a set of local subpopulations within an area, where subpopulations become extinct and are recolonized in the future by migrants from other subpopulations (Hanski and Gilpin 1991, Hanski 1994, McCullough 1996). Regional persistence in such systems depends on the migration of individuals between habitat patches (Trenham 1998). California tiger salamanders appear to conform to a broadly defined metapopulation structure. In the California tiger salamander system, the spatial arrangement of ponds and the migratory behavior of the animals probably have a substantial influence on pond occupancy and local population persistence (Trenham 1998). If metapopulation theory is predictive of California tiger salamander behavior, then the direct loss of breeding sites with high production of California tiger salamanders or their isolation from other sites due to habitat fragmentation could result in the loss of other breeding sites that rely on inter-pond dispersal or the metapopulation structure (Trenham 1998, Marsh and Trenham 2001).

California Red-legged Frog

The California red-legged frog was federally listed as threatened on May 23, 1996 (61 FR 25813). The Service has published a final recovery plan (Service 2002). The California red-legged frog is the largest native frog in the western United States ranging from 1.75 to 5.25 inches from the tip of the snout to the vent (Stebbins 2003). From above, the frog can appear brown, gray, olive, red, or orange, often with a pattern of dark flecks or spots. The back of the frog is bordered on either side by an often prominent ridge (dorsolateral fold) running from the eye to the hip. The hind legs are well-developed with large, webbed feet. A cream, white, or orange stripe usually extends along the upper lip from beneath the eye to the rear of the jaw. The undersides of adult frogs are white, usually with patches of bright red or orange on the abdomen and hind legs. The groin area sometimes exhibits bold black mottling with a white or yellow background.

The historical range of the California red-legged frog extended coastally from southern Mendocino County and inland from the vicinity of Redding, California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985, Schafer et al. 2004, Storer 1925). The California red-legged frog has sustained a 70 percent reduction in its geographic range as a result of several factors acting singly or in combination (Jennings et al. 1992). Only a few drainages are currently known to support California red-legged frogs in the Sierra Nevada foothills, compared to more than 60 historical records. In southern California, the California red-legged frog has essentially disappeared from the Los Angeles area south to the Mexican border; the only known, viable population in Los Angeles County is in San Francisquito Canyon on the Angeles National Forest.

Habitat loss and alteration, over-exploitation (i.e., pet trade and for food), and introduction of exotic predators were significant factors in the species' decline in the early- to mid-1900s. Reservoir construction, expansion of introduced predators, grazing and prolonged drought fragmented and eliminated many of the Sierra Nevada foothill populations. Several researchers in central California have noted the decline and eventual disappearance of California red-legged

frog once bullfrogs become established at the same site (L. Hunt, in litt., 1993). Bullfrogs prey on California red-legged frogs (Twedt 1993) and interfere with their reproduction (Jennings and Hayes 1990, Twedt 1993).

California red-legged frogs have been found at elevations that range from sea level to about 5,000 feet. The frog uses a variety of habitat types, which include various aquatic systems, riparian, and upland habitats. There is much variation in how California red-legged frogs use the environment and in many cases they may complete their entire life cycle in a particular area without using other components (i.e., a pond is suitable for each life stage and use of upland habitat or a riparian corridor is not necessary). Populations appear to persist where a mosaic of habitat elements exists, embedded within a matrix of dispersal habitat. Here, local extinctions may be counterbalanced by recolonizations of new or unoccupied areas of suitable habitat. Adults are often associated with dense, shrubby riparian or emergent vegetation and areas with deep (> 28 inches) still or slow-moving water; the largest summer densities of California red-legged frogs are associated with deep-water pools with dense stands of overhanging willows (*Salix* spp.) and an intermixed fringe of cattails (*Typha latifolia*) (Jennings 1988). California red-legged frogs spend considerable time resting and feeding within dense riparian vegetation; it is believed the moisture and camouflage provided by the riparian plant community provide good foraging habitat and riparian vegetation provides cover during dispersal (Rathbun et al. 1993).

Breeding sites of the California red-legged frog are in aquatic habitats; larvae, juveniles and adult frogs have been collected from streams, creeks, ponds, marshes, deep pools and backwaters within streams and creeks, dune ponds, lagoons, and estuaries. California red-legged frogs frequently breed in artificial impoundments, such as stock ponds, given the proper management of hydro-period, pond structure, vegetative cover, and control of exotic predators. While frogs successfully breed in streams and riparian systems, high spring flows and cold temperatures in streams often make these sites risky egg and tadpole environments. California red-legged frogs also successfully breed in artificial ponds with little or no emergent vegetation and have been observed in stream reaches that are not cloaked in riparian vegetation. In a coastal marsh in San Mateo County, Reis (1999) found California red-legged frog egg masses that successfully produced tadpoles in water as shallow as 4 inches; adult frogs selected shallow and warm water locations over either cold or deep-water locations for laying eggs. An important factor influencing the suitability of aquatic breeding sites is the general lack of introduced aquatic predators.

California red-legged frogs are sensitive to high salinity. When eggs are exposed to salinity levels greater than 4.5 parts per thousand, 100 percent mortality occurs, and larvae die when exposed to salinities greater than 7.0 parts per thousand (Jennings and Hayes 1990). Nussbaum et al. (1983) stated that early Northern red-legged frog (*R. a. aurora*) embryos were tolerant of temperatures between 48 and 70 degrees Fahrenheit; both the lower and upper lethal temperatures are the most extreme known for any North American ranid frog. Data specific to the California red-legged frog are not available.

During periods of wet weather, starting with the first rains of fall, some individuals may make long-distance overland excursions through upland habitats to reach breeding sites. In Santa Cruz County, Bulger et al. (2003) found marked California red-legged frogs moving up to 1.7 miles through upland habitats, via point to point, straight-line migrations without apparent regard to topography, rather than following riparian corridors. Most of these overland movements occurred at night and took up to two months. Similarly, in San Luis Obispo County, Rathbun and Schneider (2001) documented the movement of a male California red-legged frog between two ponds that were 1.78 miles apart; this was accomplished in less than 32 days. However, most California red-legged frogs in the Bulger et al. (2003) study were non-migrating frogs and always remained within 426 feet of their aquatic site of residence (half of the frogs always stayed within 82 feet of water). Rathbun et al. (1993) radio tracked several frogs near the coast in San Luis Obispo County at various times between July and January; these frogs also stayed rather close to water and never strayed more than 85 feet into upland vegetation. Nine California red-legged frogs radio-tracked from January to June, 2001, in East Las Virgenes Creek in Ventura County remained relatively sedentary as well; the longest within-channel movement was 280 feet and the furthest movement away from the stream was 30 feet (Scott 2002).

After breeding, California red-legged frogs often disperse from their breeding habitat to forage and seek suitable dry-season habitat. Cover within dry-season aquatic habitat could include boulders; downed trees; logs; agricultural features, such as drains, watering troughs, spring boxes, abandoned sheds, or hay-ricks; and industrial debris. California red-legged frogs use small mammal burrows and moist leaf litter (Jennings and Hayes 1994, Rathbun et al. 1993); incised stream channels with portions narrower and deeper than 18 inches may also provide habitat (61 FR 25813). This type of dispersal and habitat use, however, is not observed in all California red-legged frogs and is most likely dependent on the year to year variations in climate and habitat suitability and varying requisites per life stage. For the California red-legged frog, this habitat is potentially all aquatic and riparian areas within the range of the species and includes any landscape features that provide cover and moisture (61 FR 25813).

California red-legged frogs breed from November through March; earlier breeding has been recorded in southern localities (Storer 1925). Males appear at breeding sites from two to four weeks before females (Storer 1925). They typically call in small, mobile groups of three to seven individuals to attract females (Jennings and Hayes 1985). Female California red-legged frogs deposit egg masses on emergent vegetation so that the masses float on the surface of the water (Hayes and Miyamoto 1984). Egg masses contain about 2,000 to 5,000 moderate-size (0.08 to 0.11 inch in diameter), dark reddish brown eggs (Storer 1925, Jennings and Hayes 1985). Eggs hatch in 6 to 14 days (Storer 1925). Larvae undergo metamorphosis 2.5 to 7 months after hatching (Storer 1925, Jennings and Hayes 1990, Service 2002). Egg predation is infrequent; most mortality probably occurs during the tadpole stage (Licht 1974), although eggs are susceptible to being washed away during high stream flows. Schmieder and Nauman (1994) reported that the California red-legged frog eggs had a defense against predation which was possibly related to the nature of the egg mass jelly. Schmieder and Nauman (1994) also reported that California red-legged frog larvae were highly vulnerable to fish predation; larvae appeared to be most vulnerable to fish predation immediately after hatching, when the non-feeding larvae

were relatively immobile. Sexual maturity can be attained at two years of age by males and three years of age by females (Jennings and Hayes 1985); adults may live 8 to 10 years (Jennings *et al.* 1992), although the average life span is considered to be much lower.

The diet of California red-legged frogs is highly variable. Tadpoles probably eat algae (Jennings et al. 1992). Hayes and Tennant (1985) found invertebrates to be the most common food item for adults. Vertebrates such as Pacific treefrogs and California mice (*Peromyscus californicus*), represented over half of the prey mass eaten by larger frogs (Hayes and Tennant 1985). Feeding activity probably occurs along the shoreline and on the surface of the water. Hayes and Tennant (1985) found juvenile frogs to be active diurnally and nocturnally, whereas adult frogs were largely nocturnal.

San Joaquin Kit Fox

The San Joaquin kit fox was federally listed as endangered on March 11, 1967 (32 FR 4001) and state listed as threatened on June 27, 1971. Information in the following species account was obtained primarily from the recovery plan for upland species of the San Joaquin Valley (Service 1998), Morrell (1972), and Egoscue (1956).

The San Joaquin kit fox is the smallest canid in North America with a length of approximately 30 inches including the tail. It is a nocturnal animal but can be active during daylight hours in late spring and early summer. The diet of San Joaquin kit foxes varies geographically, seasonally, and annually based on variation in abundance of potential prey. They feed primarily on kangaroo rats, ground squirrels, mice, and rabbits. San Joaquin kit foxes will also eat insects, birds, and vegetation.

San Joaquin kit foxes use dens for temperature regulation, shelter from adverse environmental conditions, reproduction, and escape from predators. They may change dens four or five times during summer months and change natal dens one or two times per month. During September and October, adults begin to prepare natal and pupping dens, usually selecting sites with multiple openings. Mating takes place between late December and March. Litters of two to six pups are usually born between February and late March. Pups emerge from dens at slightly more than 1 month old and begin to disperse about 4 to 5 months later. Most juveniles disperse in their first year; however, some juveniles delay dispersal until their second year, and some may not disperse and eventually inherit their natal home ranges (B. Cypher, research ecologist, Endangered Species Recovery Program, Fresno, California, in litt., October 1, 2002). Reproductive success of kit foxes is correlated with prey abundance. Success decreases when the density of prey species drops because of drought, too much rainfall, or other circumstances. Home ranges of approximately 1 to 12 square miles have been reported.

The San Joaquin kit fox historically was distributed within an 8,700-square mile range in central California from the vicinity of Tracy in the upper San Joaquin Valley south to the general vicinity of Bakersfield. The southern range of the San Joaquin kit fox includes the San Joaquin Valley and neighboring valleys, such as the Ciervo-Panoche area in eastern San Benito County

and the Carrizo Plain National Monument (Carrizo Plain) in San Luis Obispo County. San Joaquin kit foxes also occur in interior coastal ranges and watersheds from Monterey and San Benito Counties to Ventura County. Throughout their range, San Joaquin kit foxes are currently limited to remaining grassland, saltbush, open woodland, alkali sink valley floor habitats, and other similar habitats located along bordering foothills and adjacent valleys and plains. The largest extant populations of San Joaquin kit foxes are in the Elk Hills and the Buena Vista Naval Petroleum Reserve in Kern County and in the Carrizo Plain. In the southern San Joaquin Valley, San Joaquin kit foxes also make extensive use of habitat fragments within the city of Bakersfield (Frost 2005).

Intensive agriculture, urbanization, and other land-modifying actions have eliminated extensive portions of habitat and are the most significant causes of this species' endangerment. Such habitat losses contribute to San Joaquin kit fox decline through displacement, direct and indirect mortalities, barriers to movement, and reduction of prey populations. The coyote (*Canis latrans*) and the introduced red fox (*Vulpes vulpes*) compete for food resources with the smaller San Joaquin kit fox and are known to prey upon San Joaquin kit foxes as well. Predation, competition, poisoning, illegal shooting and trapping, prey reduction from rodent control programs, and vehicle strikes contribute substantially to the decline of this species.

A primary recovery strategy in the recovery plan is to establish a viable complex of San Joaquin kit fox populations (a viable metapopulation) on private and public lands throughout its geographic range. The recovery plan recommends protecting the Carrizo Plain, western Kern County, and the Ciervo-Panoche Natural Area as core populations while reducing their isolation by managing populations and movement corridors on connecting private and public lands through conservation agreements. Maintaining natural connections between populations reduces the harmful effects of habitat loss and fragmentation. Movements of San Joaquin kit foxes have been documented between the Salinas-Pajaro region and the Carrizo Plain (R. Stafford, associate wildlife biologist, CDFG, pers. comm. 2000). It is likely that movements of San Joaquin kit foxes in and out of the Ciervo-Panoche area also occur, but studies to track such movements have not been completed. However, data collected over 30 years from 1970 to the present on the population trend of San Joaquin kit foxes in the Panoche area show long-term stability for this population (G. Gerstenberg, unit biologist, CDFG, September 30, 2002). Short-term fluctuations have occurred during this period, most notably during the high rainfall period in the 1990s when numbers of San Joaquin kit foxes increased markedly.

Critical Habitat for the California Red-legged Frog

Critical habitat for the California red-legged frog was designated April 13, 2006 (71 FR 19244). In total, approximately 450,288 acres occur within the boundaries of the critical habitat designation. The critical habitat is located in Alameda, Butte, Contra Costa, El Dorado, Kern, Los Angeles, Marin, Merced, Monterey, Napa, Nevada, San Benito, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano, Ventura and Yuba counties, California. In addition, the Service finalized a special rule associated with final listing of the California red-

legged frog as threatened for existing routine ranching activities pursuant to section 4(d) of the Act (71 FR 19244).

For critical habitat of the California red-legged frog, we identified the following features essential to the conservation of the species (primary constituent elements): aquatic breeding habitat, non-breeding aquatic habitat, upland habitat, and dispersal habitat. Aquatic breeding habitat consists of freshwater bodies natural and manmade (e.g., stock) ponds, backwaters within streams and creeks, and is essential for providing space, food, and cover necessary to sustain all life stages of California red-legged frogs. The aquatic non-breeding habitat is essential for providing the space, food, and cover necessary to sustain California red-legged frogs. Non-breeding aquatic habitat consists of those aquatic elements identified above, and also includes, but is not limited to, other wetland habitats such as intermittent creeks, seeps, and springs. Upland habitat was defined as occurring within 200 ft (60 m) of the edge of the riparian vegetation or dripline surrounding aquatic and riparian habitat, and comprised various vegetational series such as grasslands, woodlands, and/or wetland/riparian plant species that provides the frog shelter, forage, and predator avoidance. Upland habitat can include structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), as well as small mammal burrows and moist leaf litter. Dispersal habitat was defined as accessible upland or riparian habitat within designated units and between occupied locations within 0.7 mi (1.2 km) of each other that allows for movement between such sites.

The Service designated critical habitat for the California red-legged frog on 14,285 ac (5,781 ha)) of land in northwestern San Benito County in the foothills of the Gabilan Range (71 FR 19244). This critical habitat unit is named "SNB-1, Hollister Hills" (SNB-1), and represents approximately 3.2 percent (in area) of the total critical habitat designated throughout the range of the species. This critical habitat unit is described in greater detail in the Environmental Baseline section of this document.

ENVIRONMENTAL BASELINE

Action Area

Service regulations define the action area as "all areas affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). Therefore, the action area for this consultation includes approximately 2,000 acres of land within the property boundaries of the San Juan Oaks Golf Club, including the areas proposed for construction activities, golf course development, and land managed as wildlife habitat. Specifically, the action area includes approximately 937 acres of grasslands, 665 acres of oak woodlands, 260 acres of ruderal/disturbed habitat, 63 acres of mixed riparian forest, 30.7 acres of agricultural lands, 7.02 acres of seasonal ponds, 1.43 acres of ephemeral drainages, 1.39 acres of seasonal isolated wetlands, and 0.14 acre of seeps.
Listed species are known to occupy or could occupy the action area in the following ways. The action area includes at least 1.97 acres and 1.14 acres of aquatic breeding habitat for California tiger salamanders and California red-legged frogs, respectively. The action area includes

approximately 400 acres of grasslands suitable as upland habitat for the California tiger salamander, approximately 960 acres potential suitable upland habitat for the California red-legged frog, and approximately 1,600 acres of oak woodland and grassland habitats suitable for dispersal or denning by San Joaquin kit foxes.

Status of Listed Species in the Action Area

Three listed species are known to or could occur in the action area: California tiger salamanders, California red-legged frogs, and San Joaquin kit foxes. While this biological opinion analyzes the affects of the proposed project on all three species, particular attention has been focused on the effects of the proposed project on a metapopulation of California tiger salamanders occurring in several ponds and in the uplands at the project site.

California Tiger Salamander

The action area for the proposed project occurs within the range of the California tiger salamander (69 FR 47212). California tiger salamanders have been documented as breeding in six ponds (Ponds, 3, 4, 6, 7, 10, and 11) on the property (BioSystems 1994, Rincon 2003a; see Figure 1), and in a pond located approximately 5 miles southeast of the property (CDFG 2003).

Biological consultant Bryan Mori conducted a drift fence study on the property during 2005-06 wintertime rainy season, to obtain data on upland and aquatic habitat use, and to help assess the potential impacts of the development of Phase 1 on California tiger salamanders. In early November 2005, drift fences and pitfall traps were installed along the northeastern edge of the proposed Phase 1 Pods; these fences are hereafter called the Northeast Trapline. Drift fences were also installed around Pond 4 (369 linear feet of fencing) and Pond 7 (606 linear feet of fencing), to determine numbers of California tiger salamanders moving to and from the ponds. In February, 2006, a drift fence measuring approximately 3,692 feet long was installed along the southwestern edge of a maintenance road (proposed San Juan Oaks Drive) and around the Phase 1 pod area proposed for construction on the southwest side of the road (hereafter, Southwest Trapline). In addition, a drift fence measuring approximately 2,234 feet long was installed around the site of the former ranch house (hereafter, Ranch Trapline). The drift fences were installed to study overland movement of California tiger salamanders at the proposed project site. After the study, the drift fences were modified (e.g., gaps in fences closed, pitfall traps removed) to attempt to exclude California tiger salamanders from migrating into areas of the proposed project site; specifically, grasslands associated with Phase 1 development.

The traps were monitored for 38 nights between November 29, 2005 and April 1, 2006, for a total of 10,459 trap-nights. Thirty-one California tiger salamanders were captured on 10 nights between December 2, 2005 and March 4, 2006. Twenty-four of the captures occurred in upland traplines, and seven captures occurred in the pond traplines. No individual California tiger salamanders were captured at both the pond and upland traplines. Five of these individuals were recaptured, for a total of 26 separate individuals; seventeen (65 percent) of these were juveniles, 7 (27 percent) were females, and 2 (8 percent) were males. The highest number of California

tiger salamanders captured on a given day occurred on December 2, 2005. At Pond 4, a male, a female, and ajuvenile were captured. Similarly, at Pond 7, a male, a female, and juvenile were captured. These findings suggest small breeding populations at both ponds.

Data from capture locations reveal some aspects of upland habitat use by California tiger salamanders on the property. California tiger salamanders were captured in all upland traplines, and were captured along almost the entire length of the Northeast Trapline; this indicates that they are sheltering in or migrating across all of the grasslands proposed for development during Phase 1. On December 2, one female adult was captured approximately 600 feet from Pond 4, presumably migrating toward the pond. One juvenile, captured on December 18, was recaptured approximately 860 feet away on December 19. One juvenile was captured in the Ranch Trapline, approximately 800 feet west of Pond 7; 1,000 feet north of Pond 10; and 1,100 feet southeast of Pond 4. An adult female, captured three times during rain events in late February and early March, was captured in the same general upland area, moved a distance of at least 530 feet, and moved about 400 feet between captures on March 2 and 3.

Data from operation of the pond traplines and observations at the ponds indicate that both Pond 4 and Pond 7 contain small breeding populations of California tiger salamanders (Mori 2006). Both ponds filled with the storm event of January 1, 2006. California tiger salamander eggs were first observed on January 11 at Pond 4, January 14 at Pond 7, and hatching was observed at Pond 4 beginning January 31. Based on a lower number of captures at the pond traplines later in the study (one female captured February 27 at Pond 7), breeding activity at these ponds likely was correlated strongly with the January 1 storm event. Mori (2006) reports that it cannot be determined whether the low numbers of breeding adults observed at these ponds represents typical or atypical breeding activity, because no information on breeding activity exists from previous years to use as a comparison. However, based on conversations with and preliminary information from other biologists conducting research on California tiger salamanders, Mori (2006) suggests that small ponds are likely to support low numbers of breeding adults.

California Red-legged Frog

The action area for the proposed project occurs within the range of the California red-legged frog (Service 2002). California red-legged frogs have been documented as breeding in three ponds (Ponds 4, 8, and 9) on the property (Rincon 2003a), and sub-adult California red-legged frogs were observed at Pond 7 (Mori 2006). Two sub-adult California red-legged frogs were captured in upland drift fences near the proposed Phase 1 pods (Mori 2006). In addition, California red-legged frogs have been reported from seven locations within 5 miles of the action area (CDFG 2003).

San Joaquin Kit Fox

The action area for the proposed project occurs within the historic range of the San Joaquin kit fox (Service 1998). San Joaquin kit foxes were observed in 1992 within 6 miles of the action area (CDFG 2003), and the proposed project is within known dispersal distances of adult and

juvenile San Joaquin kit foxes, which occur approximately 25 miles southeast in the Ciervo-Panoche area, a known breeding location for San Joaquin kit foxes (Service 1998). Specific surveys for San Joaquin kit fox were conducted in May 1993 by BioSystems Analysis, Inc. that focused on areas that are now incorporated into the existing golf course but also included some portions of the proposed project site (Rincon 2003a). No San Joaquin kit foxes or evidence of kit foxes were observed during these surveys; however, BioSystems Analysis, Inc. found ground squirrel burrows of suitable size for use by San Joaquin kit foxes as dens. The likelihood of San Joaquin kit foxes occurring at the proposed project site is low; however, grassland habitat at the proposed project site is suitable for hunting and denning by San Joaquin kit foxes (i.e., it contains abundant ground squirrels and ground squirrel burrows).

Status of Critical Habitat in the Action Area

The action area for the proposed project does not occur within designated critical habitat for the California tiger salamander (70 FR 49380). The action area for the proposed project occurs within designated critical habitat for the California red-legged frog (71 FR 19244), and comprises approximately 14 percent of critical habitat unit SNB-1. SNB-1 is mapped from occurrence records at the time of listing and subsequent to the time of listing near Saint Frances Retreat, San Juan Oaks, Azalea Canyon, Bird Creek, and the Hollister Hills State Vehicle Recreation Area. SNB-1 contains the following features that are essential for the conservation of the subspecies: aquatic habitat for breeding and non-breeding activities, and upland habitat for foraging and dispersal activities. SNB-1 is occupied by the California red-legged frog, the designation is intended to prevent further fragmentation of habitat in this portion of the subspecies' range, and contains permanent and ephemeral aquatic habitats suitable for breeding and accessible upland areas for dispersal, shelter, and food. The unit consists of approximately 11,386 acres of private land and approximately 2,899 acres of State land. Threats that may require special management in this unit include removal and alteration of aquatic and upland habitat due to recreational and residential development, off-road vehicular activities, and predation by nonnative species.

Aquatic habitats suitable for breeding in the action area include Ponds 8 and 9 (see subsection "Habitat Descriptions in the Action Area"). Aquatic habitats suitable for non-breeding activities (e.g., sheltering and foraging) include: all of the ephemeral ponds on the property, adjacent to the existing and proposed golf courses; the wetlands in the western portion of the property; and the seeps in the southern portion of the property. Upland habitats suitable for dispersal, shelter, and food include the grasslands on the property, and the oak woodlands in the southern portion of the property.

Habitat Descriptions in the Action Area

Rincon (2003a) identified five distinct habitat types on the property: non-native annual grassland, oak woodland, mixed riparian forest, ruderal/disturbed, and seasonal isolated wetlands. The non-native annual grassland is the most extensive habitat on-site, comprising approximately 937 acres, and including rip gut brome (*Bromus diandrus*)m soft chess brome

(*Bromus hordeaceus*), Italian ryegrass (*Lolium multiflorum*), rat-tail fescue (*Vulpia myuros*) and barnyard foxtail (*Hordeum murinum* spp. *leporinum*). Small and fragmented patches of native perennial grassland, consisting of purple needlegrass (*Nassella pulchra*) and nodding needlegrass (*Nassella cernua*), occur within the non-native annual grassland in the southwest portion of the property. Oak woodlands occur on approximately 665 acres of the property. Coast live oak (*Quercus agrifolia*) and valley oak (*Q. lobata*) occur at the lower elevations and along ephemeral drainages. Blue oak (*Q. douglasii*) and black oak (*Q. kelloggii*) occur at higher elevations, primarily on drier, south-facing slopes. The composition of understory species varied, based upon local conditions, and included poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), snowberry (*Symphoricarpos albus* var. *laevigatus*), wood rose (*Rosa gymnocarpa*), hedge nettle (*Stachys bullata*), and wood fern (*Dryopteris arguta*). The mixed riparian forest occurs on approximately 63 acres of the property, and includes coast live oak, valley oak, red willow (*Salix laevigata*), arroyo willow, California sycamore and cottonwood (*Populus* sp.). Understory plants in the mixed riparian forest include poison oak, blue elderberry, snowberry, California blackberry, and California rose. The ruderal/disturbed habitat comprises approximately 260 acres of the property, and includes the existing golf course and associated facilities. The golf course contains 11 permanent bodies of water, and non-native bullfrogs occur in some of these ponds.

Populations of California ground squirrels and pocket gophers occur at numerous locations on the property. Rodent burrows have been observed in grassland areas near Ponds 3, 4, 6, 7, 10, and 11 (see descriptions of ponds, below) (BioSystems 1994; Rincon 2003a; Bill McIver, biologist, Ventura Fish and Wildlife Office, personal observation during a site visit on January 26, 2006). BioSystems (1994) estimated the availability of upland habitat (i.e., grasslands), and mapped the locations of areas where ground squirrel burrow were concentrated, within a 1,320-foot radius of each California tiger salamander breeding pond at the property. However, they did not provide specific densities (i.e., number of burrows/acre) of ground squirrel burrows at locations near breeding ponds on the property. Rincon (2003a) described presence/absence of rodent burrows at the property; likewise, specific densities of rodent burrows were not provided.

The proposed project site has been used historically for agricultural purposes, primarily as grazing lands (Rincon 2003a). The project site is surrounded primarily by agricultural land, including irrigated pasture and row crops to the north, grazing lands to the east and south, and dryland farming and irrigated pasture to the west. The topography of the site varies from relatively flat lowlands on the northwest portion of the property that transition to rolling hills and progressively steeper hills of the Gabilan Range, in the southern portion of the property. Several small streams occur on the property, draining from the south to the north. The streams flow from foothill areas through the existing golf course and agricultural lands in the northwestern portion of the site, where they are channeled into man-made drainage ditches which exit the property and drain into San Juan Creek, east of the town of San Juan Bautista.

Thirteen seasonal ponds occur on the property, and are individually and numerically named, Ponds 1 through 13. In addition, five seasonal wetlands, seven drainages (named A through G), and four seeps occur on the property. Five of these aquatic features were verified by the Corps

as jurisdictional water of the United States (see Table 1). Eleven of these ponds occur on the eastern third of the property, near the proposed Phases 1 and 2 (see Figure 1). Six ponds in which California tiger salamanders breed occur varying distances from each other at the property (Table 2). BioSystems (1994), Rincon (2003a), and Zander (2005) provided the following descriptions of these aquatic features.

Pond 1 (0.29 acre). This is a former irrigation pond which is no longer supplied with water, and does not receive enough overland flow or direct rainfall to be maintained as pond. During surveys in 1993, larvae of western toad (*Bufo boreas*), and larvae and adults of Pacific treefrogs and California newt (*Taricha tarosa*) were found (BioSystems 1994). Larvae of California tiger salamanders were not found, and mosquito fish (*Gambusia* sp.) were present. Wetland plant species were observed in the pond in 1999, but no signs of ponding (i.e., algal matting, vegetation matting) were present. Water was not present in this pond during aquatic sampling surveys on the property in 1999.

Pond 2 (0.58 acre). This was a former stock pond that was heavily used by cattle, and presence of water in this pond depended on livestock management practices. Larvae of California tiger salamanders were not found during aquatic surveys in 1993, and mosquito fish were abundant (Biosystems 1994). No emergent vegetation associated and no well-developed shoreline vegetation was observed during surveys in 1999. Only one California newt was captured during aquatic surveys in 1999, and invertebrates were uncommon.

Pond 3 (1.3 acres). Larvae of California tiger salamanders were found here during surveys in 1993 (BioSystems 1994). BioSystems (1994) reported that this is the largest pond on the property, with potential for ephemeral storage of water during very wet rainy seasons. They also reported that approximately 70% of the terrestrial habitat within ¼ of a mile of this pond consisted of non-native grasslands, suitable as upland habitat for California tiger salamanders. Rincon (2003a) reported that the pond was completely dry in 1999. Pond 3 is located approximately: 1,600 feet east of Pond 4, 900 feet north of Pond 7; and 2,000 feet north-northeast of Pond 10.

Pond 4 (0.37 acre). Larvae of California tiger salamanders were found here during surveys in 1993 (BioSystems 1994) and in 2006 (Bryan Mori, *notes*), and California red-legged frogs were found here in 1999 (Rincon 2003a). This pond is located at the base of a hill and adjacent to one of the maintenance roads for the existing golf course. The surrounding vegetation consists of annual grasslands and the existing golf course. Burrows of California ground squirrels were very abundant upslope from this pond. Pond 4 is located approximately 1,600 feet west of Pond 3; 2,000 feet north-northwest of Pond 10; and 2,200 feet northwest of Pond 7.

Pond 5 (0.03 acre). This pond is located downslope from Pond 6, contains no aquatic vegetation, and is surrounded by annual grassland. It contains water only in some years (Rincon 2003a).

Pond 6 (0.15 acre). Larvae of California tiger salamanders were found here during surveys in 1999 (Rincon 2003a). This pond has a relatively small watershed, but it retains water during much of the year. During surveys in 1999, there was no aquatic vegetation or wetland vegetation along its shores. Treefrog larvae were common, as were many species of aquatic invertebrates (Rincon 2003a). Pond 6 is located approximately 2,500 feet north-northwest of Pond 3, and approximately 2,900 feet north of Pond 4.

Pond 7 (0.15 acre). Larvae of California tiger salamanders were found in this pond during surveys in 1993 and 2006 (Rincon 2003a), and sub-adult California red-legged frogs were found here in 2006 (Mori 2006). This pond was created at the base of a swale by the construction of a berm. Mosquito fern (*Azolla filiculoides*) was observed on the water surface, and spikerush (*Eleoarchis* sp.) and knotweed (*Polygonum* sp.) were present along the water margins (Rincon 2003a). Adult bullfrogs were observed at Pond 7 (Mori 2006).

Pond 8 (0.70 acre). California red-legged frogs were found here during surveys conducted in 1999 (Rincon 2003a). This was an artificial reservoir excavated adjacent to the main stem of Drainage D. The sides of the pond are steep, precluding establishment of wetland or riparian vegetation (Rincon 2003a). Water is diverted from Drainage D into this reservoir through a culvert and returned to the channel through mechanical valves at the downstream end of the pond (Rincon 2003a).

Pond 9 (0.07 acre). California red-legged frogs were found here during surveys conducted in 1999 (Rincon 2003a). This pond is a small, in-channel pond/settling basin which occurs upstream of the diversion culvert for Pond 8 in Drainage D. This pond holds water during the winter storm season, but dries in the spring and remains dry until the following winter (Rincon 2003a).

Pond 10 (1.67 acres). Larvae of California tiger salamanders were found in this pond during surveys in 1999 (Rincon 2003a). This large stock pond was excavated at the downstream end of a seasonal drainage (Drainage E). It holds water throughout most of the summer and thus may be spring-fed (Rincon 2003a). California newts and backswimmers were common in this pond.

Pond 11 (1.55 acres). Larvae of California tiger salamanders were found in this pond during surveys in 1999 (BioSystems 1994). This pond is an historic diversion structure located near the base of a small drainage. Rincon (2003a) described it as ephemeral, and stated that it did not support submergent, emergent, or shoreline vegetation.

Pond 12 (0.08 acre). This stock pond occurs in oak woodlands in the southern portion of the property. Rincon (2003a) described it as a mostly unvegetated pond which received heavy use by livestock.

Pond 13 (0.08 acre). This stock pond also occurs in oak woodlands in the southern portion of the property. Rincon (2003a) described it as a mostly unvegetated pond which received heavy use by livestock.

Seasonal Wetlands. Five seasonal wetlands occur on the flat, non-native annual grassland on the western portion of the property, which has been used as pasture land in the past. These wetlands occurred within small, isolated depressions, and contained hydric soils and hydrophytic (water-loving) plants. Although these wetlands could serve as a non-breeding aquatic habitat for California red-legged frogs, the species has not been observed here, and rather, has been observed in ponds and uplands on the eastern portion of the property.

Ephemeral Drainages. Three prominent ephemeral waterways (Drainages C, D, and F) convey runoff from the hills in the southern portion of the property northeast through the site (Rincon 2003a). These channels support riparian canopy species, but typically lack in-channel herbaceous wetland vegetation. In particular, Drainage C contains well-developed riparian and woodland vegetation that continues from the southwestern portion of this drainage onto the existing golf course. Two less prominent waterways (Drainages A and B) originate off-site and carry seasonal runoff through small channels that extend about 200 linear feet onto the property, where they terminate. Another waterway (Drainage E) originates in a side canyon adjacent to the main stem of Drainage D and empties into Pond 10. A man-made ditch (Drainage G) begins nears the maintenance yard of the existing golf course, flows north and eventually along the northern boundary of the property. Drainage G is hydrologically connected to Drainage D through artificial creeks and ponds which were created in the existing golf course, and is connected to Drainage F through overflow/diversions from Pond 11.

Seeps. Four small seeps were identified near the southern boundary of the property (Rincon 2003a). One seep was mostly unvegetated due to trampling by livestock, and three seeps were vegetated with wetland plant species. One of these seeps was part of a larger wetland area that extended off the property.

Table 1. Acreage, occurrence of California tiger salamanders (CTS) and California red-legged frogs (CRLF), Army Corps of Engineer's jurisdictional status (Jurisdictional waters), impacts to, and acreage affected of 16 aquatic features on the San Juan Oaks property, San Benito County, California. Presence of CTS and CRLF, and features delineated as jurisdictional waters of the United States are indicated by bullets.

Aquatic feature	Acreage	CTS	CRLF	Jurisdictional Waters	Nature of Impact	Acreage Affected
Pond 3	1.30	•				
Pond 4	0.37	•	•			
Pond 6	0.15	•				
Pond 7	0.15	•				

Pond 8	0.70		•	•		
Pond 9	0.07		•	•		
Pond 10	1.67	•				
Pond 11	1.55	•				
Wetland 1	1.32			•	Golf course construction	0.21
Wetland 2	0.01				Golf course construction	0.01
Wetland 3	0.04				Golf course construction	0.04
Drainage A	0.02				Golf course construction	0.02
Drainage B	0.02				Golf course construction	0.02
Drainage C	0.30				Golf course construction & lot development	0.30
Drainage D	0.54			•		
Drainage G	0.32			•	Lot development	0.05

Table 2. Approximate distances (in feet) between California tiger salamander breeding ponds at San Juan Oaks Golf Club, San Benito County, California.

	Breeding Pond					
Breeding Pond	3	4	6	7	10	11
3	-	1,600	2,320	1,040	2,240	2,520
4	-	-	2,880	2,040	2,120	3,280
6	-	-	-	3,840	4,560	5,000
7	-	-	-	-	1,200	1,200
10	-	-	-	-	-	1,800
11	-	-	-	-	-	-

We estimated the acreage of the landscape within 2,000 feet of California tiger salamander breeding ponds at the San Juan Oaks Golf Club that was covered by grassland, using figures provided in Rincon (2003a) and by the Applicant (Table 3). In addition, we calculated the acreage (and percentage) of this grassland proposed to be converted and permanently altered by development activities.

Table 3. Acreages of all grassland, and grassland proposed for development within 2,000 feet of California tiger salamander breeding ponds at San Juan Oaks Golf Club, San Benito County, California.

	California Tiger Salamander Breeding Ponds					
Acres of grassland within 2,000 feet (288.5 acre circle)	3	4	6	7	10	11
Grassland proposed for development	13.8 (6.4%)	32.7 (33.0%)	16.9 (6.3%)	13.1 (6.1%)	8.2 (7.1%)	7.8 (4.5%)
All grassland	216	99	269	216	115	173

Based upon a radius of 2,000 feet drawn around each pond, we estimated the acreages of habitat types and landscape uses common to three- and four-pond assemblages of California tiger salamander breeding ponds at the San Juan Oaks Golf Club, using figures provided in Rincon (2003a) and by the Applicant (Table 4).

Table 4. Approximate acreages of upland habitats and landscape uses common to assemblages of three and four breeding ponds at San Juan Oaks Golf Club, based upon a radius of 2,000 feet drawn around each pond. Percentages of habitat and current land use are shown in parentheses. Percentages of grassland proposed to be converted by development activities are shown in brackets ({ }).

	Habitats and Landscape Uses			
Pond Assemblages	Grassland	Oak Woodland	Golf Course	Proposed Development
3, 7, and 11 [~ 70 acres]	52 (75%)	-	18 (25%)	6.8 {13.1%}
7, 10, and 11 [~ 88 acres]	53 (60%)	9 (10%)	26 (30%)	5.7 {10.8%}
3, 7, and 10 [~ 110 acres]	55 (50%)	-	55 (50%)	9.03 {16.4%}
3, 7, 10, and 11 [~ 50 acres]	30 (60%)	-	20 (40%)	4.2 {14.0%}
3, 4, 7, and 10 [~ 68 acres]	34 (50%)	-	34 (50%)	5.83 {17.1%}

EFFECTS OF THE ACTION

Overview

Construction activities and development of a residential subdivision of 156 single-family houses, 30 affordable housing units, 2 ranch estates, two golf courses, a 200-room resort, and commercial-use buildings at the San Juan Oaks Golf Club could effect California tiger salamanders, California red-legged frogs, San Joaquin kit foxes, and critical habitat for the California red-legged frog.

California Tiger Salamander

Development and construction activities in the action area could result in long-term and short-term effects on California tiger salamanders from permanent removal of approximately 39 acres (15.8 hectares) of upland habitat that provides sheltering sites within 2,000 feet of 6 breeding ponds on the property. California tiger salamanders would likely be affected primarily by the construction and development of: 1) the residential subdivisions of Phases 1 and 2; 2) Estate 2; 3) the 200-room resort; 4) sewer treatment facility; and 5) the water detention basins (Tables 5

and 6). Due to their locations in primarily oak woodland, construction of Estates 1A and 1B would likely not result in the loss of upland habitat for the California tiger salamander. Based on distances from the known breeding ponds on the property and the lack of aquatic breeding habitat nearby, it is unlikely that the residential subdivisions on the western portion of the property, proposed to be conducted during Phases 3 through 6, would substantially affect California tiger salamanders on the property. Beneficial effects to the California tiger salamander could occur during the management of habitat set aside for wildlife in a conservation easement.

Table 5. Approximate acreages of grassland within 2,000 feet of six California tiger salamander breeding ponds, proposed to be converted by development activities at the San Juan Oaks Golf Club, San Benito County, California. Total estimated amounts (in acres) shown in brackets, and percentages of total grassland converted by development shown in parentheses.

	California Tiger Salamander Breeding Ponds					
Development Activities	3 [216]	4 [126]	6 [269]	7 [216]	10 [115]	11 [173]
Phase 1 "Pods"	1.3 (0.6%)	7.7 (7.2%)	-	0.2 (0.09%)	0.3 (0.26%)	-
Phase 1 – former ranch house site	5.0 (2.3%)	5.0 (4.0%)	-	5.0 (2.3%)	5.0 (4.4%)	1.3 (0.75%)
Phase 2 Residential Subdivision	0.7 (0.3%)	4.9 (3.9%)	6.7 (2.5%)	-	-	-
Phase 2 Affordable Housing	-	-	6.8 (2.5%)	-	-	-
Estate 2	5.9 (2.7%)	-	0.67 (0.25%)	5.6 (2.6%)	2.5 (2.2%)	5.0 (2.9%)
200-room Resort	-	9.0 (7.1%)	-	-	-	-
Sewer Treatment Facility (Parcel D location)	-	-	2.7 (1.0%)	-	-	-
Storm Water Detention Basins	0.7 (0.3%)	-	-	2.2 (1.0%)		1.5 (0.87%)
total	13.6 (6.3%)	26.6 (21.1%)	16.9 (6.3%)	13.0 (6.0%)	6.8 (7.1%)	7.8 (4.5%)

Table 6. Approximate acreages of grassland converted by development activities at the San Juan Oaks Golf Club, and common to assemblages of three and four California tiger salamander breeding ponds, based upon a radius of 2,000 feet drawn around each pond. Acreages common to pond assemblages are shown in brackets ([ ]), and percentages of these acreages converted by development activities are shown in parentheses.

	California Tiger Salamander Breeding Pond Assemblages				
Development Activities	3,7,11 [70]	7,10,11 [88]	3,7,10 [110]	3,7,10,11 [50]	3,4,7,10 [68]
Phase 1 Pods	-	-	0.8 (0.73%)	-	0.8 (1.2%)
Phase 1 – former ranch house site	1.0 (1.4%)	1.0 (1.1%)	5.0 (4.5%)	1.0 (2.0%)	5.0 (7.4%)
Phase 2 Residential Subdivision	-	-	-	-	-
Phase 2 Affordable Housing	-	-	-	-	-
Estate 2	5.1 (7.3%)	2.5 (2.8%)	2.5 (2.3%)	2.5 (5.0%)	-
200-room Resort	-	-	-	-	-
Sewer Treatment Facility (Parcel D location)	-	-	-	-	-
Storm Water Detention Basins	0.7 (1.0%)	2.2 (2.5%)	0.7 (0.64%)	0.7 (1.4%)	-
total	6.8 (9.7%)	5.7 (6.5%)	9.0 (8.2%)	4.2 (8.4%)	5.8 (8.5%)

At San Juan Oaks Golf Club, BioSystems (1994) did not report specific values for densities of rodent burrows, but showed that ground squirrel burrows were distributed widely across grasslands at the property. We are not aware of more recent mapping of locations of ground squirrel burrows. However, based upon the abundance and contiguity of grasslands on the property, we will assume that ground squirrel burrows could occur in any of the grasslands proposed for development. Therefore, based on density estimates of 0.9 California tiger salamanders per acre (Pittman 2005), and assuming equal distribution of ground squirrel burrows in grassland areas proposed for development at San Juan Oaks, we estimate that approximately 42 California tiger salamanders may occur in the 47 acres of grassland where grading activities would occur.

We recognize that Pittman's density estimates of California tiger salamanders utilizing upland refugia were based on burrow excavation surveys that occurred in Santa Rosa County, approximately 130 miles northwest of the proposed project site at San Juan Oaks. Differences in upland habitat use by California tiger salamanders may exist between populations. However, conclusions regarding upland habitat use and dispersal are commonly inferred by the Service and researchers, based upon research from locations throughout the entire range of the species. The estimates presented in Pittman (2005) represent the only published research we are aware of that attempts to estimate the density of California tiger salamanders in their upland refugia.

Table 7. Estimates of numbers of California tiger salamanders[1] that could be killed during grading activities associated with proposed construction activities at San Juan Oaks Golf Club, San Benito County, California.

Development Activities (affected grassland (acres))	No. of California Tiger Salamanders
Phase 1 Pods (7.7 acres)	7
Phase 1 – former ranch house site (5 acres)	5
Phase 2 Residential Subdivision (7.4 acres)	7
Phase 2 Affordable Housing (6.8 acres)	6
Estate 2 (6 acres)	5
200-room Resort (9 acres)	8
Sewer Treatment Facility - Parcel D alternate location (3 acres)	3
Storm Water Detention Basins (2.2 acres)	2
Total (47.1 acres)	42

[1] Based upon an estimate of 0.9 California tiger salamanders/acre (2.2 California tiger salamanders/hectare), reported in Pittman (2005), and assuming equal distribution of ground squirrel burrows in areas proposed for development.

Grading and trenching activities associated with the development of Phase 1 would remove approximately 12.7 acres (5.1 hectares) of upland habitat for the California tiger salamander, and would likely result in the death of California tiger salamanders sheltering within ground squirrel burrows. The installation of exclusionary fences around the Phase 1 construction areas before the commencement of grading and trenching activities likely would exclude any metamorph California tiger salamanders that may leave Ponds 3, 4, 7, and 10, disperse overland, and attempt to find shelter in burrows in these grassland areas. Inspection of exclusionary fencing by a Service-approved biologist, immediately after substantial rain events, to look for California tiger salamanders that may have emerged from their burrows, would minimize harm to California tiger salamanders, which then could be moved out of harm's way. The use of a Service-approved biologist, who is authorized to relocate any California tiger salamanders found alive during grading and construction activities, would help minimize injury to California tiger salamanders found alive during these activities.

Construction of the Phase 1 residential subdivision could disrupt or prevent overland movements of California tiger salamanders between ponds at San Juan Oaks. Post-construction restoration

activities at the Phase 1 Pods would protect and enhance approximately 4 acres of nonnative grasslands for use by California tiger salamanders for sheltering and dispersal. Creating and maintaining grassland corridors in between clusters of houses, and installing underpass culverts along San Juan Oaks Drive, in close proximity to these corridors, to serve as "salamander tunnels", could enable overland movement California tiger salamanders between ponds and across the landscape at San Juan Oaks.

Grading and trenching activities associated with the development of Phase 2, the 200-room resort, and the sewer treatment facility (alternate location for Parcel D) would remove approximately 26.2 acres of upland habitat for the California tiger salamander, and could result in the death of California tiger salamanders sheltering within ground squirrel burrows. The use of a Service-approved biologist, who is authorized to relocate any California tiger salamanders found alive during grading and construction activities, would help minimize harm or harassment to California tiger salamanders found alive during these activities.

Grading and trenching activities associated with the development of Estate 2 and its access road would result in the loss of approximately 6 acres of upland habitat for the California tiger salamander, and would affect upland habitat within dispersal distance of 5 breeding ponds (Table 5). Future grading activities associated with the access road and estate site could kill at least 5 California tiger salamanders (Table 7). The use of a Service-approved biologist, who is authorized to relocate any California tiger salamanders found alive during grading and construction activities, would help minimize harm or harassment to California tiger salamanders found alive during these activities. Implementation of a management plan for the conservation lands, including managed grazing or mowing, and reduction of non-native species, could offset losses of California tiger salamanders incurred during grading activities.

Construction of two detention basins could result in the loss of 2.2 acres (0.9 hectare) of upland habitat for the California tiger salamander, and could result in the death of California tiger salamanders sheltering within ground squirrel burrows. The use of a Service-approved biologist, who is authorized to relocate any California tiger salamanders found alive during grading and construction activities, would help minimize harm or harassment to California tiger salamanders found alive during these activities.

Direct impacts to California tiger salamanders would include injury or mortality from being crushed by earth-moving equipment, construction debris, and worker foot traffic or becoming entrapped in open trenches. These impacts would be reduced by minimizing and clearly demarcating the boundaries of the project area and equipment access routes, and by locating staging areas away from aquatic areas or other water bodies. Attempting to avoid work activities during the breeding season would further reduce adverse impacts.

The capture and handling of California tiger salamanders to move them from a work area could result in injury or mortality as a result of improper handling, containment, or transport of individuals or from releasing them into unsuitable habitat. Use of a Service-approved biologist would reduce or prevent such injury or mortality.

The potential exists for uninformed workers to intentionally or unintentionally injure or kill California tiger salamanders. The potential for this impact would be greatly reduced by informing workers of the presence and protected status of these species and the measures that will be implemented to protect them during project activities.

Trash left during or after project activities could attract predators to work sites, which could, in turn, prey upon California tiger salamanders. For example, feral cats and raccoons are attracted to trash and could prey opportunistically on California tiger salamanders. This potential impact would be reduced or avoided by careful control of waste products at all work sites.

Accidental spills of hazardous materials or careless fueling or oiling of vehicles or equipment could degrade upland and aquatic habitats to a degree where California tiger salamanders are adversely affected or even killed. The potential for this impact to occur would be reduced by thoroughly informing workers of the importance of preventing hazardous materials from entering the environment, locating staging and fueling areas a minimum of 60 feet from riparian areas or other water bodies, and by having an effective spill response plan in place.

The development of permanent water bodies in association with the two golf courses could provide aquatic habitat beneficial to bullfrogs, which are known predators of California tiger salamanders. The implementation of an exotic species removal program, which includes golf course water bodies, as part of the overall management program for the project would reduce this impact.

The ongoing effects of the project on the California tiger salamander would be monitored through annual reports provided to the Service. These reports would enable the Service to determine how much habitat has been temporarily and permanently affected by the covered actions and how many California tiger salamanders have been killed or injured. Reporting requirements are described later in the document.

California Red-legged Frog

Development and construction activities within the action area could result in the long-term and short-term effects to California red-legged frogs from the permanent and temporary removal of wetland, riparian, and upland habitats that provide breeding, foraging, and sheltering habitats on the San Juan Oaks Golf Club property. California red-legged frogs could be affected by any of the proposed activities, but would likely be affected primarily by the construction and development of the residential subdivision of Phase 1, and the construction of the storm water detention basin near Pond 8. Beneficial effects to the California red-legged frog could occur during the management of habitat set aside for wildlife in a conservation easement.

Direct impacts to adult and sub-adult California red-legged frogs in the action area include injury or mortality from being crushed by earth moving equipment, construction debris, and worker foot traffic or becoming entrapped in open trenches. These impacts will be reduced by minimizing and clearly demarcating the boundaries of the project areas and equipment access

routes and locating staging areas outside of riparian areas or other water bodies. Scheduling work activities to avoid sensitive areas, such as breeding pools during the breeding season and isolated aquatic refuges during dry periods, would substantially reduce adverse impacts. Such effects would also be minimized by conducting awareness training sessions for workers, which would inform them of the presence and protected status of this species and the measures that are being implemented to protect it during project activities. Direct impacts to California red-legged frogs could also be reduced by relocating California red-legged frogs, if any are found, prior to the start of construction activities.

California red-legged frogs could be injured or killed if they are improperly handled or contained during capture and relocation efforts. Such effects would be reduced or prevented with the use of Service-approved biologists to capture and move California red-legged frogs.

Trash left during or after project activities could attract predators to work sites, which could, in turn, prey on California red-legged frogs. For example, raccoons are attracted to trash and also prey opportunistically on California red-legged frogs. This potential impact will be reduced or avoided by careful control of waste products at all work sites.

Accidental spills of hazardous materials or careless fueling or oiling of vehicles or equipment could degrade aquatic or upland habitat to a degree where California red-legged frogs are adversely affected or killed. The potential for this impact to occur will be reduced by requiring: all refueling, maintenance, and staging of equipment and vehicles to occur at least 60 feet from riparian habitat or water bodies and not in a location from where a spill would drain directly toward aquatic habitat; the monitor to ensure contamination of habitat does not occur during such operations; that a plan is in place for prompt and effective response to any accidental spills; and all workers to be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The development of permanent water bodies in association with the two golf courses could provide aquatic habitat beneficial to bullfrogs, which are known predators of California red-legged frogs. The implementation of an exotic species removal program, which includes golf course water bodies, as part of the overall management program for the project would reduce this impact.

San Joaquin Kit Fox

Development and construction activities within the action area could result in the long-term and short-term effects to the San Joaquin kit fox from the permanent removal and conversion of upland habitats suitable for use by San Joaquin kit foxes for breeding, sheltering, foraging, and dispersal at the San Juan Oaks Golf Club. Activities associated with the construction and development of the residential subdivisions, estates, resort, other facilities, and the golf courses at the San Juan Oaks Golf Club would result in the conversion of approximately 422 acres of grassland (Zander 2005). Approximately 50 percent (210 acres) of this developed land would be converted to two golf course courses. San Joaquin kit foxes could be affected by construction

and development activities occurring during all project phases. Beneficial effects to the San Joaquin kit fox could occur during the management of habitat set aside for wildlife in a conservation easement.

Although we expect few San Joaquin kit foxes to be in the area, any that are may be injured or killed by some construction activities. Trenching and other excavations, as well as grading and filling activities, during construction of the subdivision and golf courses may cause direct injury or mortality to San Joaquin kit foxes by trapping or crushing them in underground dens or by inadvertently trapping them in open trenches. Direct injury and mortality to San Joaquin kit foxes may also result from inadvertent trapping in uncapped pipes and culverts. Such effects to San Joaquin kit foxes would be reduced by the following measures proposed by the Applicant: covering trenches at the close of each working day, providing escape ramps in trenches and excavations, placing caps on pipes with diameters of 4 inches or greater, and implementing other measures to prevent entrapment of San Joaquin kit foxes in trenches or stored pipes and culverts.

Vehicle traffic associated with the transportation of workers and construction materials could result in vehicles striking San Joaquin kit foxes. Because San Joaquin kit foxes are primarily nocturnal, conducting construction activities at night would increase the chances of project-related injury or death of San Joaquin kit foxes. Such effects to San Joaquin kit foxes would be reduced by the Applicant's proposed measures to restrict project-related vehicular traffic to established roads and construction areas, to establish a speed limit of 20 miles per hour, and to minimize nighttime construction activities.

Project-related garbage may attract predators such as coyotes, red fox, and pet or feral dogs and cats to the project area. Uninformed workers would be less likely to comply with project measures to protect San Joaquin kit foxes and may unintentionally or deliberately harass and harm them. Such effects would be reduced by the Applicant's protective measures to manage trash properly and provide a worker awareness training program.
The construction of residential subdivisions could result in barriers to dispersing San Joaquin kit foxes. Although we expect few San Joaquin kit foxes to be in the area, any that are present could find overland routes through the protected habitat areas, and through the golf courses. Permanently managing and protecting these wildlife habitat areas would assure future potential for dispersal by San Joaquin kit foxes through portions of the action area.

Critical Habitat for the California Red-legged Frog

Development and construction activities within the action area could result in the long-term and short-term effects to critical habitat for the California red-legged frog from the temporary and permanent removal of upland and aquatic habitats suitable for use by California red-legged frogs at the San Juan Oaks Golf Club. Critical habitat for the California red-legged frog could be affected by construction and development activities occurring during all project phases. Beneficial effects to critical habitat could occur during the management of habitat set aside for wildlife in a conservation easement.

Construction and development of the San Juan Oaks residential subdivisions and golf courses would result in permanent fill of approximately 280 linear feet (0.05 acre) of jurisdictional waters of the United States, and approximately 0.21 acre of wetlands. These areas function as non-breeding aquatic habitat, essential for the conservation of the subspecies by providing the space, food, and cover necessary to sustain California red-legged frogs, and would be lost for foraging and sheltering activities of California red-legged frogs. These areas represent 0.002 percent of the total critical habitat designated in SNB-1, and occur approximately 4,000 feet from known occurrences of California red-legged frogs on the property. The proposed creation of approximately 0.52 acre of seasonal wetland adjacent to an existing wetland (Wetland W-1) in the northwest corner of the property, and enhancement of the riparian areas along Drainage G, in the vicinity of the proposed residential construction (and within critical habitat unit SNB-1) would offset the effects of this habitat loss. In addition, approximately 8.5 acres of aquatic non-breeding aquatic habitat, including ponds, wetlands, and seeps (and occurring within critical habitat unit SNB-1) would be protected and managed as habitat set aside for wildlife in a conservation easement. Therefore, the function and conservation role of non-breeding aquatic habitat in SNB-1 will not be substantially affected by these proposed development activities.

Construction and development of the San Juan Oaks residential subdivisions and golf courses would not result in the loss of aquatic breeding habitat. Approximately 1.1 acres of aquatic breeding aquatic habitat (occurring within critical habitat unit SNB-1) would be protected and managed as habitat set aside for wildlife in a conservation easement. Therefore, the function and conservation role of aquatic breeding habitat in SNB-1 will not be substantially affected by these proposed development activities.

Construction and development of the San Juan Oaks residential subdivisions and golf courses would result in the conversion of approximately 400 acres of grasslands, and approximately 5 acres of oak woodlands (Rincon 2003, Zander 2005). These areas function as upland habitat essential for the conservation of the California red-legged frog for dispersal, shelter, and foraging. Approximately 50 percent (210 acres) of the developed grasslands would be converted to two golf course courses; these areas would be lost for sheltering by California red-legged frogs, but likely available (after development) for foraging and dispersal. The golf courses represent approximately 1.5 percent of the total critical habitat designated in SNB-1, and occur approximately 2,500 feet from known occurrences of California red-legged frogs on the property. Approximately 190 acres of uplands converted by residential and other developments (Rincon 2003) would be lost for dispersal, foraging and sheltering activities of California red-legged frogs. Residential and other developments represent approximately 1.3 percent of the total critical habitat designated in SNB-1. Thus, development activities in the action area would result in the loss of approximately 2.8 percent of the total critical habitat designated in SNB-1. In the development of a conservation easement for areas managed and protected for wildlife, approximately 1,160 acres of uplands essential to the conservation of California red-legged frogs would be protected. This represents approximately 8.1 percent of the total critical habitat designated in SNB-1, and approximately 58 percent of the property owned by the Applicant. Therefore, the function and conservation role of upland habitat in SNB-1 will not be substantially affected by these proposed development activities.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Non-federal actions that could occur adjacent to the action area include increased vehicular traffic along Union Road, approximately 1.0 mile northeast of the property. Vehicles may strike and kill or injure California tiger salamanders, California red-legged frogs, and San Joaquin kit foxes attempting to cross Union Road while dispersing. Because the nearest breeding pond in the action area is approximately 1.0 mile from Union Road, and because San Joaquin kit foxes are not likely to be within the project area, we expect that mortality or injury from vehicle strikes would be minimal and not substantially affect the survival and recovery of California tiger salamanders, California red-legged frogs, and San Joaquin kit foxes.

CONCLUSION

California Tiger Salamander, California Red-legged Frog, and San Joaquin Kit Fox

After reviewing the current status of the California tiger salamander, California red-legged frog, San Joaquin kit fox, the environmental baseline for the action area, the effects of the proposed construction of residential subdivisions and golf courses at San Juan Oaks, and the cumulative effects, it is the Service's biological opinion that the Corps' proposed authorization this activity is not likely to jeopardize the continued existence of the California tiger salamander, California red-legged frog, or San Joaquin kit fox. We have reached this conclusion because:

1. While the proposed project would result in the loss of approximately 47 acres of grassland that could be utilized by California tiger salamanders, the proposed project includes the development of a conservation easement and management plan that will protect and manage approximately 295 acres of grassland that could be utilized by California tiger salamanders for sheltering and dispersal. In addition, monitoring, maintenance, and enhancements of habitats at the San Juan Oaks Golf Course will maintain or improve the quality of approximately 5.2 acres of aquatic breeding habitat for the California tiger salamander in the action area. Therefore, despite the construction of the residential subdivisions and other developments at the project site, habitat management actions should ensure that California tiger salamanders are able to breed in the ponds, shelter in the uplands, and disperse between ponds. Thus, the California tiger salamander metapopulation at the property should persist.

2. While the proposed project would result in the loss of approximately 0.65 acre of aquatic habitats that could be utilized by California red-legged frogs, these aquatic habitats occur on the western portion of the property, where the species has not been observed. The Applicant has proposed to create 0.52 of aquatic habitat and enhance Drainage G, which could be utilized by California red-legged frogs. In addition, monitoring, maintenance,

and enhancement of habitats at the San Juan Oaks Golf Course will maintain or improve the quality of approximately 1.1 acres of aquatic breeding habitat for the California red-legged frog.

3. While the proposed project would result in the loss of approximately 50 acres of upland habitat for the California red-legged frog, the proposed project includes the development of a conservation easement and management plan that will protect and manage approximately 1,160 acres of upland habitats that could be utilized by California red-legged frogs for sheltering and dispersal.

4. While the proposed project would result in the loss of approximately 210 acres of upland habitat for the San Joaquin kit fox, the proposed project includes the development of a conservation easement and management plan that will protect and manage approximately 1,160 acres of upland habitats that could be utilized by San Joaquin kit foxes for hunting, denning, and dispersal.

5. The Applicant has proposed measures to reduce adverse effects to California tiger salamanders, California red-legged frogs, and San Joaquin kit foxes during construction activities.

Critical Habitat for the California Red-legged Frog

After reviewing the current status of critical habitat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the proposed development and construction of residential subdivisions and golf courses at San Juan Oaks, as proposed by the Applicant and permitted by the Corps, are not likely to destroy or adversely modify the critical habitat of the California red-legged frog.

We reached this conclusion for three reasons. First, although aquatic non-breeding habitat would be removed during construction activities, the Applicant would create additional nearby aquatic habitat that would serve a similar function and conservation role for the California red-legged frog; namely, by providing space, food, and cover necessary to sustain California red-legged frogs. Second, the Applicant has proposed measures to reduce adverse effects to the critical habitat of the California red-legged frog and to further the proper functioning of the physical and biological features that are essential to the conservation of the subspecies. These measures include, but are not limited to, the protection and management of aquatic breeding and non-breeding habitat, and upland habitat, through the establishment of a conservation easement on approximately 1,160 acres of the property. Third, we did not detect any cumulative effects that would alter the status of critical habitat of California red-legged frogs in the action area.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined

as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and the Corps must ensure that they become binding conditions of its authorization to the Applicant for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require the Applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the authorization, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the Corps or Applicant must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

All California tiger salamanders and California red-legged frogs and found within the project area may be subject to take in the form of capture during relocation efforts. A subset of captured California tiger salamanders and California red-legged frogs may experience a significant disruption of normal behavioral patterns to the point that reaches the level of harassment. California tiger salamanders and California red-legged frogs that remain in the project area may be subject to increased predation, be crushed by workers conducting project activities, or be otherwise injured or killed. All San Joaquin kit foxes found within the project area may be subject to take in the form of being crushed or trapped within pipes, culverts, holes, or trenches.

Based upon the amount of grasslands proposed to be removed, and density estimates of California tiger salamander utilizing upland refugia (in Pittman (2005)), we estimate that 42 California tiger salamanders may be killed, injured, or harmed as a result of the construction activity authorized by the Corps. Incidental take of California tiger salamanders would be difficult to detect. Finding dead or injured specimens is unlikely because of their small body sizes and use of underground refugia, and predation events are unlikely to be witnessed.

Based upon data presented in Mori (2006), we estimate that two California red-legged frogs may be killed, injured, harassed, or harmed as a result of the construction activity authorized by the Corps. Incidental take of California red-legged frogs would be difficult to detect because of their small body sizes and finding dead or injured specimens is unlikely. Take by predation would also likely be difficult to detect.

It is difficult to determine the precise number of San Joaquin kit foxes that may be killed, injured, harassed, or harmed as a result of the construction activities authorized by the Corps. However, we estimate that zero San Joaquin kit foxes will be killed, injured, or harmed; and one San Joaquin kit fox may be harassed, based on the measures proposed to avoid adverse effects, and the small likelihood that San Joaquin kit foxes will occur at the proposed project site.

This biological opinion does not exempt any activity from the prohibitions against take contained in section 9 of the Act that is not incidental to the action as described in this biological opinion. Take that occurs outside of demarcated work areas or from any activity not described in this biological opinion is not exempted from the prohibitions against take described in section 9 of the Act.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize adverse effects to the California tiger salamander, California red-legged frog, San Joaquin kit fox, and critical habitat for the California red-legged frog:

1. The Corps must ensure that the level of incidental take that occurs during project implementation is commensurate with the analysis contained herein.

2. Only qualified biologists, authorized by the Service, may survey for, capture, and move California red-legged frogs from work areas.

3. Authorized biologists must implement well-defined measures to reduce take of California tiger salamanders and California red-legged frogs during project activities.

The Service's evaluation of the effects of the proposed action includes consideration of the measures to minimize the adverse effects of the proposed action on the California tiger salamander, California red-legged frog, San Joaquin kit fox, and critical habitat for the California red-legged frog that were developed by the Corps and the Applicant and repeated in the Description of the Proposed Action portion of this biological opinion. Any subsequent changes in these measures proposed by the Corps or the Applicant may constitute a modification of the proposed action and may warrant re-initiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures are intended to supplement the protective measures that were proposed by the Corps and the Applicant as part of the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Corps must ensure that the Applicant complies with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:

   a. Based on a 6-year timeframe of proposed construction, and an estimate of 42 California tiger salamanders that may be killed, injured or harmed; if more than 7 California tiger salamanders in any 1 year are found dead or injured, the Corps must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. Project activities may continue pending the outcome of the review, provided that the Corp's proposed protective measures and the terms and conditions of this biological opinion have been and continue to be fully implemented. However, if more than 42 California tiger salamanders are found dead or injured, project activities must cease and the Corps must contact our office immediately so we can review the project activities to determine if additional protective measures are needed.

   b. If more than two California red-legged frogs are found dead or injured, the Corps must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. Project activities may continue pending the outcome of the review, provided that the Corp's proposed protective measures and the terms and conditions of this biological opinion have been and continue to be fully implemented.

   c. If one or more San Joaquin kit foxes are found dead or injured, the Corps must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. Project activities may continue pending the outcome of the review, provided that the Corp's proposed protective measures and the terms and conditions of this biological opinion have been and continue to be fully implemented.

2. The following terms and conditions implement reasonable and prudent measure 2:

   a. Bryan Mori is authorized to: survey for, capture, and move California tiger salamanders and California red-legged frogs from the work area; and survey for San Joaquin kit foxes. The Corps must condition its authorization to require the Applicant to request our approval of any other biologist they wish to employ to survey for San Joaquin kit foxes, and/or to survey for, capture, and move California tiger salamanders and California red-legged frogs from the work area. The request must be in writing and be received by the Service at least 15 days prior to any such activities being conducted.

   b. A Service-approved biologist must be contacted if any project personnel find a California tiger salamander or California red-legged frog under equipment, materials, or in trenches during construction activities. Project activities that may affect any California tiger salamander or California red-legged frog found on the work site must be halted until the animal(s) can be relocated out of harm's way.

c. Prior to the onset of grading and construction activities, Service-approved biologists must identify appropriate areas to receive translocated California tiger salamanders and California red-legged frog adults and tadpoles in the project area. These areas must be in proximity to the capture site, outside of any area likely to be adversely impacted by construction activities, support suitable vegetation, and be free of exotic predatory species (e.g., bullfrogs, crayfish) to the best of the Service-approved biologist's knowledge.

d. All California tiger salamanders and California red-legged frogs found adjacent to exclusion fencing must be moved to appropriate areas and defined in 2.c above.

3. The following term and condition implements reasonable and prudent measure 3:

To avoid transferring disease or pathogens between aquatic habitats during the course of surveys and handling of California tiger salamanders and California red-legged frogs, the Service-approved biologist must follow the Declining Amphibian Population Task Force's Code of Practice. A copy of this Code of Practice is enclosed. You may substitute a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water) for the ethanol solution. Care must be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.

REPORTING REQUIREMENTS

The Corps or the Applicant must submit a written report to the Service by December 31st in each year of construction activities. The annual reports must document: the number of California tiger salamanders, California red-legged frogs, and San Joaquin kit foxes observed throughout the action area; the number of California tiger salamanders and California red-legged frogs captured and relocated pursuant to project activities; the date and time of capture; specific location of capture; life stages (adult or larva) of individuals captured and relocated; and a description of relocation sites including existing habitat types and the presence or absence of non-native vegetation.

The reports must also document: any incidental take that resulted from the implementation of the project, including the form of take; when and where the take occurred; the disposition of dead or injured animals; problems encountered in implementing avoidance and minimization measures; and any other pertinent information. The reports must also include a map identifying locations of all California tiger salamanders and California red-legged frogs found and relocation areas. We request that the reports contain any recommendations on how future projects of this type can be conducted expeditiously while protecting the California tiger salamander, California red-legged frog, and San Joaquin kit fox. These documents will assist the Service and Corps in evaluating future measures for the conservation of these species during residential subdivision and golf course development projects.

DISPOSITION OF DEAD OR INJURED SPECIMENS

Upon locating a dead or injured California tiger salamander, California red-legged frog, or San Joaquin kit fox, initial notification must be made in writing to the Service's Division of Law Enforcement by facsimile at (310) 328-6399 and the Ventura Fish and Wildlife Office at (805) 644-3958 immediately, and in writing within three (3) working days. Notification must include date, time, location of the carcass; cause of death, if known; and any other pertinent information. Care must be taken in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state for later analysis. The finder has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed, unless to remove it from the path of further harm or destruction. Should any treated listed species survive, the Service should be contacted regarding their final disposition.

The remains of California tiger salamanders and California red-legged frogs must be placed with the California Academy of Sciences Herpetology Department (Contact: Jens Vindum, Department of Herpetology, California Academy of Sciences, 875 Howard Street, San Francisco, California, 94103, (415) 321-8289). Arrangements regarding proper disposition of potential museum specimens must be made with the California Academy of Sciences by the Corps or the Applicant prior to implementation of any actions.

Any San Joaquin kit fox found dead shall be provided to CDFG unless authorized agreements have been made with CDFG to the contrary. Notification must be made to Martha Schauss, associate wildlife biologist, at (831) 623-4989, or to Dave Fox, lieutenant warden, at (831) 649-2870.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that the Corps work with the Service in long-range planning of Corps projects to meet conservation objectives for California tiger salamanders, California red-legged frogs, and San Joaquin kit foxes.

2. We recommend that the Corps assist the Service in the implementation of the recovery plans for the San Joaquin kit fox (Service 1998) and California red-legged frog (Service 2002). We also encourage the Corps to provide the Service with comments during future development of a recovery plan for the California tiger salamander.

3. In the event that preliminary grading of the Phase 1 portion of the project is not completed before October 2006, we recommend that the Corps coordinate with the

Applicant to continue the minimization program during the 2006-07 breeding season, which was initiated by the Applicant and Bryan Mori during 2005-06. This would serve to exclude, remove and relocate California tiger salamanders that may not have been excluded from the Phase 1 site during the 2005-06 breeding season.

4. We encourage the Corps and Applicant to coordinate with Bryan Mori and/or other researchers to conduct research and publish findings regarding metapopulation dynamics of California tiger salamanders at the San Juan Oaks site.

REINITIATION NOTICE

This concludes formal consultation on your proposed authorization of the development and construction of a residential subdivision and golf courses at the San Juan Oaks Golf Club. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law), and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions, please contact Bill McIver of my staff at (805) 644-1766, extension 234.

Sincerely,

David M. Pereksta
Assistant Field Supervisor
Santa Cruz/San Benito/Monterey

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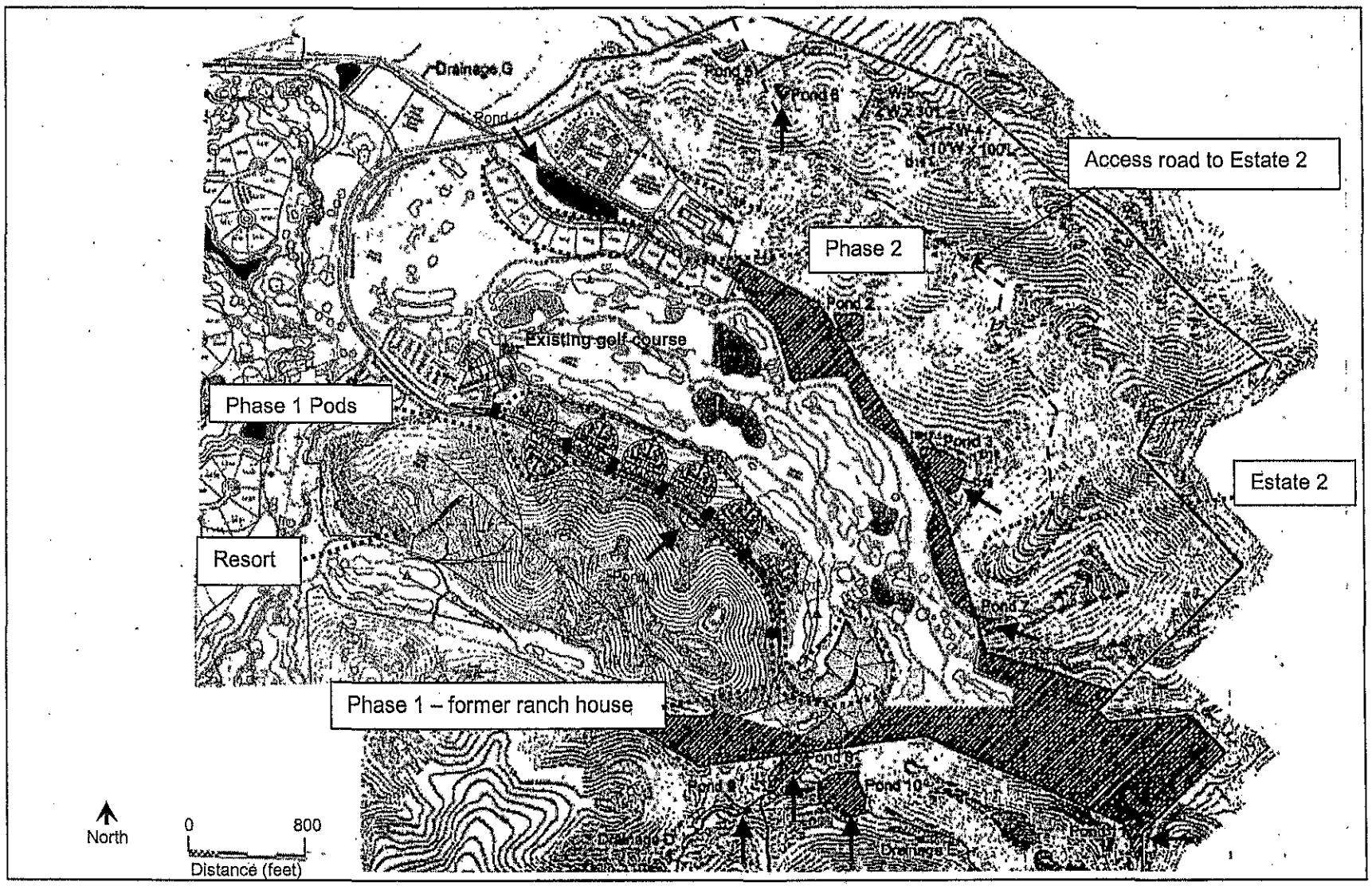

Figure 1. Locations of 11 ponds; residential construction phases 1 and 2; Estate 2; resort; and proposed underpass culverts at the proposed San Juan Oaks Golf Club and Residential Development Project, San Benito County, California. California tiger salamanders (*Ambystoma californiense*) and California red-legged frogs (*Rana aurora draytonii*) have been found in eight ponds, indicated by arrows. Underpass culverts indicated by black rectangles.

The Declining Amphibian Populations Task Force Fieldwork Code of Practice

1. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each work site.

2. Boots, nets, traps, and other types of equipment used in the aquatic environment should then be scrubbed with 70 percent ethanol solution and rinsed clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond. wetland, or riparian area.

3. In remote locations, clean all equipment with 70 percent ethanol or a bleach solution, and rinse with sterile water upon return to the lab or "base camp" Elsewhere, when washing-machine facilities are available, remove nets from poles and wash in a protective mesh laundry bag with bleach on the "delicates" cycle.

4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolated species, wear disposable gloves and change them between handling each animal. Dedicate sets of nets, boots, traps, and other equipment to each site being visited. Clean them as directed above and store separately at the end of each field day.

5. When amphibians are collected, ensure that animals from different sites are kept separately and take great care to avoid indirect contact (e.g., via handling, reuse of containers) between them or with other captive animals. Isolation from unsterilized plants or soils which have been taken from other sites is also essential. Always use disinfected and disposable husbandry equipment.

6. Examine collected amphibians for the presence of diseases and parasites soon after capture. Prior to their release or the release of any progeny, amphibians should be quarantined for a period and thoroughly screened for the presence of any potential disease agents.

7. Used cleaning materials and fluids should be disposed of safely and, if necessary, taken back to the lab for proper disposal. Used disposable gloves should be retained for safe disposal in sealed bags.

The Fieldwork Code of Practice has been produced by the Declining Amphibian Populations Task Force with valuable assistance from Begona Arano, Andrew Cunningham, Tom Langton, Jamie Reaser, and Stan Sessions.

For further information on this Code, or on the Declining Amphibian Populations Task Force, contact John Wilkinson, Biology Department, The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK.
E-mail: DAPTF@open.ac.uk
Fax: +44 (0) 1908-654167

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

AUG 1 2007

AUG 15 2007

Regulatory Branch

SUBJECT: File Number 27710S

Ms. Leslie Zander
Zander Associates
150 Ford Way Suite 101
Novato, California 94945-4500

Dear Ms. Zander:

This letter is written in response to your submittal on behalf of Rancho San Justo Company concerning Department of the Army authorization to fill 0.26 acre of wetlands and waters to construct the San Juan Oaks Golf Club in San Benito County, California.

Based on a review of the information you submitted and an inspection of the project site conducted by Corps personnel on , your project qualifies for authorization under Department of the Army Nationwide Permit (NWP) 39 Residential, Commercial, and Institutional Developments, (67 Fed. Reg. 2020, January 15, 2002), pursuant to Section 404 of the Clean Water Act (33 U.S.C. Section 1344). See Enclosure 1. All work shall be completed in accordance with the plans and drawings in the preconstruction notification dated January 17, 2005.

The project must be in compliance with the General Conditions cited in Enclosure 2 for this Nationwide Permit authorization to remain valid. Non-compliance with any condition could result in the suspension, modification or revocation of the authorization for your project, thereby requiring you to obtain an Individual Permit from the Corps. This Nationwide Permit authorization does not obviate the need to obtain other State or local approvals required by law.

This authorization will remain valid for two years from the date of this letter, unless the Nationwide Permit is suspended, modified or revoked. If you have commenced work or are under contract to commence work prior to the suspension, or revocation of the Nationwide Permit and the project would not comply with the resulting Nationwide Permit authorization, you have twelve (12) months from that date to complete the project under the present terms and conditions of the Nationwide Permit. Upon completion of the project and all associated mitigation requirements, you shall sign and return the Certification of Compliance, Enclosure 3, verifying that you have complied with the terms and conditions of the permit.

This Corps permit does not authorize you to take an endangered species. In order to legally take a listed species, you must have a separate authorization under the Endangered

Species Act (ESA) (e.g., an ESA Section 10 permit or a Biological Opinion (BO) under ESA Section 7 with "incidental take" provisions with which you must comply). The U.S. Fish and Wildlife Service (FWS) BO dated August 11, 2006 contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take authorized by the attached BO, whose terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take and it would also constitute non-compliance with this Corps permit. The FWS is the appropriate authority to determine compliance with the terms and conditions of its BO and with the ESA.

Should you have any questions regarding this matter, please call Bob Smith of our Regulatory Branch at 415-977-8450. Please address all correspondence to the Regulatory Branch and refer to the File Number at the head of this letter. If you would like to provide comments on our permit review process, please complete the Customer Survey Form available through the Forms and Contacts Block on our website: www.spn.usace.army.mil/regulatory/

Sincerely,

Mark D'Avignon
Chief, South Section
Regulatory Branch

Enclosures

Enclosure 1

39. Commercial and Institutional Developments. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of commercial and institutional building foundations and building pads and attendant features that are necessary for the use and maintenance of the structures. Attendant features may include, but are not limited to, roads, parking lots, garages, yards, utility lines, storm water management facilities, and recreation facilities such as playgrounds and playing fields. Examples of commercial developments include retail stores, industrial facilities, restaurants, business parks, and shopping centers. Examples of institutional developments include schools, fire stations, government office buildings, judicial buildings, public works buildings, libraries, hospitals, and places of worship. The construction of new golf courses, new ski areas, or oil and gas wells is not authorized by this NWP.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds this 300 linear foot limit is waived in writing by the district engineer. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Sections 10 and 404)

Enclosure 3

Permittee: Rancho San Justo Company

File Number: 27710S

Certification of Compliance
for
Nationwide Permit

"I hereby certify that the work authorized by the above referenced File Number and all required mitigation have been completed in accordance with the terms and conditions of this Nationwide Permit authorization."

_____
(Permittee) (Date)

Return to:

Bob Smith
U.S. Army, Corps of Engineers
San Francisco District
Regulatory Branch, SPNOR-R
333 Market Street
San Francisco, CA 94105-2197

San Juan Oaks Golf Course salamander genotyping 3 July 2008

Jarrett Johnson, Erick Loomis, & Brad Shaffer
Section of Evolution and Ecology, University of California, Davis CA, 95616, USA

Goal

Our goal was to use informative DNA markers to determine whether a collection of tiger salamander tissue samples represented native *Ambystoma californiense* (California tiger salamanders), non-native *Ambystoma tigrinum mavortium* (Barred tiger salamanders) or a mixture of the two genotypes (hybrids).

Methods

We received the following samples collected by Brad Shaffer and Ben Fitzpatrick with Bryan Mori (Bryan Mori Biological Consulting):

1) One whole larva and 13 eggs (N=14) from 'Pond 10' just South of the San Juan Oaks Golf Course in Hollister, CA (Fig. 1)
2) Fifty-five tail tips from several other ponds (Ponds 4, 6, & 7) at the golf course (Fig. 1).
3) Eighteen excised toes collected from upland habitat near the golf course.

Eggs were allowed to hatch in the laboratory at which point larvae were euthanatized and tissued. All tissues were preserved in 95% ethanol and assigned HBS tissue catalogue #'s (106975-107047; 107051-107064). We extracted DNA from each tissue sample for genotyping analyses using standard extraction techniques (Palumbi 1996). Individual tissue samples were genotyped for between 2 and 5 single nucleotide polymorphism (SNP) loci (e.g., Ctg325, Dlx3, Gnat2, Slc4a4, Wnt1, and dLoop; Voss et al. 2001) identified as diagnostic between *A. tigrinum* and *A. californiense* through previous restriction-fragment-length polymorphism (RFLP) analyses (Fitzpatrick and Shaffer 2004). Genotyping was performed using the Victor^3 plate reader (Perkin-Elmer) to perform fluorescence polarization (FP) analysis to score each individual's genotype at each locus. FP is a standard technique for the analysis of SNP loci (Xiao and Kwok 2003) and is more efficient, reliable and cost effective than RFLP analyses. At each SNP locus each individual was scored as 'aa' if homozygous for native (*Ambystoma californiense*) alleles, 'gg' if homozygous for introduced (*A. tigrinum mavortium*) alleles, or 'ga' if heterozygous. Because the *A. t. mavortium* hybridization began in the 1950s (Riley et al. 2003) and has been ongoing for at least 20 generations, individuals may be any combination of homozygotes and heterozygotes for each locus. The loci analyzed here are known to be on separate genetic linkage groups (Voss et al. 2001), so the total percentage of native and non-native alleles summed across loci provides a reasonable estimate of the "nativeness" of a given breeding site.

Results

Raw data are presented in Appendix 1 and genotypic frequency data are presented in Table 1. Our data indicate that some San Juan Oaks Golf Course ponds exhibit low levels of non-native genotypes. We summarize the "nativeness" of each individual as a Hybrid Index Score (HIS), calculated for each individual as: [# of non-native alleles]÷[total number of alleles scored]. HIS can range from 0.00 (pure native) to 1.00 (pure non-native). For the San Juan Oaks Golf Course individuals, HIS values ranged from 0.00 – 0.33 (i.e., 0-33% non-native; Table 2) indicating that some individuals (49 of 63) can be described putatively as "pure native" based on the loci we investigated and that all individuals were at least 67% native.

Conclusions

We conclude that the genotypes of salamanders present at the San Juan Oaks Golf Course pond are comprised primarily of native alleles but that this site has been subjected to invasion by hybrid tiger salamander genotypes. In considering these results, it is important to remember that we are only sampling a very small fraction of the genome, and that apparently "pure native" individuals may have non-native alleles at some unsampled genetic locus. However, the low overall HIS indicates that this population is not highly invaded by non-native genes. In addition, this site is in a region that is geographically very highly invaded (Fitzpatrick and Shaffer 2007), and these new data from the San Juan Oaks Golf Course property are consistent with our previous results indicating that hybrid genotypes extend beyond the highly-invaded Salinas Valley and into the adjacent Santa Clara Valley.

The abundance of native California Tiger Salamander alleles at most loci indicate that "pure" native California Tiger Salamanders may be encountered in this population. The observed levels of non-native Tiger Salamander genotypes indicate that this site may 1) have supported a purely native population that was invaded by a small number of hybrid salamanders, 2) consist of a native population currently receiving immigrants from adjacent sites containing hybrid individuals, or 3) be the result of colonization by individuals whose lineages originated from sites containing low levels of non-native genes. In our opinion, scenarios 1 & 2 are more probable than scenario 3, but are indistinguishable from each other given our current data. The San Juan Oaks Golf Course pond is seemingly typical of other ponds that we have genetically characterized in the Salinas Valley that are situated between the mountains and agricultural land-use. Foothill ponds in the Salinas Valley are less introgressed, containing low frequencies of non-native alleles. The foothill landscape likely provides appropriate terrestrial habitat, which maintains pure native individuals in these populations. However, nearby agricultural activities may allow persistent immigration of hybrid individuals from permanent water sources and lead to persistent low-levels of introgression or decreasing proportions of pure native individuals in foothill ponds.

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Table 1. Observed genotypic frequencies of all SNP loci for San Juan Oaks Golf Course.

	Pond#	Ctg325	Dlx3	Gnat2	Slc4a4	WNT1	dLoop	Mean
gg freq	**4**	N/A	0.00	N/A	0.00	N/A	0.00	0.00
	6	N/A	0.00	N/A	0.00	N/A	0.00	0.00
	7	N/A	0.00	N/A	0.00	N/A	0.00	0.00
	10	0.21	0.00	0.00	0.00	0.00	N/A	0.04
	uplands	N/A	0.00	N/A	0.00	N/A	N/A	0.00
ga freq	**4**	N/A	0.00	N/A	0.00	N/A	0.00	0.00
	6	N/A	0.00	N/A	0.33	N/A	0.00	0.11
	7	N/A	0.25	N/A	0.33	N/A	0.00	0.19
	10	0.00	0.00	0.29	0.09	0.23	N/A	0.12
	uplands	N/A	0.07	N/A	0.14	N/A	N/A	0.11
aa freq	**4**	N/A	1.00	N/A	1.00	N/A	1.00	1.00
	6	N/A	1.00	N/A	0.67	N/A	1.00	0.89
	7	N/A	0.75	N/A	0.67	N/A	1.00	0.81
	10	0.79	1.00	0.71	0.91	0.77	N/A	0.84
	uplands	N/A	0.93	N/A	0.86	N/A	N/A	0.89

Table 2. Hybrid Index Scores (HIS) across all sampled loci for each individual genotyped from San Juan Oaks Golf Course. A HIS of 1.0 indicates pure non-native at all loci sampled, and a HIS of 0.0 indicates putative pure native individuals.

HBS #	indHIS
106975	0.0000
106976	0.0000
106977	0.0000
106978	0.0000
106979	0.0000
106980	0.0000
106981	0.0000
106982	0.0000
106983	0.0000
106984	0.0000
106985	0.0000
106986	0.0000
106987	0.0000
106988	0.0000
106989	0.0000
107004	0.0000
107005	0.1667
107006	0.0000
107007	0.1667
107008	0.1667
107009	0.0000
107010	0.0000
107011	0.1667
107012	0.0000
107013	0.0000
107014	0.0000
107015	0.0000
107016	0.1667
107017	0.0000
107018	0.0000
107001	0.0000
107002	0.3333

HBS #	indHIS
107003	0.0000
107030	0.0000
107051	0.3333
107052	0.1667
107053	0.2500
107054	0.0000
107055	0.2500
107056	0.0000
107057	0.1250
107058	0.0000
107059	0.0000
107060	0.0000
107061	0.0000
107062	0.0000
107063	0.0000
107064	0.0000
107033	0.1667
107034	0.0000
107035	0.0000
107036	0.0000
107037	0.0000
107038	0.0000
107039	0.1667
107040	0.0000
107041	0.0000
107042	0.0000
107043	0.0000
107044	0.0000
107045	0.1667
107046	0.0000
107047	0.0000

Figure 1. Aerial photo showing location of San Juan Oaks Golf Course collection localities.

Appendix 1: Raw genotype data for each individual genotyped at 6 SNP loci. 'gg' represents introduced, 'aa' represents native, and 'ga' represents heterozygous genotypes.

Pond	HBS #	Ctg325	Dlx3	Gnat2	Slc4a4	WNT1	dLoop
Pond 04	106975		aa		aa		NoData
Pond 04	106976		aa		aa		aa
Pond 04	106977		aa		aa		aa
Pond 04	106978		aa		aa		aa
Pond 04	106979		aa		aa		aa
Pond 04	106980		aa		aa		aa
Pond 04	106981		aa		aa		aa
Pond 04	106982		aa		aa		aa
Pond 04	106983		aa		aa		aa
Pond 04	106984		aa		aa		aa
Pond 04	106985		aa		aa		aa
Pond 04	106986		aa		aa		NoData
Pond 04	106987		aa		aa		aa
Pond 04	106988		aa		aa		aa
Pond 04	106989		aa		aa		aa
Pond 06	107004		aa		aa		aa
Pond 06	107005		aa		ga		aa
Pond 06	107006		aa		aa		aa
Pond 06	107007		aa		ga		NoData
Pond 06	107008		aa		ga		aa
Pond 06	107009		aa		aa		aa
Pond 06	107010		aa		aa		aa
Pond 06	107011		aa		ga		aa
Pond 06	107012		aa		aa		aa
Pond 06	107013		aa		aa		aa
Pond 06	107014		aa		aa		NoData
Pond 06	107015		aa		aa		NoData
Pond 06	107016		aa		ga		aa
Pond 06	107017		aa		aa		aa
Pond 06	107018		aa		aa		aa
Pond 07	107001		aa		NoData		NoData
Pond 07	107002		ga		ga		NoData
Pond 07	107003		aa		aa		aa
Pond 07	107030		aa		aa		aa
Pond 10	107051	aa	aa	ga	NoData	ga	
Pond 10	107052	gg	aa	ga	NoData	aa	
Pond 10	107053	aa	aa	ga	aa	ga	
Pond 10	107054	aa	aa	aa	aa	aa	
Pond 10	107055	gg	aa	aa	ga	ga	
Pond 10	107056	aa	aa	aa	aa	aa	
Pond 10	107057	gg	aa	ga	aa	aa	
Pond 10	107058	aa	aa	aa	NoData	aa	
Pond 10	107059	aa	aa	aa	aa	aa	
Pond 10	107060	aa	aa	aa	aa	aa	
Pond 10	107061	aa	aa	aa	aa	aa	
Pond 10	107062	aa	aa	aa	aa	aa	
Pond 10	107063	aa	aa	aa	aa	NoData	
Pond 10	107064	aa	aa	aa	aa	aa	
Uplands	107033		aa		ga		
Uplands	107034		aa		aa		
Uplands	107035		aa		aa		
Uplands	107036		aa		aa		
Uplands	107037		aa		aa		
Uplands	107038		aa		aa		
Uplands	107039		ga		aa		
Uplands	107040		aa		aa		
Uplands	107041		aa		aa		
Uplands	107042		aa		aa		
Uplands	107043		aa		aa		
Uplands	107044		aa		NoData		
Uplands	107045		aa		ga		
Uplands	107046		NoData		aa		
Uplands	107047		aa		aa		

ARBOR RESOURCES
professional consulting arborists and tree care

TREE SUR EY REPORT

DEL WEBB SAN UAN OA S

HOLLISTER, CALIFORNIA

Submitted to:

Mr. John Johnson
Pulte Home Corporation
3210 Stoneridge Mall Road, 5th Floor
Pleasanton, CA 94588

Prepared by:

David L. Babby
Registered Consulting Arborist® #399
Board-Certified Master Arborist® #WE-4001B

February 22, 2013

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EXHIBITS

EXHIBIT	TITLE
A	TREE INVENTORY TABLE (six sheets)
B	AERIAL MAPS (four sheets)
C	PHOTOGRAPHS (twelve sheets)
D	SCOPE OF WORK AREA (one sheet)

1.0 INTRODUCTION

Pulte Home Corporation has retained me to inventory and evaluate 43 trees located within the scope of work area delineated on the aerial photograph in Exhibit D; the site is vacant land immediately west of San Juan Oaks Road, and across the street from (to the west of) the parking lot of San Juan Oaks Golf Club. Specific tasks performed are as follows:

- Identify the species of the 43 trees.
- Determine each tree's trunk diameter at 54 inches above soil grade or where needed to obtain the most representative sample of trunk size; all diameters are rounded to the nearest inch.
- Ascertain each tree's health and structural integrity, and assign an overall condition rating (e.g. good, fair, poor or dead).
- Determine each tree's suitability for preservation (e.g. good, moderate or low).
- Obtain photographs of each tree; see Exhibit C.
- Assign numbers to each tree, and plot them on the aerial photos derived from *Google Earth*; see Exhibit B.
- Affix (using aluminum nails) metal tags with corresponding numbers to the trees' trunks (the tags are round aluminum with engraved numbers);.
- Provide general guidelines for designing around trees being retained and protected.
- Prepare this written report (titled *Tree Survey Report*) that presents the aforementioned information, and submit via email as a PDF document.

2.0 TREE COUNT AND COMPOSITION

One tree, **#6**, is a **eucalyptus** with a 46-inch trunk diameter and named Nichol's willow-leafed peppermint (*Eucalyptus nicholii*); it is not native to the area. The other **42 trees** are **valley oaks** (*Quercus lobata*), all native to the area, and have an average trunk diameter of 46 inches (and a range between 17 to 68 inches).

The trees are widely scattered throughout the entire site, and are sequentially numbered as 1 thru 43. Specific information regarding each tree is presented within the table in **Exhibit A**, and their approximate locations can be viewed on the aerial photographs in **Exhibit B**. Photographs are presented in **Exhibit C**, and my scope of work area is delineated on the aerial provided in **Exhibit D**.

One oak's trunk, **#14**, is situated on the neighboring south side of a wire fence, and appears to be entirely or partly on the **adjacent** southern property.

3.0 SUITABILITY FOR TREE PRESERVATION

Each tree has been assigned either a "good," "moderate" or "low" suitability for preservation rating as a means to cumulatively measure their health, structural integrity, anticipated life span, location, size and species. A description of these ratings are presented below; note that the "good" category comprises **13 trees** (30%), the "moderate" category **17 trees** (or 40%), and the "low" category **13 trees** (or 30%).

Good: These trees exhibit good health, have seemingly reasonably stable structures, and appear to offer a good potential of contributing long-term to the subject site. They are the most suitable trees to retain.

- Applies to **trees #5, 7-9, 14, 16, 19, 21, 26, 29, 30, 33 and 43**.

Moderate: These trees contribute to the site, but at levels less than those assigned a high suitability, and their retention and protection depends on the project design and may or may not be appropriate. Frequent care and monitoring is typically required to maintain their structural integrity and vigor. In instances where there are large wounds, cavities or other structurally concerning defects, measures may be necessary to mitigate the risk of structural failure, and/or no high-value targets established beneath or within striking distance (or the danger area fenced off).

- Applies to **trees #1-4, 6, 13, 15, 17, 18, 20, 22, 23, 28, 31, 32, 34 and 38**.

Low: These trees are extremely unsafe and the least suitable for retention due to having significant weakened conditions, being dead, and/or predisposed to structural defects that are expected to worsen regardless of tree care measures employed. In considering the future development, I suggest they are prioritized for removal, and any that are retained should be away from where any part are within striking distance of a high-value target (and possibly any danger area fenced off).

- Applies to **trees #10-12, 24, 25, 27, 35-37 and 39-42**.

4.0 GENERAL DESIGN GUIDELINES

Recommendations presented within this section serve as general design guidelines to help mitigate or avoid impacts to trees being retained. They are subject to revision upon reviewing additional or revised plans, and I should be consulted in the event any cannot be feasibly implemented.

1. The **Tree Protection Zone (TPZ)** is where all trenching, soil scraping, overexcavation and grading (**soil cuts, overexcavation, fill, and finish-grading**) should be avoided. For design purposes, the **TPZ** of a particular tree should be a *minimum* distance from its trunk of **seven to ten times its diameter**. Where an impact encroaches slightly within a setback, it can be reviewed on a case-by-case basis to determine appropriate mitigation measures.

2. The design of future buildings and/or additions should consider **retention of major limbs** (such as those eight plus inches in diameter). In doing so, sufficient space is needed to construct a building, including erecting construction scaffolding, installing roofs, and exterior finishing. In some instances, pruning and/or tying back branches may be a viable option for certain trees, but would be reviewed on a case-by-case basis.

3. The project design should consider that **soil disturbance** (e.g. overexcavation, subexcavation, grading, compaction or trenching) beyond a feature to be built within or near a TPZ shall be **reduced** to the maximum extent possible in the direction of a tree's trunk. In no instance should disturbance exceed **12 inches** for a curb, gutter, walkway or pier, or **24 inches** for retaining walls, foundations and concrete pads.

4. The trees inventoried for this report should be **shown on all site-related plans** (e.g. architectural site, demolition, grading and drainage, utilities and landscape). Information to show includes their assigned numbers; trunk diameters (shown as a circle to-scale); trunk locations; and canopy dimensions (for this site, can be obtained

from an aerial, and where trees are grouped together, could reflect the combined canopies).

5. Any **existing, unused lines or pipes** within a TPZ should be **abandoned** and cut off at existing soil grade (rather than being dug up and causing subsequent root damage); this provision should be specified on applicable plans (e.g. a demolition plan).

6. The permanent and temporary **drainage design**, including downspouts, should not require water being discharged with TPZs. Additionally, the drainage design shall not require trenching within a TPZ, and **bioswales** must be established well beyond a TPZ.

7. To restrict spoils and runoff from traveling into root zones, the future **erosion control design** should establish any silt fence and/or straw rolls uphill away from a tree trunk (not against it), and as close to the canopy edge as possibly. Additionally, where within a TPZ, the material should require none or a maximum vertical soil cut of two inches for its embedment.

8. **Underground utilities and services** should be routed **beyond a TPZ**. Where this is not feasible, the section of line(s) within the TPZ should be directionally-bored by at least four feet below existing grade, or installed by other means (e.g. pipe-bursting) to avoid an open trench; the ground above any tunnel must remain undisturbed, and access pits and any above-ground infrastructure (e.g. splice boxes, meters and vaults) must be established beyond all TPZs.

9. The future **staging area** and **route(s) of access** should be planned to be beyond tree canopies.

10. Any **structure or wall** proposed within a TPZ should utilize an alternative foundation. One concept is to **cantilever** the encroaching section over and above existing soil grade, and the ground beneath not be compacted or disturbed. The other is to use a **pier and above-grade beam** foundation, in which no soil disturbance between the

piers should occur. Should a beam require embedment, I recommend a max of two to three inches. Each scenario should be reviewed on a case-by-case basis.

11. The proposed **landscape design** around the valley oaks should conform to the following additional guidelines:
    a. Turf should be avoided beneath their canopies.
    b. Plant material installed beneath the canopies must be drought-tolerant, limited in amount, and planted at least five or more feet from their trunks.
    c. Irrigation can, overtime, adversely impact the oak trees and should be avoided. Irrigation for any new plant material beneath an oak's canopy should be low-volume, applied irregularly (such as only once or twice per week) and temporary (such as no more than two three years).
    d. Irrigation should not be sprayed within five feet from an oak's trunk.
    e. In the event trenches for irrigation and/or lighting are required within a TPZ, they shall be installed in a radial direction to a tree's trunk. If this is not possible, the work may need to be performed using a pneumatic air device (such as an Air-Spade®) to avoid unnecessary root damage.
    f. New fencing should be placed no closer than five feet from a trunk.
    g. Ground cover beneath canopies should be comprised of a three- to four-inch layer of coarse wood chips or other high-quality mulch (gorilla hair, bark or rock, stone, gravel, black plastic or other synthetic ground cover should be avoided). Mulch should not be placed against the trees' trunks.
    h. Tilling within a TPZ should be avoided, including for weed control.
    i. Bender board or other edging material proposed beneath the canopies should be established on top of existing soil grade (such as by using vertical stakes).

5.0 ASSUMPTIONS AND LIMITING CONDITIONS

- All information presented herein reflects my observations and measurements obtained from the project site on February 18, 2013.
- Condition ratings of the oaks are subject to change once they can be observed following the growth of new leaves.
- My observations were performed visually without probing, coring, dissecting or excavating. I cannot, in any way, assume responsibility for any defects that could only have been discovered by performing the mentioned services in the specific area(s) where a defect was located.
- The assignment pertains solely to trees listed in Exhibit A. I hold no opinion towards other trees on or surrounding the project area.
- I cannot provide a guarantee or warranty, expressed or implied, that deficiencies or problems of any trees or property in question may not arise in the future.
- No assurance can be offered that if all my recommendations and precautionary measures (verbal or in writing) are accepted and followed, that the desired results may be achieved.
- I cannot guarantee or be responsible for the accuracy of information provided by others.
- I assume no responsibility for the means and methods used by any person or company implementing the recommendations provided in this report.
- The information provided herein represents my opinion. Accordingly, my fee is in no way contingent upon the reporting of a specified finding, conclusion or value.
- The tree numbers shown on the aerial photographs in Exhibit B are intended to only approximate a tree's location, and should not be considered as a surveyed location.
- This report is proprietary to me and may not be copied or reproduced in whole or part without prior written consent. It has been prepared for the sole and exclusive use of the parties to who submitted for the purpose of contracting services provided by David L. Babby.
- If any part of this report or copy thereof be lost or altered, the entire evaluation shall be invalid.

Prepared By: _____ Date: February 22, 2013

David L. Babby
Registered Consulting Arborist® #399
Board-Certified Master Arborist® #WE-4001B

EXHIBIT A:

TREE INVENTORY TABLE

(six sheets)

TREE IN ENTORY TABLE

TREE/ TAG NO.	TREE NAME	Trunk Diameter (in.)	Health Condition (100%=Best, 0%=Worst)	Structural Integrity (100%=Best, 0%=Worst)	Overall Condition (Good/Fair/Poor/Dead)	Suitability for Preservation (Good/Moderate/Low)
1	valley oak (*Quercus lobata*)	52	60%	30%	Poor	Moderate
	Comments: Has a massive decaying hollow/cavity that accounts for nearly two-thirds of entire trunk circumference. There is a wire cage around trunk and should be removed to avoid girdling. Has a weak structure.					
2	valley oak (*Quercus lobata*)	32	70%	30%	Fair	Moderate
	Comments: Has a weak structure. One of two stems split away, and is being supported by branches embedded in the ground.					
3	valley oak (*Quercus lobata*)	30	80%	30%	Fair	Moderate
	Comments: Southeast trunk broke away and is supported by a limb embedded in the ground. Has a weak structure.					
4	valley oak (*Quercus lobata*)	36	60%	10%	Poor	Moderate
	Comments: The tree represents the remains of a previously fallen tree. Has a weak structure.					
5	valley oak (*Quercus lobata*)	35	80%	70%	Good	Good
	Comments: Has an asymmetrical canopy.					
6	Nichol's willow-leafed peppermint (*Eucalyptus nicholii*)	46	90%	40%	Fair	Moderate
	Comments: A very healthy tree, but has a weak structure formed by codominant stems with substantial included bark.					
7	valley oak (*Quercus lobata*)	48	80%	70%	Good	Good
	Comments: Formed by codominants.					

TREE IN ENTORY TABLE

TREE/ TAG NO.	TREE NAME	Trunk Diameter (in.)	Health Condition (100%=Best, 0%=Worst)	Structural Integrity (100%=Best, 0%=Worst)	Overall Condition (Good/Fair/Poor/Dead)	Suitability for Preservation (Good/Moderate/Low)
8	valley oak (*Quercus lobata*)	44	80%	40%	Fair	Good
	Comments: Asymmetrical canopy. Two limbs in upper canopy form weak a attachment. A large decaying wound along the southern limb.					
9	valley oak (*Quercus lobata*)	47	90%	60%	Good	Good
	Comments: Multiple leaders. Canopy is asymmetrical.					
10	valley oak (*Quercus lobata*)	37	70%	20%	Poor	Low
	Comments: Has two massive wounds where leaders previously failed. Gopher tunnel beneath buttress roots. Very weak remaining structure. Canopy is highly asymmetrical with the vast majority extending south of center.					
11	valley oak (*Quercus lobata*)	47	50%	30%	Poor	Low
	Comments: Large deadwood and decaying areas. Has a large, decaying girdling root and an asymmetrical canopy. Past failure of large limbs.					
12	valley oak (*Quercus lobata*)	42	30%	10%	Poor	Low
	Comments: Tree is dying and breaking apart. Extreme stem decay of remaining portion.					
13	valley oak (*Quercus lobata*)	57	60%	40%	Fair	Moderate
	Comments: Asymmetrical canopy. Leans towards east along slope. Has a large cavity due to the failure of a previous leader on uphill side.					
14	valley oak (*Quercus lobata*)	35	80%	70%	Good	Good
	Comments: On south side of fence near shared property line.					
15	valley oak (*Quercus lobata*)	22	70%	40%	Fair	Moderate
	Comments: Asymmetrical canopy. Past limb failure and large deadwood. Has a partly buried root collar.					

TREE IN ENTORY TABLE

TREE/ TAG NO.	TREE NAME	Trunk Diameter (in.)	Health Condition (100%=Best, 0%=Worst)	Structural Integrity (100%=Best, 0%=Worst)	Overall Condition (Good/Fair/Poor/Dead)	Suitability for Preservation (Good/Moderate/Low)
16	valley oak (*Quercus lobata*)	34	80%	70%	Good	Good
	Comments: Has a buried root collar.					
17	valley oak (*Quercus lobata*)	22	70%	50%	Fair	Moderate
	Comments: Has a buried root collar. Canopy grows mostly towards east.					
18	valley oak (*Quercus lobata*)	17	70%	50%	Fair	Moderate
	Comments: Suppressed growth beneath #17's canopy. Has a buried root collar.					
19	valley oak (*Quercus lobata*)	37	70%	60%	Fair	Good
	Comments: Centermost limb is dead. History of limb failure. Has a large decaying wound along lower trunk.					
20	valley oak (*Quercus lobata*)	42	60%	40%	Fair	Moderate
	Comments: Has a large, decaying wound along the inside of the upright leader. There is substantial decay opposite this wound.					
21	valley oak (*Quercus lobata*)	46	70%	60%	Fair	Good
	Comments: Has large deadwood and a hollow along lower trunk.					
22	valley oak (*Quercus lobata*)	58	70%	40%	Fair	Moderate
	Comments: Has a decaying wound at base. A previous leader failed, resulting in a large hollow along lower trunk. On opposite side, another failed, the remnants of which are a decaying stub.					
23	valley oak (*Quercus lobata*)	56	70%	30%	Fair	Moderate
	Comments: Weak structure due to a massive stem failure along lower trunk. Has an asymmetrical canopy. History of multiple limb failures.					

TREE IN ENTORY TABLE

TREE/ TAG NO.	TREE NAME	Trunk Diameter (in.)	Health Condition (100%=Best, 0%=Worst)	Structural Integrity (100%=Best, 0%=Worst)	Overall Condition (Good/Fair/Poor/Dead)	Suitability for Preservation (Good/Moderate/Low)
24	valley oak (*Quercus lobata*)	60	30%	20%	Poor	Low
	Comments: Massive past limb failure has left very little remaining canopy.					
25	valley oak (*Quercus lobata*)	60	40%	20%	Poor	Low
	Comments: Most of trunk is decayed from massive, multiple stem failures and wounds.					
26	valley oak (*Quercus lobata*)	48	70%	50%	Fair	Good
	Comments: Asymmetrical canopy. Has a small, decaying wound at base.					
27	valley oak (*Quercus lobata*)	39	50%	40%	Poor	Low
	Comments: Top section is dead. Has large deadwood and a small, decaying hollow at base. One-sided canopy adjacent to tree #28.					
28	valley oak (*Quercus lobata*)	52	70%	30%	Fair	Moderate
	Comments: Large deadwood and past massive limb failure. Adjacent to #27.					
29	valley oak (*Quercus lobata*)	47	80%	60%	Good	Good
	Comments: Has a decaying hollow at base.					
30	valley oak (*Quercus lobata*)	51	80%	70%	Good	Good
	Comments: History of branch and limb failure.					
31	valley oak (*Quercus lobata*)	32	70%	50%	Fair	Moderate
	Comments: Has a partly buried root collar and a history of limb failure. Canopy is asymmetrical and grows away from adjacent tree #32.					

TREE IN ENTORY TABLE

TREE/ TAG NO.	TREE NAME	Trunk Diameter (in.)	Health Condition (100%=Best, 0%=Worst)	Structural Integrity (100%=Best, 0%=Worst)	Overall Condition (Good/Fair/Poor/Dead)	Suitability for Preservation (Good/Moderate/Low)
32	valley oak (*Quercus lobata*)	55	60%	3%	Poor	Moderate
	Comments: Has a partly buried root collar. The entire central leader broke many years ago, and there is a general history of limb failure. Is adjacent to tree #31.					
33	valley oak (*Quercus lobata*)	57	80%	60%	Good	Good
	Comments: History of branch and limb failure. Deadwood.					
34	valley oak (*Quercus lobata*)	42	60%	40%	Fair	Moderate
	Comments: Has a large cavity within lower trunk. Deadwood and a history of branch and limb failure.					
35	valley oak (*Quercus lobata*)	63	70%	30%	Fair	Low
	Comments: History of large limb failure. Has an asymmetrical canopy and prior trunk failure. Remaining trunk has a massive wound along a significant portion of the trunk's exterior, a wound that will ultimately decay and form a hollow. Very weak remaining structure.					
36	valley oak (*Quercus lobata*)	59	40%	10%	Poor	Low
	Comments: Most of tree has broke away, and remaining trunk at severe risk of also failing.					
37	valley oak (*Quercus lobata*)	44	0%	0%	Dead	Low
	Comments: Has been dead for many years.					
38	valley oak (*Quercus lobata*)	61	80%	40%	Fair	Moderate
	Comments: Massive, low-growing leader is decayed. Has large deadwood throughout. Has a history of past limb failure, one limb of which is hanging from canopy.					

TREE IN ENTORY TABLE

TREE/ TAG NO.	TREE NAME	Trunk Diameter (in.)	Health Condition (100%=Best, 0%=Worst)	Structural Integrity (100%=Best, 0%=Worst)	Overall Condition (Good/Fair/Poor/Dead)	Suitability for Preservation (Good/Moderate/Low)
39	valley oak (*Quercus lobata*)	62	70%	20%	Poor	Low
	Comments: Two of three large, main leaders have failed, one of which is lying on the ground.					
40	valley oak (*Quercus lobata*)	57	60%	20%	Poor	Low
	Comments: Three occurrences of massive failure, including the tree's top, and little of the tree remains.					
41	valley oak (*Quercus lobata*)	68	60%	30%	Poor	Low
	Comments: Massive limb failure at three or more locations. There is a column of decay along remaining upright. Asymmetrical canopy.					
42	valley oak (*Quercus lobata*)	43	30%	20%	Poor	Low
	Comments: Has a sparse, declining canopy, and is nearly dead. Large deadwood throughout. Has a large cavity at base.					
43	valley oak (*Quercus lobata*)	51	70%	60%	Fair	Good
	Comments: Has a partly buried root collar. Deadwood and history of limb failure.					

EXHIBIT B:

AERIAL MAPS

(four sheets)

Aerial Map Index

Page B-1: Trees #1 thru 6

Page B-2: Trees #7 thru 13 and 43

Page B-3: Trees #14 thru 28

Page B-4: Trees #29 thru 42

DEL WEBB SAN JUAN OAKS

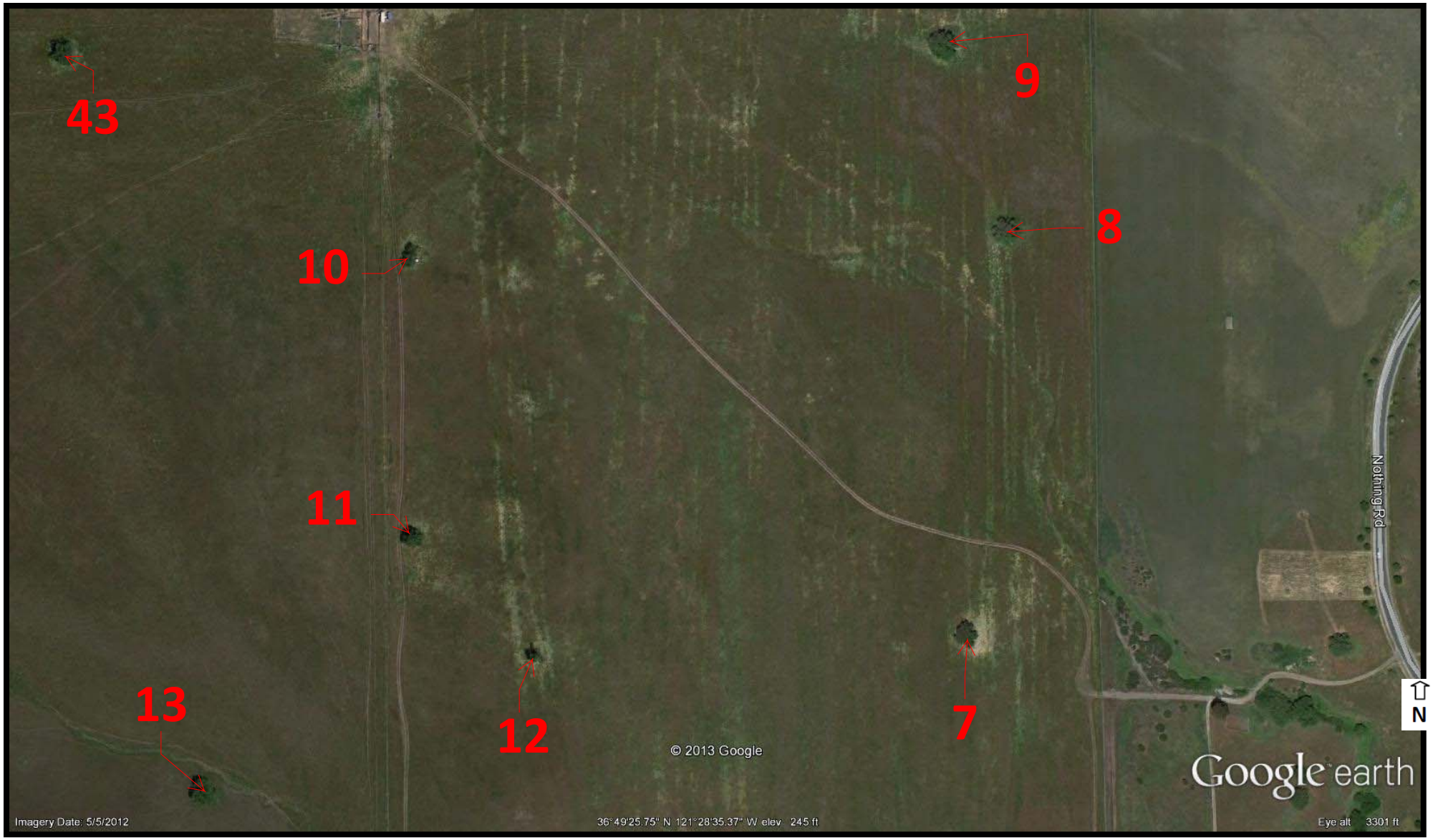
Hollister, California

Trees 1 thru 6

DEL WEBB SAN JUAN OAKS

Hollister, California

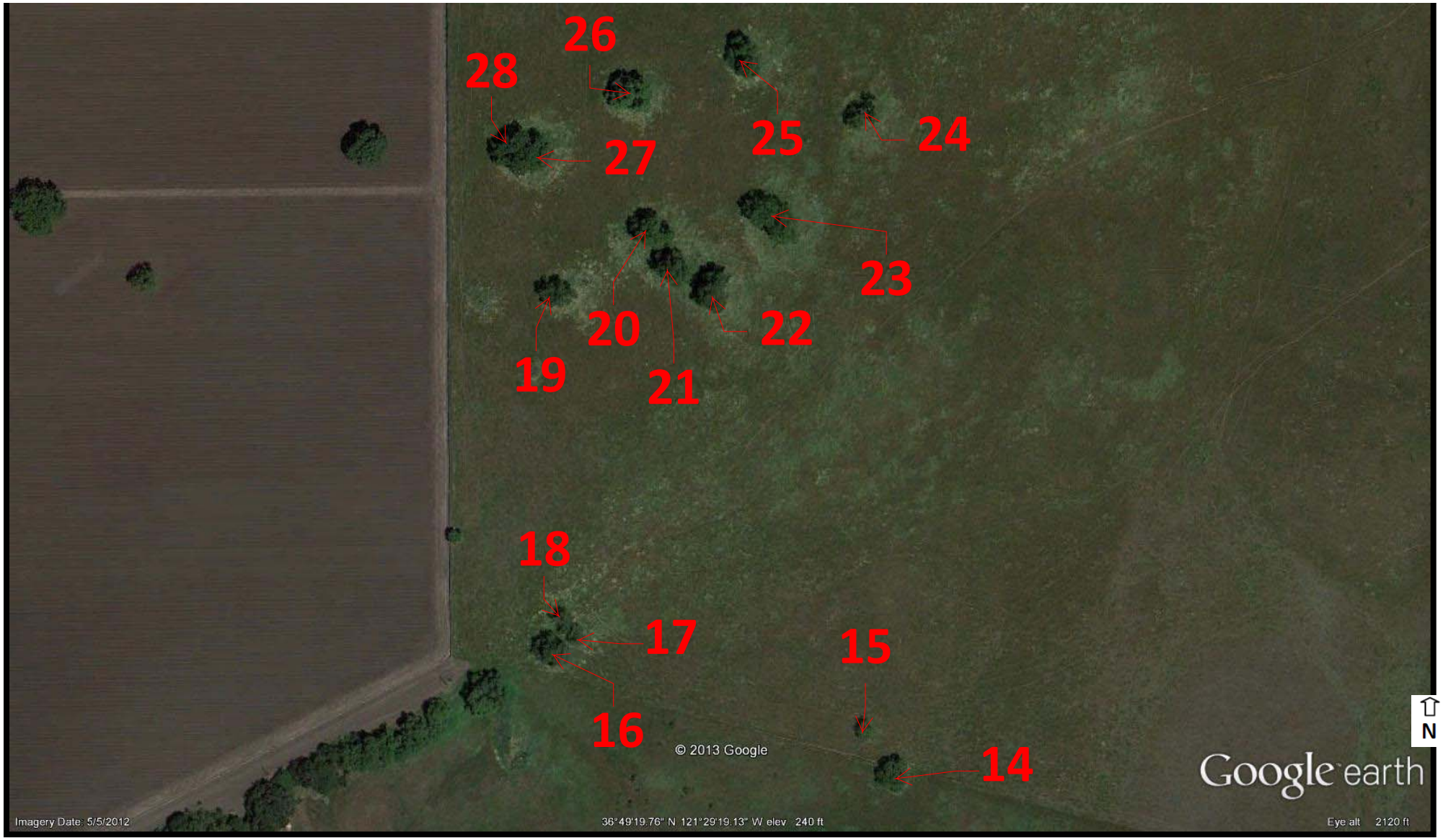
Trees 7 thru 13 and 43



DEL WEBB SAN JUAN OAKS

Hollister, California

Trees 14 thru 28



DEL WEBB SAN JUAN OAKS

Hollister, California

Trees 2 thru 42

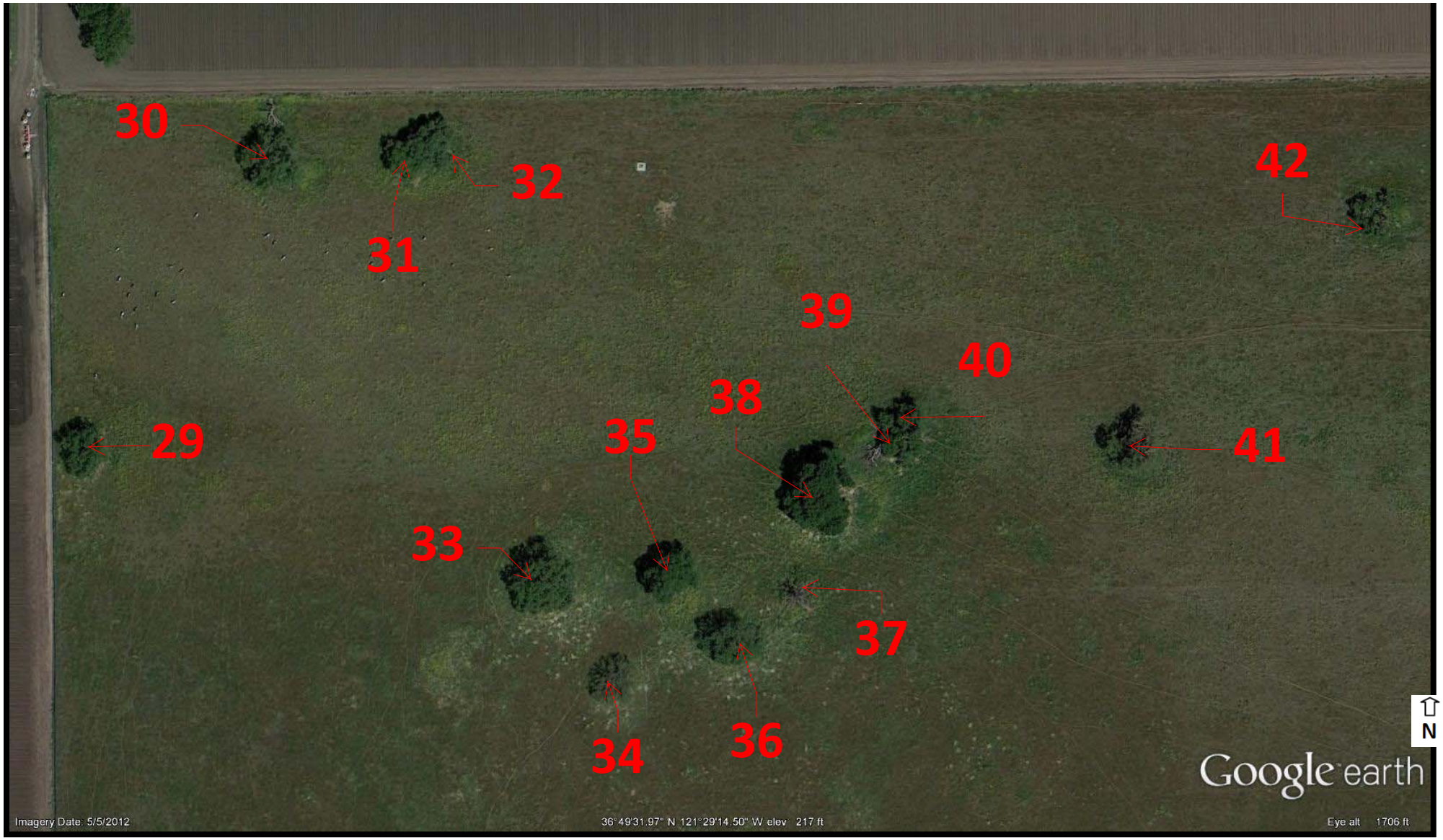


EXHIBIT C:

PHOTOGRAPHS

(12 sheets)

Photo Index

Page C-1: Trees #1 thru 3

Page C-2: Trees #4 thru 7

Page C-3: Trees #8 thru 10

Page C-4: Trees #11 thru 13

Page C-5: Trees #14 thru 19

Page C-6: Trees #20 thru 23

Page C-7: Trees #24 thru 26

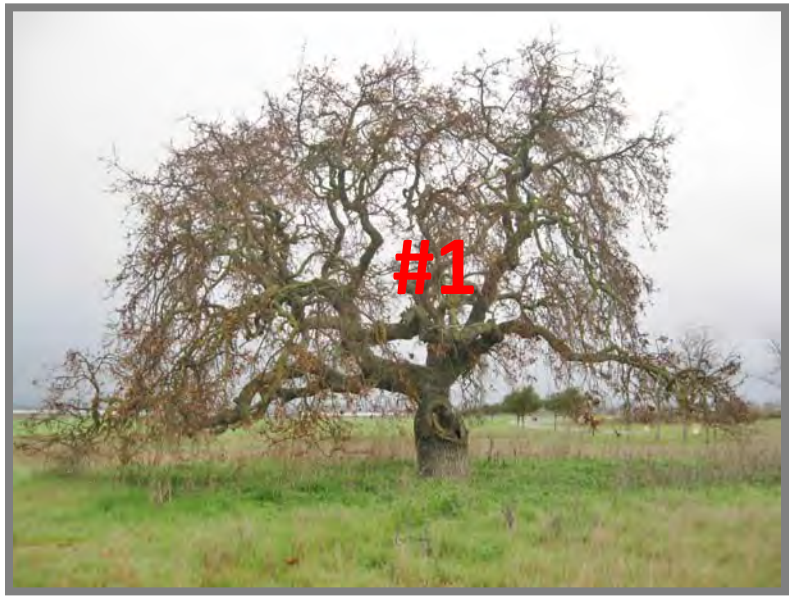
Page C-8: Trees #27 thru 32

Page C-9: Trees #33 thru 35

Page C-10: Trees #36 and 37

Page C-11: Trees #38 thru 40

Page C-12: Trees #41 thru 43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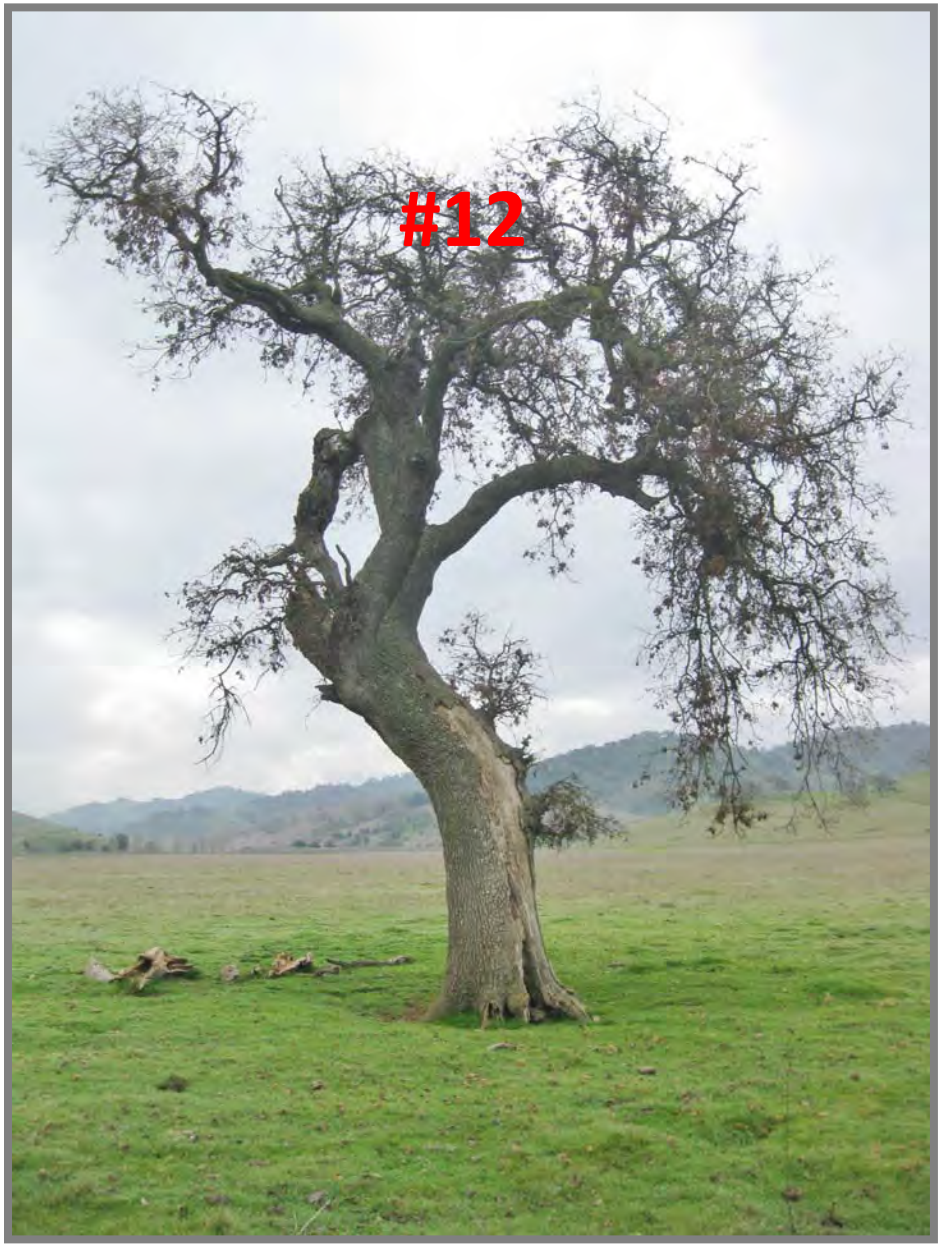
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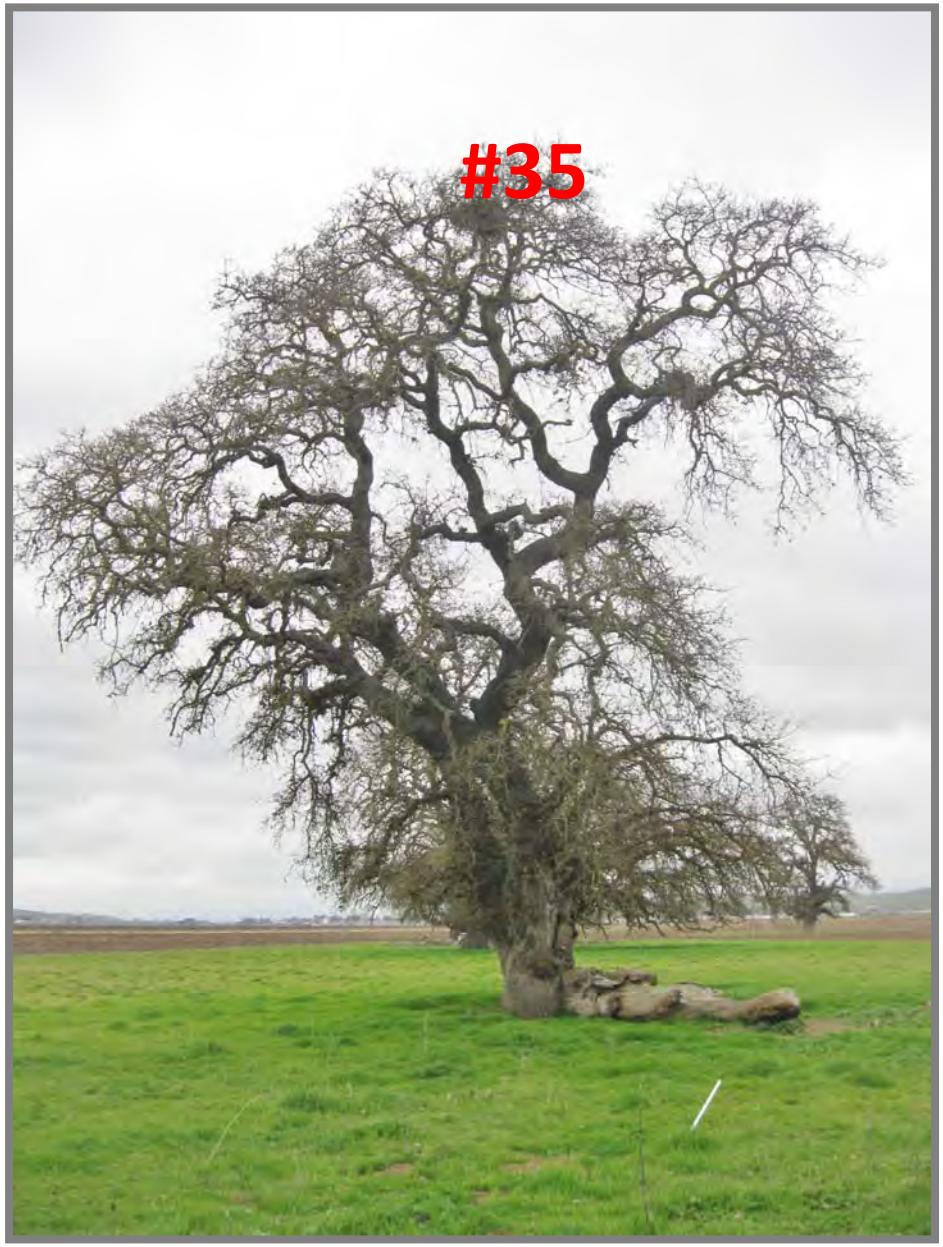
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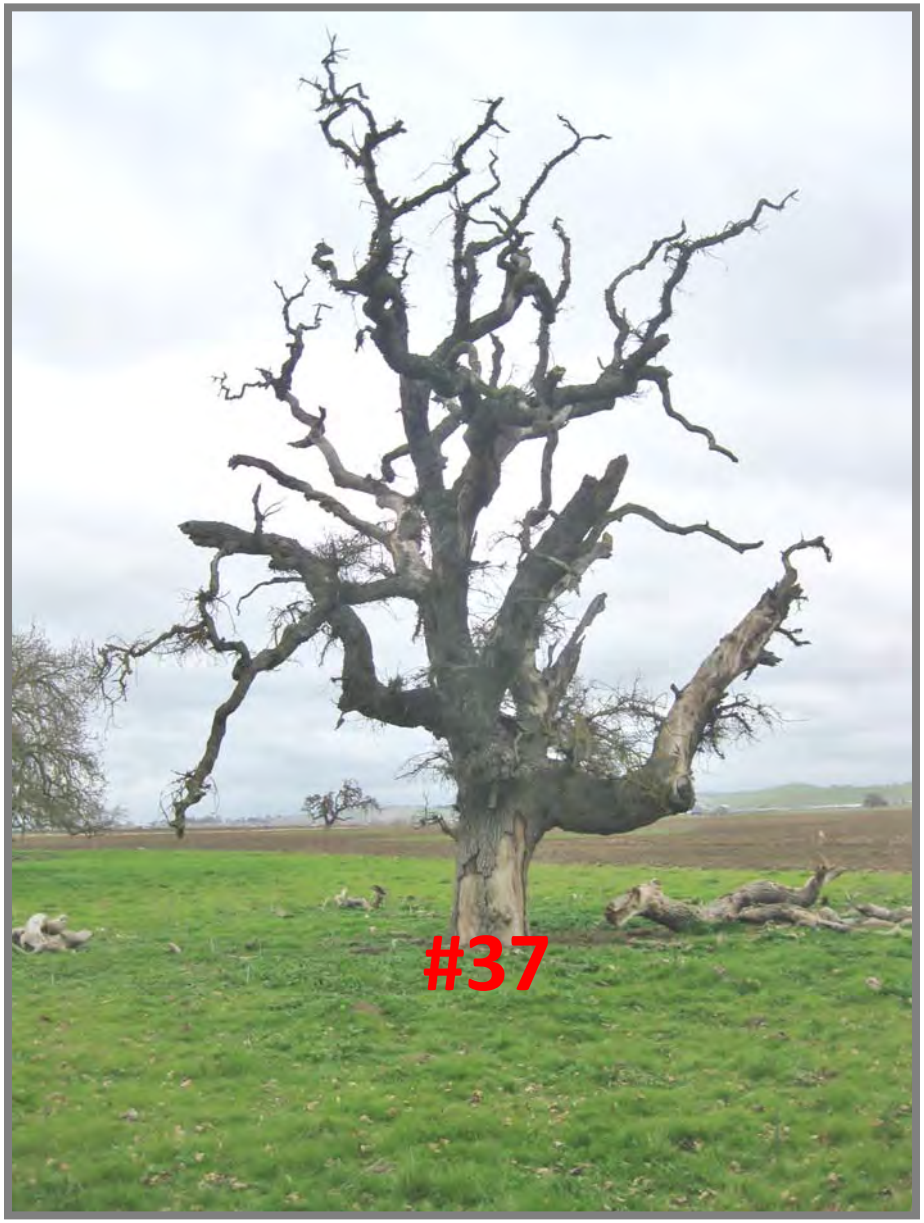
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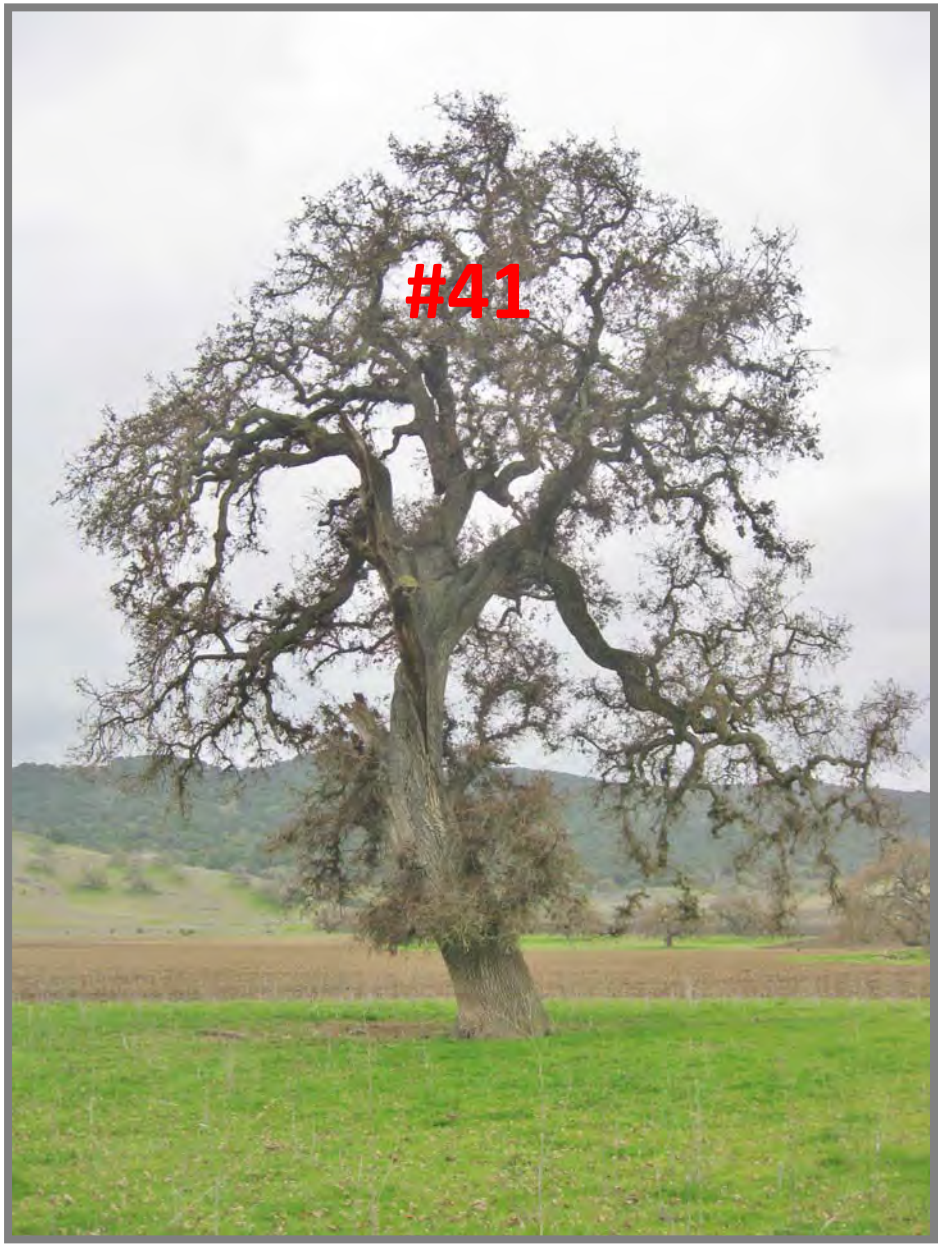
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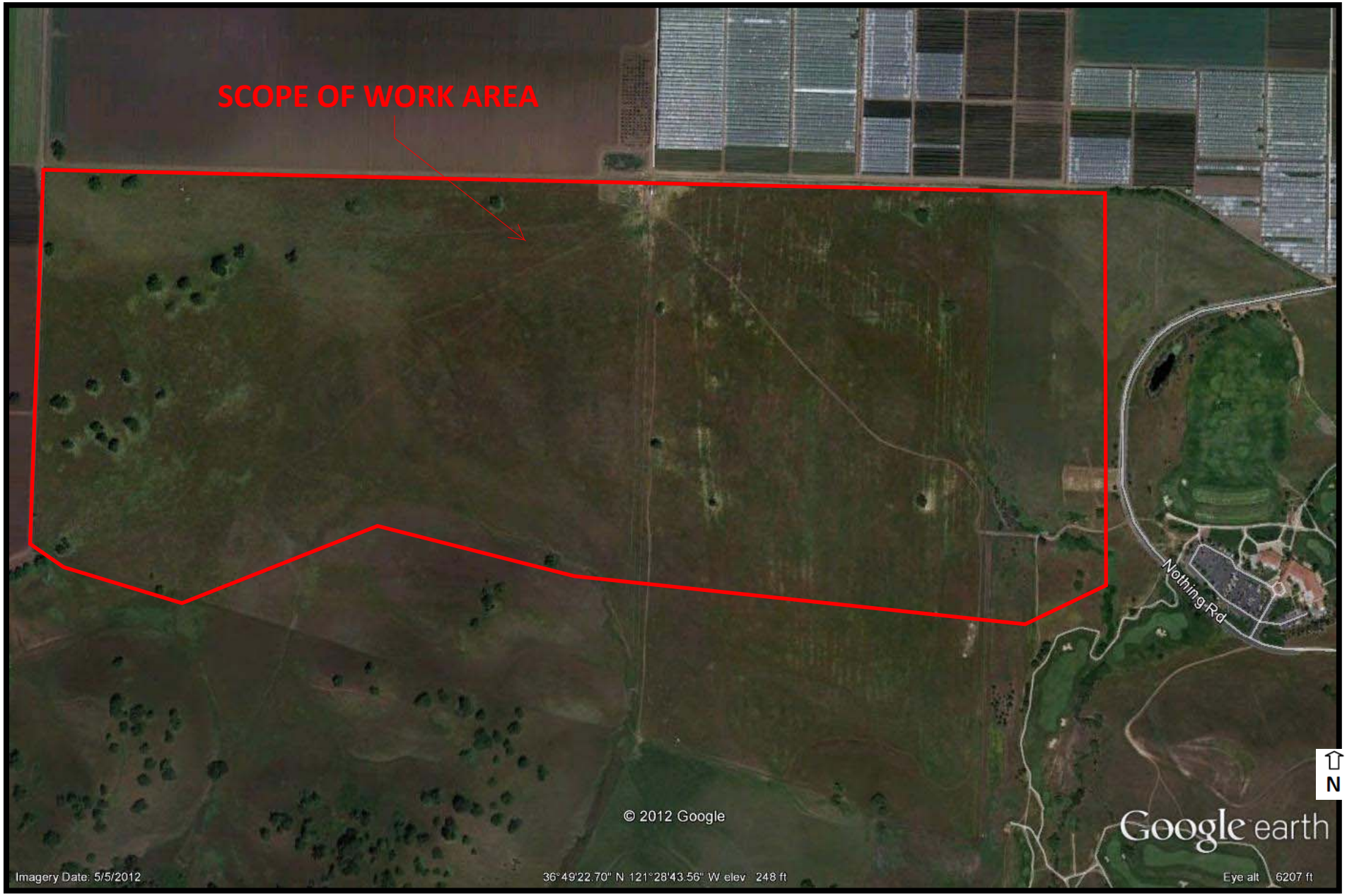
EXHIBIT D:

SCOPE OF WORK AREA

(one sheet)

DEL WEBB SAN JUAN OAKS

Hollister, California



California Regional Water Quality Control Board
Central Coast Region

Linda S. Adams
Secretary for Environmental Protection

Internet Address: http://www.waterboards.ca.gov/centralcoast
895 Aerovista Place, Suite 101, San Luis Obispo, California 93401-7906
Phone (805) 549-3147 • FAX (805) 543-0397

Arnold Schwarzenegger
Governor

May 23, 2007

Scott Fuller
San Juan Oaks, LLC
3825 Union Road
Hollister, CA 95023

Dear Mr. Fuller:

WATER QUALITY CERTIFICATION NUMBER 33506WQ02 FOR THE SAN JUAN OAKS GOLF CLUB PROJECT, SAN BENITO COUNTY

Thank you for the opportunity to review your December 4, 2006 application for water quality certification of the San Juan Oaks Golf Club Project. The application was completed on April 30, 2007. The project appears to protect beneficial uses of State waters. We are issuing the enclosed Standard Letter of Certification.

At this time, we do not anticipate issuing additional requirements based on your application. Should new information come to our attention that indicates a water quality problem, we may require additional monitoring and reporting, issue Waste Discharge Requirements, or take other action.

Your Section 401 Water Quality Certification application and CEQA documents indicate that project activities may affect beneficial uses and water quality. The Water Board issues this certification to protect water quality and associated beneficial uses from project activities. We need reports to determine compliance with this certification. All technical and monitoring reports requested in this certification, or anytime after, are required per Section 13267 of the California Water Code.

Your failure to submit reports required by this certification, or your failure to submit a report of technical quality acceptable to the Executive Officer, may subject you to enforcement action per Section 13268 of the California Water Code. The Water Board will base enforcement actions on the date of certification. Any person affected by this Water Board action may petition the State Water Resources Control Board (State Board) to review this action in accordance with California Water Code Section 13320; and Title 23, California Code of Regulations, Sections 2050 and 3867-3869. The State Board, Office of Chief Counsel, PO Box 100, Sacramento, CA 95812, must receive the petition within 30 days of the date of this certification. We will provide upon request copies of the law and regulations applicable to filing petitions.

Action on Request for
Clean Water Act Section 401 Water Quality Certification
for Discharge of Dredged and/or Fill Materials

PROJECT: San Juan Oaks Golf Club
APPLICANT: Scott Fuller
San Juan Oaks, LLC
3825 Union Road
Hollister, CA 95023

ACTION:
1. ■ Order for Standard Certification
2. ☐ Order for Technically-conditioned Certification
3. ☐ Order for Denial of Certification

STANDARD CONDITIONS:

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment per section 13330 of the California Water Code and section 3867 of Title 23 of the California Code of Regulations (23 CCR).

2. This certification action is not intended to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed per to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license was being sought.

3. The validity of any non-denial certification action (Actions 1 and 2) shall be conditioned upon total payment of the fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.

4. In the event of a violation or threatened violation of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under state law. For purposes of Section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this certification.

5. In response to a suspected violation of any condition of this certification, the Water Board may require the holder of any permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the Water

Attachment 1

PROJECT INFORMATION

Application Date	Received: December 4, 2006 Completed: April 30, 2007
Applicant	Scott Fuller – San Juan Oaks, LLC
Applicant Representatives	Michael Zander – Zander Associates
Project Name	San Juan Oaks Golf Club
Water Board Application Number	33506WQ02
Type of Project	Residential Development
Project Location	City of Hollister Longitude: 121° 28' 5.003" Latitude: 36° 49' 16.641"
County	San Benito
Receiving Water(s)	San Juan Creek, a tributary to San Benito River 305.30 Pajaro River Hydrologic Unit
Water Body Type	Creek, wetlands
Designated Beneficial Uses	Municipal and Domestic Supply Agricultural Supply Industrial Service Supply Ground Water Recharge Water Contact Recreation Non-Contact Recreation Commercial and Sport Fishing Wildlife Habitat Warm Fresh Water Habitat Spawning, Reproduction, and/or Early Development
Project Description (purpose/goal)	The purpose of the project is to provide a range of housing, employment, recreational opportunities, and tourist facilities on approximately 478 acres of land. <u>The Central Coast Regional Water Quality Control Board (Water Board) understands that the project includes the following:</u> • The fill of approximately 0.21 acres of jurisdictional wetland (Wetland W-1) for the creation of a golf course. • The fill of approximately 0.05 acres (280 linear feet) of jurisdictional waters (Drainage G) for lot development. Drainage G will be re-routed through an 8-foot wide vegetated swale lined with riparian wetland species and followed by a 36-inch storm drain. • Approximately 0.05 acres of non-jurisdictional wetlands (W-2 and W-3) and approximately 0.34 acres of non-

	stabilizations must be utilized, bioengineering techniques shall be used for bank retaining walls. • During construction activities, washing of concrete, paint, or equipment, and equipment maintenance, repair or fueling shall occur only in areas where polluted water and materials can be contained for subsequent removal from the site. Washing of such materials shall not be allowed within 100 feet of wetland and riparian resources or near sensitive biological resources. • Grease traps and/or silt basins shall be installed in all drop inlets to prevent oil, silt, and other debris from entering creeks. • Project plans must incorporate a 100-foot setback from the edge of riparian vegetation or delineated wetland so that all avoided riparian and wetland habitat is buffered from development and grading. • All construction vehicles and equipment used on site must be well maintained and checked daily for fuel and hydraulic fluid leaks or other problems that could result in spills of toxic materials. • Water Board staff must be notified if mitigations as described in the 401 Water Quality Certification application for this project are altered by the imposition of subsequent permit conditions by any local, state or federal regulatory authority. SF – SJO must inform Water Board staff of any modifications that interfere with compliance with this certification.
Area of Disturbance	Approximately 0.65 acres Streambed: 0.05 acres permanent (Jurisdictional) Wetland: 0.21 acres permanent Non-Jurisdictional Wetland: 0.05 acres permanent Non-Jurisdictional Streambed: 0.34 acres permanent
Fill/Excavation Area	Approximately 0.65 acres of permanent fill
Dredge Volume	N/A
U.S. Army Corps of Engineers Permit No	Nationwide Permit 39 – Residential, Commercial, and Institutional Developments
Federal Public Notice	N/A
Dept. of Fish and Game Streambed Alteration Agreement	Streambed Alteration Agreement is pending. Final, signed copy will be forwarded immediately upon execution.
Possible Listed Species	California red-legged frog, California tiger salamander, San Joaquin kit fox.
Status of CEQA Compliance	Environmental Impact Report State Clearinghouse No. 2002101031 Lead Agency: San Benito County

	activities, monitoring observations, and problems incurred and actions taken; include properly identified post-project photos. • Second and Third Report: Submit monitoring reports complete with photos of revegetation efforts by December 31 of the second and fifth monitoring year. Annual reports must quantify growth and progress of restoration and determine to what extent performance criteria have been met. All areas of the revegetation site shall be assessed for percent cover, general health and stature, and signs of reproduction. The report shall also include photographs of revegetation progress over time.