SYCAMORE ENVIRONMENTAL CONSULTANTS, INC.
6355 Riverside Blvd., Suite C, Sacramento, CA 95831
916/ 427-0703 www.sycamoreenv.com

20 April 2017

Mr. Jim Davies
854 Diablo Road
Danville, CA 94526

Phone: (925) 984-1222

Subject: Biological Review of Revised Design for the Piedmont Oak Project, El Dorado County, CA.

Dear Mr. Davies:

Sycamore Environmental prepared a biological update letter for the project dated 26 July 2016. Since that time, there have been minor design changes. I reviewed the updated project design dated March 2017 prepared by Lebeck Young Engineering, Inc. The purpose of the review was to determine if any of the design changes would affect any of the conclusions in the July 2016 biological update letter.

Most of the biological impacts, including oak impacts, occur as a result of project grading, and are dependent on the project's grading footprint. The only location where there are substantive changes to the grading footprint is on lots 25–40, along the southeast boundary of the project. Lots 25–40 have been moved so that they are 30 feet away from the project boundary. There is little oak canopy in the vicinity of the lots and it is along the project boundary. As a result, the grading is now farther away from the canopy near lots 25–40.

Near the northeastern project boundary, seven lots have been removed and an eighth has been realigned. There is no oak canopy on any of the lots and so the changes do not affect project impacts to oak canopy. As a result, the current design's impacts to oak canopy are the same as the July 2016 letter. The project site contains 8.21 acres of oak canopy and the project's oak canopy retention standard is 85% per General Plan policy 7.4.4.4. The project grading footprint will remove 1.15 acres of oak canopy and retain 7.06 acres. The project's oak canopy retention rate of 86% (7.06/8.21) meets the retention standard.

None of the design changes affect the proposed mitigation measure for nesting birds. We appreciate the opportunity of assisting you with this project. If you have any questions, please contact me.

Cordially,

Chuck Hughes, M.S.
Senior Biologist

ATTACHMENTS 10 and 11

SYCAMORE ENVIRONMENTAL CONSULTANTS, INC.
6355 Riverside Blvd., Suite C, Sacramento, CA 95831
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26 July 2016

Mr. Jim Davies
854 Diablo Road
Danville, CA 94526

Phone: (925) 984-1222

Subject: Biological Update for the Piedmont Oak Project, El Dorado County, CA.

Dear Mr. Davies:

The Project biological reports and oak canopy impact analysis were updated in February 2013. Since that time small changes have been made to the Project design. The purpose of this letter is to update the February 2013 biological and oak canopy results based on the revised tentative map and planned development exhibits prepared by Lebeck Young Engineering, Inc dated March 2016.

Methods:

- A new California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) query was conducted for the Placerville quad and the eight surrounding quads. A new letter from the U.S. Fish and Wildlife Service (USFWS) was obtained with a list of federal-listed species that could be affected by projects in the area. The results of the updated database queries are in Attachment A. The updated database queries were reviewed for additions since the 2013 biological update.
- Updated project design was provided by Lebeck Young Engineering, Inc. The updated design was used to update the oak canopy impact map and biological impacts map in Attachment B.
- The channel boundaries on the project site were verified by the U.S. Army Corps of Engineers on 24 April 2013 (Attachment C). There are no wetlands at the site. The biological impacts map in Attachment B has been updated to include the Corps-verified channel boundaries.

Results − Current Conditions & Impacts:

An updated Biological Resources Map is in Attachment B. Biological community boundaries are the same as in 2013. Small changes in project design since 2013 have resulted in small changes to the Phase 1 and Phase 2 impacts in the table of biological communities below. None of the impacts are significantly different than the 2013 results.

Table of Biological Communities

Biological Community	State Rarity Rank [1]	Acreage	Phase 1 Impacts	Phase 2 Impacts
Mixed Oak Forest	S4	13.96	3.803	4.908
Ponderosa Pine Forest	S4	8.56	6.95	0.537
Annual Brome Grassland	--	2.99	2.204	0.076
White Leaf Manzanita Chaparral	S4	1.23	0.89	--
Tree-of-Heaven Woodland	--	0.57	0.49	--
Ephemeral Channels	--	0.08	0.008	0.008
Total:		**27.39**	**14.35**	**5.53**

[1] State ranks of S1, S2, or S3 are generally considered rare or imperiled. Communities dominated by nonnative species are not ranked. The list of recognized vegetation associations and their rarity rankings in CDFW (2010) was reviewed, and the communities in the project area would not have an S3 or lower ranking at the association level.

Impacts to mixed oak forest are regulated and mitigated by El Dorado County General Plan Policy 7.4.4.4 and the associated Interim Interpretive Guidelines (amended 12 October 2007). Attachment B contains an updated oak canopy impact map for Phase 1. There were two primary changes that affected the oak canopy map. One is the addition of a lift station in Phase 1, near the road crossing of a channel, that removes existing oak canopy. To offsite the additional canopy loss from the lift station, six residential parcels (lots 34–39) near Highway 49 were moved into Phase 2, in order to preserve oak canopy in Phase 1. The result is that the amount of oak canopy removed, 1.15 acres, is slightly less than the 2013 project design. Phase 1 of the Project complies with the County oak canopy retention standards and General Plan Policy 7.4.4.4. Phase 1 retains 86% of existing oak canopy. The projects oak canopy retention standard is 85%. The 2013 proposed oak canopy replacement areas remain valid under the current design. An updated oak canopy replacement map is in Attachment B.

Phase 1 and 2 together would retain 55.4% of existing oak canopy. With the inclusion of Phase 2 the project does not meet the County's retention standards in General Plan Policy 7.4.4.4. The following table identifies oak canopy removed by phase.

Table of Oak Canopy

Phase	Oak Canopy Removed (acres)	Oak Canopy Retained (acres)	Oak Canopy Retained (%)
Existing Canopy (Baseline)	--	8.21 acres	100%
Phase 1	1.15 acres	7.06 acres	86%
Phase 1 and 2	3.66 acres	4.55 acres	55.4%

The Corps verified the map of channels at the site in April 2013 (Attachment C). The Corps determined that channel 2a is 42 feet shorter than was shown on previous project maps. The Corps verified that there are no wetlands on the project site. The revised table of wetlands and waters below incorporates the Corps-verified channel dimensions. Both phases of the Project may fill up to 0.016 acre (430 linear feet) of ephemeral channels. The fill could be avoided with the use of bottomless culverts. Fill of the channels would require permitting under Sections 404 and 401 of the federal Clean Water Act. The project would require permitting under section 1600 of state Fish and Game Code due to work near the channels. The existing federal and/or state permitting processes require mitigation for the loss or degradation of channels, including replacement or restoration based on the extent of impact.

Table of Waters

Feature	Hydrology	Length (ft)/ Avg. Width (ft)	Total Acreage	Phase 1 Impacts	Phase 2 Impacts
Channel 1	Ephemeral	977 ft / 2.5 ft	0.056	123 ft / 0.007 ac	--
Channel 1b	Ephemeral	537 ft / 1.0 ft	0.012	--	74 ft / 0.002 ac
Channel 2	Ephemeral	301 ft / 1.5 ft	0.010	--	165 ft / 0.006 ac
Channel 2a	Ephemeral	68 ft / 0.5 ft	0.001	68 ft / 0.001 ac	--
Total:		**1,883 ft / --**	**0.079**	**191 ft / 0.008 ac**	**239 ft / 0.008 ac**

Special-status species considered are those listed (or candidate or proposed) under the federal or state endangered species acts, under the California Native Plant Protection Act, as a California species of special concern or fully protected by CDFW, or that are ranked 1 or 2 on the California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2016). Several special-status species have been added to the lists included in Attachment A since the 2013 report. A brief evaluation of each of these special-status species is below.

- Van Zuuk's morning-glory (*Calystegia vanzuukiae*): Van Zuuk's morning-glory is a perennial rhizomatous herb found in gabbro or serpentine soils in chaparral or cismontane woodland from about 1,600 ft. to 3,900 feet (CNPS 2016). The project site does not provide potential habitat due to a lack of suitable soils.

- Sierra arching sedge (*Carex cyrtostachya*): Sierra arching sedge is a perennial herb found in mesic lower montane coniferous forest, meadows and seeps, marshes and swamps, and riparian forest margins from about 2,000 to 4,460 feet. The project site does not provide potential habitat due to a lack of wetlands and sufficiently large channels with summertime moisture.
- Chaparral sedge (*Carex xerophila*): Chaparral sedge is a newly described perennial cespitose herb known from serpentine or gabbro soils. It occurs in uplands in full sun to partial shade, in open forest or chaparral, from about 1,475 to 2,525 ft (Zika *et al.* 2014). The project site does not provide potential habitat due to a lack of suitable soils.
- Starved daisy (*Erigeron miser*): Starved daisy is a perennial herb found on rocky substrates in upper montane coniferous forest from about 6,000 to 8,600 feet (CNPS 2016). The project site is too low in elevation to provide suitable habitat.

A floristic botanical survey was conducted in 2009 and no special-status plants were found. The 2009 botanical survey met the requirements of CDFW (2009), although the protocol was released several months after the survey.

The project site provides potential nesting habitat for birds listed under the federal Migratory Bird Treaty Act (MBTA) and CA Fish and Game Code §3503 and §3503.5. Fish and Game Code §3503 protects the nest or eggs of any bird and §3503.5 protects birds-of-prey (orders Falconiformes and Strigiformes). Construction activities could impact nesting birds listed by the MBTA and CA Fish and Game Code. The project site is not in a County designated Important Biological Corridor (IBC) or Ecological Preserves overlay (El Dorado County 2004). The project site is in County Rare Plant Mitigation Area 2, which is defined as the El Dorado Irrigation District Service Area (El Dorado County Code Chapter 130.71).

Results − Proposed Avoidance and Minimization:

The measure below is proposed for birds listed under the MBTA and CA Fish and Game Code.

Mitigation Measure 1:

- If construction begins outside the 1 February to 31 August breeding season, there will be no need to conduct a preconstruction survey for active nests.
- If construction begins between 1 February and 31 August then a qualified biologist shall conduct a preconstruction survey for active nests. The survey will include a 250 foot radius from the work area for nesting birds-of-prey and a 50 foot radius from the work area for other nesting MBTA birds. The survey will be conducted from publicly accessible areas within two weeks prior to construction. If no active nest of a bird-of-prey or MBTA bird is found, then no further action is necessary.
- If an active nest of a bird-of-prey or MBTA bird is found, then the biologist shall recommend a buffer suitable to protect the nest until fledging. The County shall approve the final buffer. The size and shape of suitable buffers depends on the species of bird, the location of the nest relative to the Project, Project activities during the time the nest is active, and other Project specific conditions.
- No construction activity shall be allowed in the buffer until the biologist determines that the nest

is no longer active, or unless monitoring determines that a smaller buffer will protect the active nest. The buffer may be reduced, with the County's concurrence, if the biologist monitors the construction activities and determines that no disturbance to the active nest is occurring.

Impacts to channels on the project site are regulated under the permitting programs of CDFW (1600 Lake and Streambed Alteration Agreements), the Regional Water Quality Control Board (Waste Discharge Requirements and Section 401 Certification), and the U.S. Army Corps of Engineers (Clean Water Act Section 404). These permitting programs as a whole consider physical impacts to the bed, banks, and riparian area of channels, as well as potential impacts to water quality, and require mitigation. The state and federal permitting programs reduce potential impacts to the ephemeral channels.

We appreciate the opportunity of assisting you with this project. If you have any questions, please contact me.

Cordially,

Chuck Hughes, M.S.
Senior Biologist

Attachment A.	Database Queries
Attachment B.	Biological Impacts Map
	Phase 1 Oak Canopy Impact Map
	Phase 1 Oak Canopy Replacement Map
Attachment C.	Corps Verification Letter

Literature Cited:

California Department of Fish and Wildlife (CDFW, formerly DFG). 24 November 2009. Protocols for surveying and evaluating impacts to special status native plant populations and natural communities.

California Department of Fish and Wildlife (CDFW, formerly DFG). September 2010. Vegetation classification and mapping program: Natural Communities – List. Biogeographic Data Branch, Sacramento, CA.

California Native Plant Society (CNPS). Accessed July 2016. Inventory of rare and endangered plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. <http://www.rareplants.cnps.org/>

El Dorado County. Adopted 19 July 2004. El Dorado County general plan, a plan for managed growth and open roads; a plan for quality neighborhoods and traffic relief. El Dorado County Planning Department, Placerville, CA.

El Dorado County. January 2004, Certified 19 July 2004. El Dorado County general plan, final environmental impact report (EIR). Resolution No. 234-2004, State Clearinghouse No. 2001082030. Prepared by EDAW.

El Dorado County. Amended 10 May 2007. Interim interpretive guidelines for El Dorado County general plan policy 7.4.4.4 (option A). El Dorado County, CA.

Zika, P. F., L. P. Janeway, and B. L. Wilson. 2014. *Carex xerophila* (Cyperaceae), a new sedge from the chaparral of Northern California. Madrono 61:3(299-307).

Attachment A

Database Queries

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2016-SLI-1827 July 14, 2016
Event Code: 08ESMF00-2016-E-03977
Project Name: Piedmont Oak Estates

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)

of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Piedmont Oak Estates

Official Species List

Provided by:

Sacramento Fish and Wildlife Office
FEDERAL BUILDING
2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
(916) 414-6600

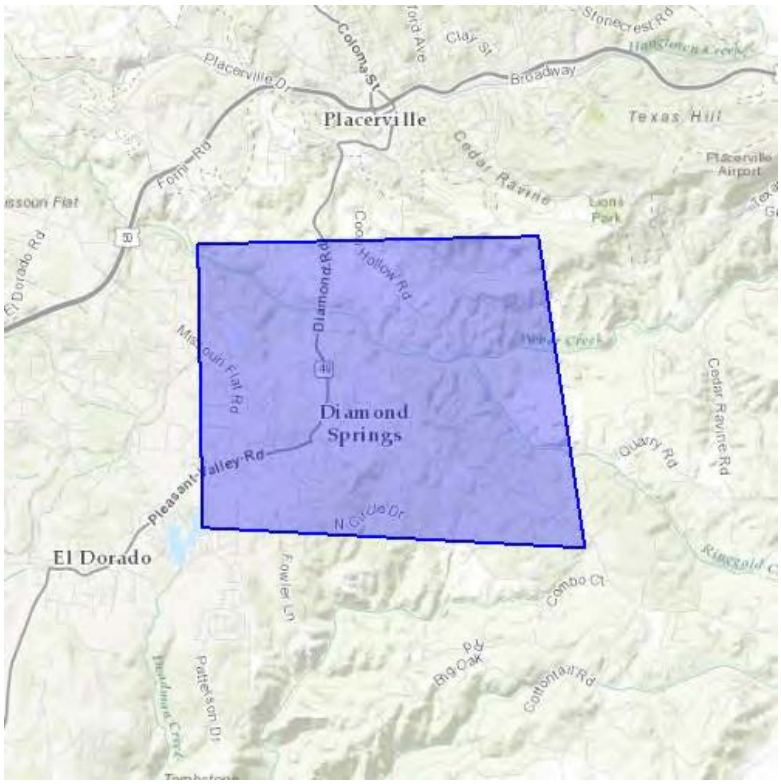
Consultation Code: 08ESMF00-2016-SLI-1827
Event Code: 08ESMF00-2016-E-03977

Project Type: DEVELOPMENT

Project Name: Piedmont Oak Estates

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-120.82798004150389 38.71471512069058, -120.78420639038086 38.715384828496404, -120.7781982421875 38.68416977848471, -120.82729339599608 38.68617974136571, -120.82798004150389 38.71471512069058)))

Project Counties: El Dorado, CA

Endangered Species Act Species List

There are a total of 4 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	**Status**	**Has Critical Habitat**	**Condition(s)**
California red-legged frog *(Rana draytonii)* Population: Entire	Threatened	Final designated	
Fishes			
Delta smelt *(Hypomesus transpacificus)* Population: Entire	Threatened	Final designated	
steelhead *(Oncorhynchus (=salmo) mykiss)* Population: Northern California DPS	Threatened	Final designated	
Flowering Plants			
Layne's butterweed *(Senecio layneae)*	Threatened		

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Aukum (3812056) OR Camino (3812066) OR Coloma (3812078) OR Fiddletown (3812057) OR Garden Valley (3812077) OR Latrobe (3812058) OR Placerville (3812067) OR Shingle Springs (3812068) OR Slate Mtn. (3812076))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter gentilis northern goshawk	ABNKC12060	None	None	G5	S3	SSC
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	None	G2G3	S1S2	SSC
Allium jepsonii Jepson's onion	PMLIL022V0	None	None	G2	S2	1B.2
Arctostaphylos nissenana Nissenan manzanita	PDERI040V0	None	None	G1	S1	1B.2
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Calochortus clavatus var. avius Pleasant Valley mariposa-lily	PMLIL0D095	None	None	G4T2	S2	1B.2
Calystegia stebbinsii Stebbins' morning-glory	PDCON040H0	Endangered	Endangered	G1	S1	1B.1
Calystegia vanzuukiae Van Zuuk's morning-glory	PDCON040Q0	None	None	G2Q	S2	1B.3
Carex cyrtostachya Sierra arching sedge	PMCYP03M00	None	None	G2	S2	1B.2
Ceanothus roderickii Pine Hill ceanothus	PDRHA04190	Endangered	Rare	G1	S1	1B.2
Central Valley Drainage Hardhead/Squawfish Stream Central Valley Drainage Hardhead/Squawfish Stream	CARA2443CA	None	None	GNR	SNR	
Central Valley Drainage Resident Rainbow Trout Stream Central Valley Drainage Resident Rainbow Trout Stream	CARA2421CA	None	None	GNR	SNR	
Chlorogalum grandiflorum Red Hills soaproot	PMLIL0G020	None	None	G2	S2	1B.2
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2
Cosumnoperla hypocrena Cosumnes stripetail	IIPLE23020	None	None	G2	S2	
Crocanthemum suffrutescens Bisbee Peak rush-rose	PDCIS020F0	None	None	G2Q	S2	3.2

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Fremontodendron decumbens Pine Hill flannelbush	PDSTE03030	Endangered	Rare	G1	S1	1B.2
Galium californicum ssp. sierrae El Dorado bedstraw	PDRUB0N0E7	Endangered	Rare	G5T1	S1	1B.2
Horkelia parryi Parry's horkelia	PDROS0W0C0	None	None	G2	S2	1B.2
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Packera layneae Layne's ragwort	PDAST8H1V0	Threatened	Rare	G2	S2	1B.2
Pekania pennanti fisher - West Coast DPS	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Rana boylii foothill yellow-legged frog	AAABH01050	None	None	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sacramento-San Joaquin Foothill/Valley Ephemeral Stream Sacramento-San Joaquin Foothill/Valley Ephemeral Stream	CARA2130CA	None	None	GNR	SNR	
Strix nebulosa great gray owl	ABNSB12040	None	Endangered	G5	S1	
Viburnum ellipticum oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3
Wyethia reticulata El Dorado County mule ears	PDAST9X0D0	None	None	G2	S2	1B.2

Record Count: 34

CNPS California Native Plant Si Rare and Endangered Plant Inventory

Plant List

27 matches found. *Click on scientific name for details*

Search Criteria

Found in 9 Quads around 38120F7

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Allium jepsonii	Jepson's onion	Alliaceae	perennial bulbiferous herb	1B.2	S2	G2
Allium sanbornii var. congdonii	Congdon's onion	Alliaceae	perennial bulbiferous herb	4.3	S3	G3T3
Arctostaphylos mewukka ssp. truei	True's manzanita	Ericaceae	perennial evergreen shrub	4.2	S3	G4?T3
Arctostaphylos nissenana	Nissenan manzanita	Ericaceae	perennial evergreen shrub	1B.2	S1	G1
Bolandra californica	Sierra bolandra	Saxifragaceae	perennial herb	4.3	S4	G4
Calochortus clavatus var. avius	Pleasant Valley mariposa lily	Liliaceae	perennial bulbiferous herb	1B.2	S2	G4T2
Calystegia stebbinsii	Stebbins' morning-glory	Convolvulaceae	perennial rhizomatous herb	1B.1	S1	G1
Calystegia vanzuukiae	Van Zuuk's morning-glory	Convolvulaceae	perennial rhizomatous herb	1B.3	S2	G2Q
Carex xerophila	chaparral sedge	Cyperaceae	perennial herb	1B.2	S2S3	G2G3
Ceanothus fresnensis	Fresno ceanothus	Rhamnaceae	perennial evergreen shrub	4.3	S4	G4
Ceanothus roderickii	Pine Hill ceanothus	Rhamnaceae	perennial evergreen shrub	1B.1	S1	G1
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	1B.2	S2	G2
Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	Onagraceae	annual herb	4.2	S4	G4G5T4
Clarkia virgata	Sierra clarkia	Onagraceae	annual herb	4.3	S3	G3
Claytonia parviflora ssp. grandiflora	streambank spring beauty	Montiaceae	annual herb	4.2	S3	G5T3
Crocanthemum suffrutescens	Bisbee Peak rush-rose	Cistaceae	perennial evergreen shrub	3.2	S2	G2Q
Delphinium hansenii ssp. ewanianum	Ewan's larkspur	Ranunculaceae	perennial herb	4.2	S3	G4T3
Erigeron miser	starved daisy	Asteraceae	perennial herb	1B.3	S3?	G3?
Fremontodendron decumbens	Pine Hill flannelbush	Malvaceae	perennial evergreen shrub	1B.2	S1	G1

Galium californicum ssp. sierrae	El Dorado bedstraw	Rubiaceae	perennial herb	1B.2	S1	G5T1
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	1B.2	S2	G2
Lilium humboldtii ssp. humboldtii	Humboldt lily	Liliaceae	perennial bulbiferous herb	4.2	S3	G4T3
Navarretia prolifera ssp. lutea	yellow bur navarretia	Polemoniaceae	annual herb	4.3	S3	G4T3
Packera layneae	Layne's ragwort	Asteraceae	perennial herb	1B.2	S2	G2
Trichostema rubisepalum	Hernandez bluecurls	Lamiaceae	annual herb	4.3	S4	G4
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	2B.3	S3?	G4G5
Wyethia reticulata	El Dorado County mule ears	Asteraceae	perennial herb	1B.2	S2	G2

Suggested Citation

CNPS, Rare Plant Program. 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 14 July 2016].

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Simple Search
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Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

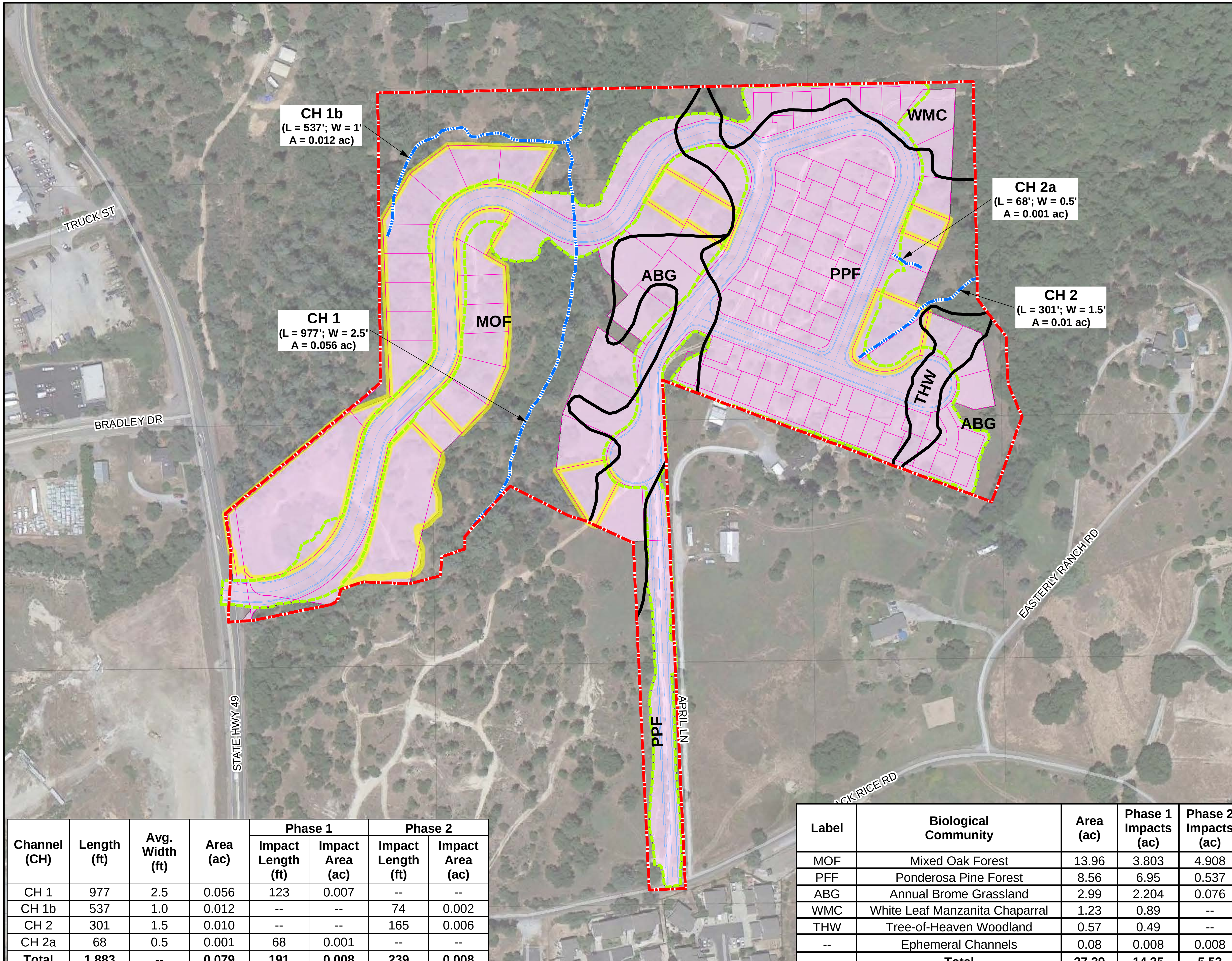
Contributors
The Calflora Database
The California Lichen Society

Attachment B

Biological Impacts Map
Phase 1 Oak Canopy Impact Map
Phase 1 Oak Canopy Replacement Map

Piedmont Oak Estates
El Dorado County, CA
21 July 2016

Biological Impacts Map



Project Study Area (PSA; 27.39 ac)
Biological Community Boundary
Channel (CH)
Lot Lines
Proposed Paved Roads
Phase II Lots
Grading Footprint (March 2016)

200 100 0 200 Feet
Scale: 1 inch = 200 feet
N

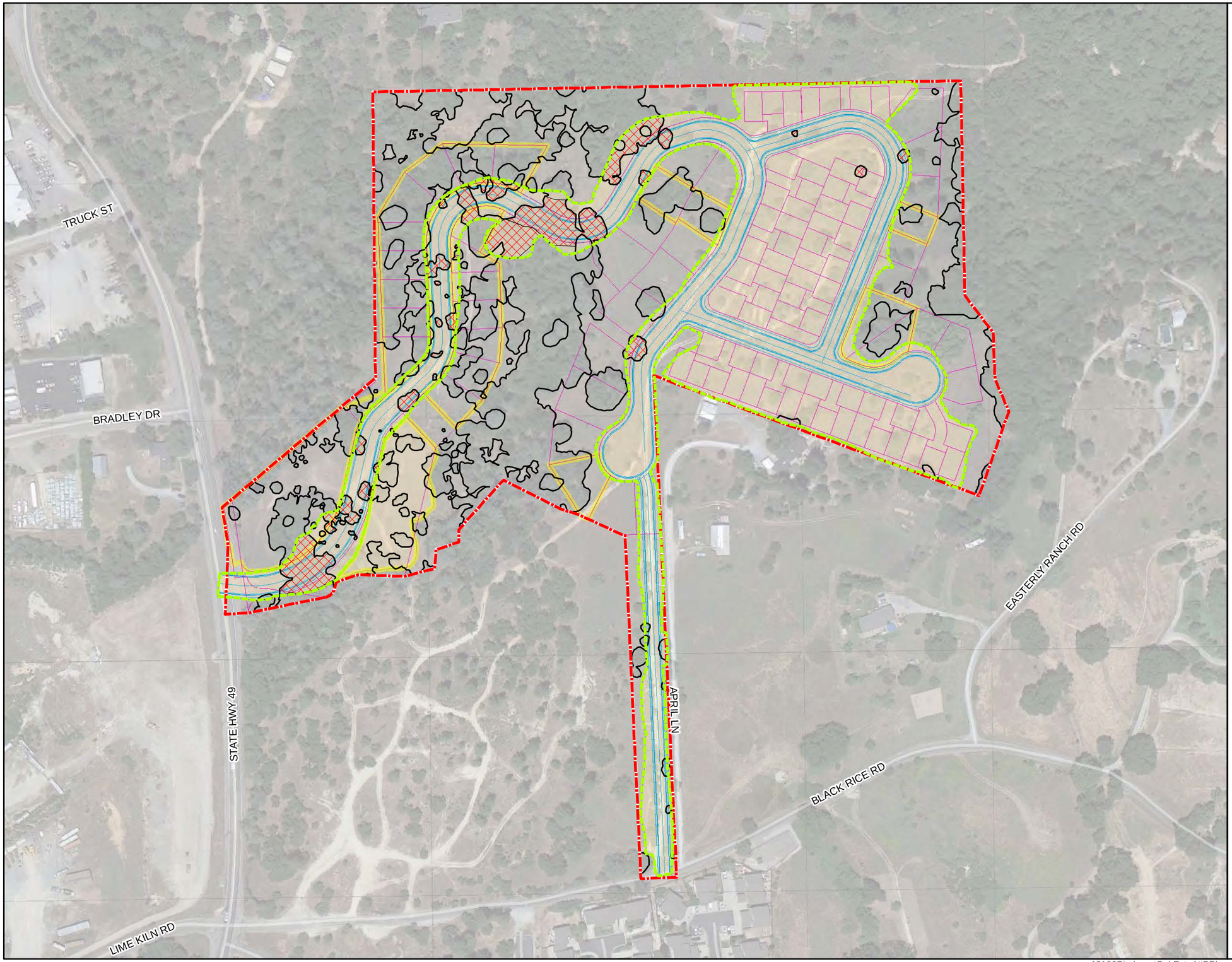
Channel (CH)	Length (ft)	Avg. Width (ft)	Area (ac)	Phase 1		Phase 2	
				Impact Length (ft)	Impact Area (ac)	Impact Length (ft)	Impact Area (ac)
CH 1	977	2.5	0.056	123	0.007	--	--
CH 1b	537	1.0	0.012	--	--	74	0.002
CH 2	301	1.5	0.010	--	--	165	0.006
CH 2a	68	0.5	0.001	68	0.001	--	--
Total	**1,883**	**--**	**0.079**	**191**	**0.008**	**239**	**0.008**

Label	Biological Community	Area (ac)	Phase 1 Impacts (ac)	Phase 2 Impacts (ac)
MOF	Mixed Oak Forest	13.96	3.803	4.908
PFF	Ponderosa Pine Forest	8.56	6.95	0.537
ABG	Annual Brome Grassland	2.99	2.204	0.076
WMC	White Leaf Manzanita Chaparral	1.23	0.89	--
THW	Tree-of-Heaven Woodland	0.57	0.49	--
--	Ephemeral Channels	0.08	0.008	0.008
	Total	**27.39**	**14.35**	**5.53**

SYCAMORE
Environmental
Consultants, Inc.

Aerial Photograph: 11 June 2012
Google Earth Imagery
Piedmont Oak Estates
Tentative Map and Project
Development Plan (Sept. 2012)
TSM-1.dwg by BTConsulting, Inc.

12100PiedmontOakEst_BioresImpacts_v2.mxd



Piedmont Oak Estates
El Dorado County, CA
21 July 2016

Attachment B.
Phase 1 Oak Canopy Impact

- Project Study Area (PSA; 27.39 ac)
- Existing Oak Canopy (8.21 ac)
- Phase 1 Oak Canopy Removed (1.15 ac)
- Lot Lines
- Proposed Paved Roads
- Phase II Boundary
- Project Footprint
- Grading Footprint (March 2016)

200 100 0 200 Feet

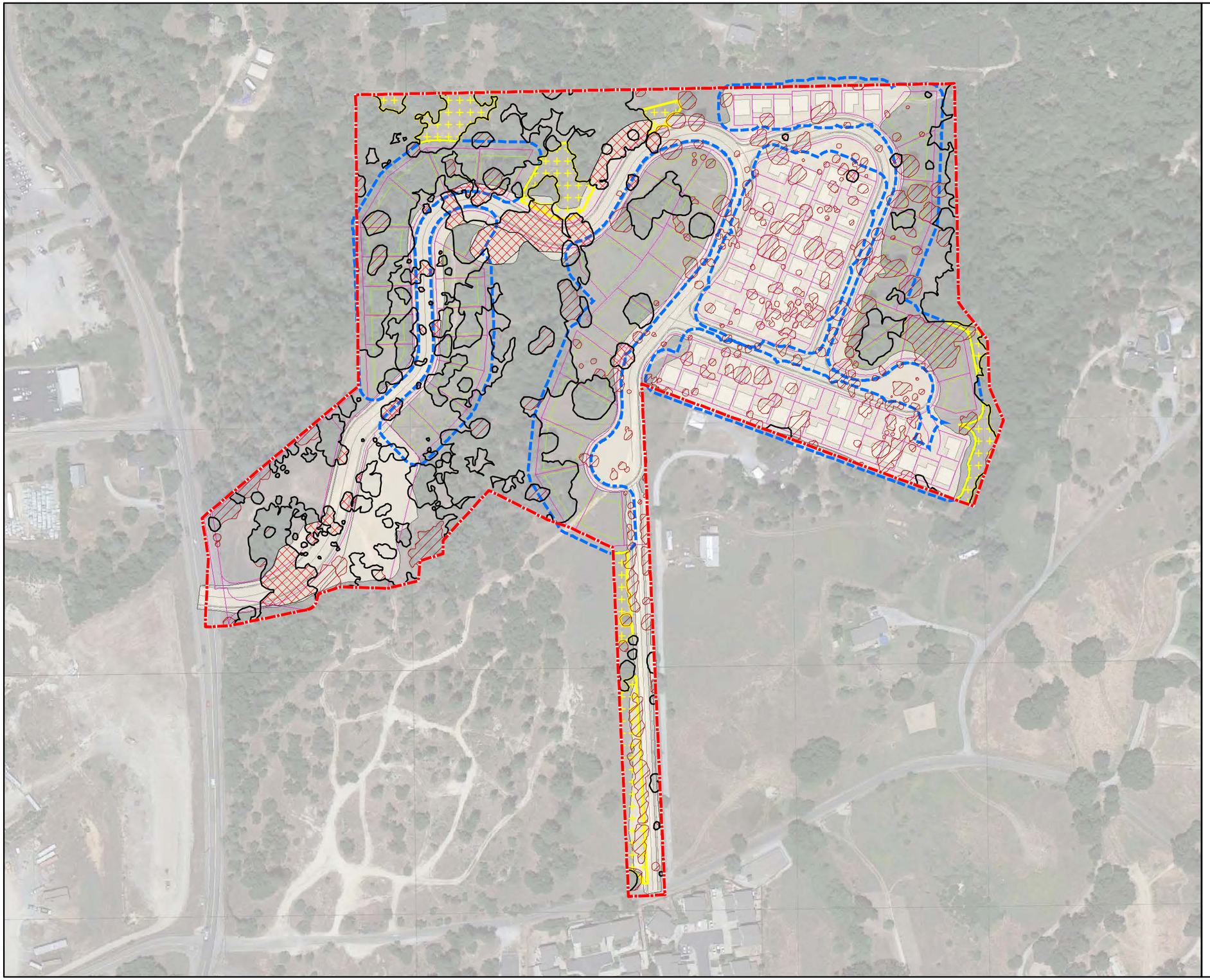
N

Scale: 1 inch = 200 feet

SYCAMORE
Environmental
Consultants, Inc.

Aerial Photograph: 11 June 2012
Google Earth Imagery
Piedmont Oak Estates
Tentative Map and Project
Development Plan (Sept. 2012)
M-Base.dwg by Peter K. Thorne (15 Jan. 2013)
Grading Footprint: 2016-06-29 Piedmont Oak Estates
TM & EX's.dwg by Lebeck Young Engineering (March 2016)

12100PiedmontOakEst_AttBPhase1OakCanopyRemoved_v3.mxd



Piedmont Oak Estates
El Dorado County, CA
26 July 2016

Attachment C.
Phase 1 Oak Canopy Replacement

- Project Study Area (PSA; 27.39 ac)
- Existing Oak Canopy (8.21 ac)
- Phase 1 Oak Canopy Removed (1.15 ac)
- Non-oak Canopy
- Phase 1 Oak Canopy Replacement (1.20 ac)
- 30ft Fire Safety Buffer
- Lot Lines
- Proposed Paved Roads
- Project Footprint
- Project Footprint
- Compact Lot Structure
- Premium Lot Setback

200 100 0 200 Feet

N

Scale: 1 inch = 200 feet

SYCAMORE
Environmental
Consultants, Inc.

Aerial Photograph: 11 June 2012
Google Earth Imagery
Piedmont Oak Estates
Tentative Map and Project
Development Plan (Sept. 2012)
M-Base.dwg by Peter K. Thorne (15 Jan. 2013)
Grading Footprint: 2016-06-29 Piedmont Oak Estates
TM & EX's.dwg by Lebeck Young Engineering (March 2016)

12100PiedmontOakEstates\MXD\12100_Canopy_Replacement_v3.mxd

Attachment C

Corps Verification Letter

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

April 24, 2013

Regulatory Division SPK-2009-00928

Mr. Jim Davies
Piedmont Oak Estates, LLC
854 Diablo Road
Danville, California 94526-2760

Dear Mr. Davies:

We are responding to your April 9, 2013, request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the Piedmont Oak Estates site. The approximately 27.39-acre site is located near Weber Creek, Section 19, Township 10 North, Range 11 East, Mount Diablo Meridian, Latitude 38.7025313162938°, Longitude -120.808560315998°, Town of Diamond Spring, El Dorado County, California.

Based on available information, **we concur with the amount and location of wetlands and/or other water bodies on the site as depicted on the enclosed 16 April, 2013, *Piedmont Oak Estates, El Dorado County, CA*, prepared by Sycamore Environmental Consultants, Inc** (enclosure 1). The approximately 0.0709 acre of other water bodies present within the survey area are potential waters of the United States regulated under Section 404 of the Clean Water Act.

A copy of our RGL 08-02 Preliminary Jurisdictional Determination Form for this site is enclosed (enclosure 2). Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization for the activity. You may request an approved JD for this site at any time prior to starting work within waters. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and Request for

Appeal Form is enclosed to notify you of your options with this determination (enclosure 3). This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey.*

Please refer to identification number SPK-2009-00928 in any correspondence concerning this project. If you have any questions, please contact Mr. Peck Ha at our California North Branch Office, Regulatory Division, Sacramento District, U.S. Army Corps of Engineers, 1325 J Street, Room 1350, Sacramento, California 95814-2922, email *Peck.Ha@usace.army.mil*, or telephone 916-557-6617. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx.*

Sincerely,

Nancy Arcady Haley
Chief, California North Branch

Enclosures

Copy Furnished with enclosures:
Ms. Lillian Macleod, El Dorado County Planning Department, 2850 Fairlane Court, Placerville, California 95667

Copies Furnished without enclosures:
Mr. Chuck Hughes, Sycamore Environmental Consultants, Inc., 6355 Riverside Boulevard, Suite C, Sacramento, California 95831
Ms. Elizabeth Lee, California Regional Water Quality Control Board, Central Valley Region, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Ms. Tina Bartlett, California Department of Fish and Game, Region 2, 1701 Nimbus Drive, Rancho Cordova, California 95670-4599
U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-3901
Mr. Jason Brush, Environmental Protection Agency, WRT-8, 75 Hawthorne Street, San Francisco, California 94105-3922

Lat: 38°42'15.84"N
Long: 120°48'13.89"W

CH 1b
(L = 537'; W = 1'
A = 0.012 ac)

DP 13

DP 12

P2

P1

DP 14

TRUCK ST

CH 1
(L = 977'; W = 2.5'
A = 0.056 ac)

BRADLEY DR

DP 11

CH 2a
(L = 68'; W = 0.5'
A = 0.001 ac)

DP 18

DP 17

DP 19

10' long sluice box
(abandoned)

P3

DP 16

CH 2
(L = 301'; W = 1.5'
A = 0.01 ac)

EASTERLY RANCH RD

STATE HWY 49

BLACK RICE RD

Lat: 38°41'56.41"N
Long: 120°48'46.51"W

LIME KILN RD

Piedmont Oak Estates
El Dorado County, CA
16 April 2013

Jurisdictional Delineation Map

Project Study Area (PSA; 27.39 ac)
Datapoint Location and Number (DP)
Channel
Photopoint Location and Direction

Channel (CH)	Length (ft)	Avg. Width (ft)	Area (ac)
CH 1	977	2.5	0.056
CH 1b	537	1.0	0.012
CH 2	301	1.5	0.010
CH 2a	68	0.5	0.001
Total	**1,883**	**--**	**0.079**

200 100 0 200 Feet

N

Scale: 1 inch = 200 feet

Date	Submittal	Delineators	Agency/ Co.
9 Apr 07	Original	ACF	Sycamore
4 Apr 13	Update PSA	CCH	Sycamore
16 Apr 13	After Corps Field Review	CCH	Sycamore

SYCAMORE
Environmental
Consultants, Inc.

Aerial Photograph: 11 June 2012
Google Earth Imagery
Piedmont Oak Estates
Tentative Map and Project
Development Plan (Sept. 2012)
T-Base.dwg & TSM-1.dwg by BTConsulting, Inc.

SYCAMORE ENVIRONMENTAL CONSULTANTS, INC.
6355 Riverside Blvd., Suite C, Sacramento, CA 95831
916/ 427-0703 Fax 916/ 427-2175

6 February 2013

Mr. Jim Davies
854 Diablo Road
Danville, CA 94526

Phone: (925) 984-1222

Subject: Biological and Wetlands Report Updates for the Piedmont Oak Project, El Dorado County, CA.

Dear Mr. Davies:

The purpose of this letter is to update biological and wetland reports previously prepared for the project. The project boundary and design have been revised since the reports were prepared. The following biological reports were previously prepared for the project:

9 April 2007	*Biological Resources Evaluation and Preliminary Jurisdictional Delineation Report for Piedmont Oak Estates.*
2 July 2009	*Botanical Survey Update for Piedmont Oak Estates.*

Parcels 051-461-37 and -54 are no longer part of the project, except for an emergency access road on parcel -54. This letter updates the previous maps and acreage estimates for the new design, as well as updating the database searches. The project is divided into two phases. Phase 1 includes the road network, 62 clustered residential parcels, 21 detached single residential parcels, and one commercial lot. Phase 2 includes 21 additional detached single residential parcels, and a second commercial lot.

Methods:

- A new California Natural Diversity Database (CNDDB) query was conducted for the Placerville quad and the eight surrounding quads. A new letter from the U.S. Fish and Wildlife Service (USFWS) was obtained with a list of federal-listed species that could be affected by projects in the area. A query of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants was conducted. The results of the updated database searches are in Attachment A. The updated database searches were reviewed for changes since the 2007 biological report.
- A reconnaissance field visit was conducted on 6 December 2012 and 10 January 2013. The field visits were conducted to document current site conditions, and in support of updating the maps from the 2007 biological report. The updated maps are in Attachment B.

- Project design, prepared by BTConsulting, Inc., was overlaid on the existing biological resources map to estimate potential impacts.

Results − Current Conditions & Impacts:

An updated Biological Resources Map is in Attachment B. Biological community boundaries have been updated since the 2007 report at the alliance level. Much of the understory vegetation in some parts of the site had been removed prior the 2007 report, and the areas were categorized as "partially cleared land." Understory vegetation has re-grown since then. Also, the CA Department of Fish and Wildlife has since updated the recognized natural communities list (CDFW 2010) based on Sawyer et al. (2009). The revised Biological Communities Table below incorporates the changes. Tree-of-heaven woodland is not included on the CDFW list (2010), however CDFW acknowledges that description and classification of the State's vegetation communities is ongoing. Tree-of-heaven is an invasive weed with moderate ecological impacts (Cal-IPC 2006).

Table of Biological Communities

Biological Community	State Rarity Rank [1]	Acreage	Phase 1 Impacts	Phase 2 Impacts
Mixed Oak Forest	S4	13.96	4.78	3.98
Ponderosa Pine Forest	S4	8.56	6.95	0.54
Annual Brome Grassland	--	2.99	1.69	0.59
White Leaf Manzanita Chaparral	S4	1.23	0.89	--
Tree-of-Heaven Woodland	--	0.57	0.49	0.01
Ephemeral Channels	--	0.08	0.008	0.008
Total:		**27.39**	**14.81**	**5.12**

[1] State ranks of S1, S2, or S3 are generally considered rare or imperiled. Communities dominated by nonnative species are not ranked. The list of recognized vegetation associations and their rarity rankings in CDFW (2010) was reviewed, and the communities in the project area would not have an S3 or lower ranking at the association level.

Impacts to mixed oak forest are regulated and mitigated by El Dorado County General Plan Policy 7.4.4.4 and the associated Interim Interpretive Guidelines (amended 12 October 2007). A separate analysis specific to Policy 7.4.4.4 will be prepared. The other biological communities are not considered sensitive at the state or local level. Ponderosa pine, chaparral, and annual grassland are not identified as sensitive habitat in the General Plan EIR (El Dorado County 2004).

The extent of waters and wetlands at the site has not changed since the 2007 report. There are no wetlands on the current project site. The wetlands were on the parcels that are no longer part of the project. The revised table of wetlands and waters below incorporates the changes. The Project may fill up to 0.016 acre (472 linear feet) of ephemeral channels. The fill could be avoided with the use of bottomless culverts. Fill of the channels would require permitting under Sections 404 and 401 of the federal Clean Water Act if the channels meet criteria for Waters of the U.S. Fill of the channels would

require permitting under section 1600 of state Fish and Game Code and the state Porter-Cologne Water Quality Control Act regardless of federal jurisdiction. The existing federal and/or state permitting processes require mitigation for the loss or degradation of channels, including replacement or restoration based on the extent of impact.

Table of Waters

Feature	Hydrology	Length (ft)/ Avg. Width (ft)	Total Acreage	Phase 1 Impacts	Phase 2 Impacts
Channel 1	Ephemeral	977 ft / 2.5 ft	0.056	123 ft / 0.007 ac	--
Channel 1b	Ephemeral	537 ft / 1.0 ft	0.012	--	74 ft / 0.002 ac
Channel 2	Ephemeral	301 ft / 1.5 ft	0.010	--	165 ft / 0.006 ac
Channel 2a	Ephemeral	110 ft / 0.5 ft	0.001	110 ft / 0.001 ac	--
Total:		**1,925 ft / --**	**0.079**	**233 ft / 0.008 ac**	**239 ft / 0.008 ac**

Special-status species considered are those listed (or candidate or proposed) under the federal or state endangered species acts, under the California Native Plant Protection Act, as a California species of special concern or fully protected by CDFW, or that are on List 1 or 2 of the California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2012). Several special-status species have been added to the lists included in Attachment A since the 2007 report. A brief evaluation of each of these special-status species is below.

- *Winter-run Chinook salmon, Sacramento River*: Once found throughout the upper Sacramento River basin, the winter-run chinook salmon is now confined to the mainstem Sacramento River below Keswick Dam (Moyle 2002). The project site does not provide potential habitat.
- *Conservancy fairy shrimp, vernal pool fairy shrimp, Sacramento orcutt grass*: These species are associated with vernal pools in and around the Central Valley (USFWS 1994, CNPS 2012). There are no vernal pools in the project site and there is no potential habitat.
- *Bank swallow*: This bird is restricted to riparian areas with vertical cliffs and banks with fine-textured or sandy soil (Zeiner et al. 1990). The project site does not provide potential habitat.
- *Great gray owl*: This species occurs between 4,500 and 7,500 feet in the Sierra Nevada from the vicinity of Quincy in Plumas Co. south to the Yosemite Region. It breeds in old-growth red fir, mixed conifer, or lodgepole pine habitats, always in the vicinity of wet meadows (Zeiner et al. 1990). The project site does not provide potential habitat.

The 2007 report identified four special-status plants for which potential habitat occurred: Nissenan manzanita, Pleasant Valley mariposa lily, Brandegee's clarkia, and oval-leaved viburnum. The current project site continues to provide habitat for these species. A floristic botanical survey was conducted in 2009 during the evident and identifiable period of the plants and none were found. Brandegee's clarkia has since been down-listed from CNPS List 1B to List 4. The 2009 botanical survey met the protocol of the CDFW (2009), although it was released several months after the survey.

The current project site provides potential nesting habitat for birds listed under the federal Migratory Bird Treaty Act (MBTA) and CA Fish and Game Code §3503 and §3503.5. Fish and Game Code §3503 protects the nest or eggs of any bird and §3503.5 protects birds-of-prey (orders Falconiformes and Strigiformes). Construction activities could impact nesting birds listed by the MBTA and CA Fish and Game Code. The project site is not in a County designated Important Biological Corridor (IBC) or Ecological Preserves overlay (El Dorado County 2004). The project site is in County Rare Plant Mitigation Area 2, which is defined as the El Dorado Irrigation District Service Area (El Dorado County Code Chapter 17.71).#

Results − Proposed Avoidance and Minimization:

The measure below is proposed for birds listed under the MBTA and CA Fish and Game Code.

Avoidance and Minimization Measure 1:

- If construction begins outside the 1 February to 31 August breeding season, there will be no need to conduct a preconstruction survey for active nests.
- If construction begins between 1 February and 31 August then a qualified biologist shall conduct a preconstruction survey for active nests. The survey will include a 250 foot radius from the work area for nesting birds-of-prey and a 50 foot radius from the work area for other nesting MBTA birds. The survey will be conducted from publicly accessible areas within two weeks prior to construction. If no active nest of a bird-of-prey or MBTA bird is found, then no further action is necessary.
- If an active nest of a bird-of-prey or MBTA bird is found, then the biologist shall recommend a buffer suitable to protect the nest until fledging. The County shall approve the final buffer. The size and shape of suitable buffers depends on the species of bird, the location of the nest relative to the Project, Project activities during the time the nest is active, and other Project specific conditions.
- No construction activity shall be allowed in the buffer until the biologist determines that the nest is no longer active, or unless monitoring determines that a smaller buffer will protect the active nest. The buffer may be reduced, with the County's concurrence, if the biologist monitors the construction activities and determines that no disturbance to the active nest is occurring.

Impacts to channels on the project site are regulated under the permitting programs of CDFW (1600 Lake and Streambed Alteration Agreements), the Regional Water Quality Control Board (Waste Discharge Requirements and Section 401 Certification), and possibly the U.S. Army Corps of Engineers (Clean Water Act Section 404). These permitting programs as a whole consider physical impacts to the bed, banks, and riparian area of channels, as well as potential impacts to water quality, and require mitigation. The state and federal permitting programs reduce potential impacts to the ephemeral channels.

We appreciate the opportunity of assisting you with this project. If you have any questions, please contact me.

Cordially,

Chuck Hughes, M.S.
Botanist/ Biologist

c: Mr. Peter Thorne, P.E. BTConsulting, Inc.

Attachment A.	USFWS Letter & List
	CNDDB Query
	CNPS Inventory Query
Attachment B.	Project Location Map
	Aerial Photograph
	Biological Resources Map
	Biological Impacts Map

Literature Cited:

California Department of Fish and Wildlife (CDFW, formerly DFG). 24 November 2009. Protocols for surveying and evaluating impacts to special status native plant populations and natural communities.

California Department of Fish and Wildlife (CDFW, formerly DFG). September 2010. Vegetation classification and mapping program: Natural Communities – List. Biogeographic Data Branch, Sacramento, CA.

California Invasive Plant Council (Cal-IPC). 2006. Invasive plant inventory. California Invasive Plant Council, Berkeley, CA. <www.cal-ipc.org>

California Native Plant Society (CNPS). Accessed 10 December 2012. Inventory of rare and endangered plants (online edition, v8-01a). California Native Plant Society, Sacramento, CA. <http://www.cnps.org/inventory>

El Dorado County. Adopted 19 July 2004. El Dorado County general plan, a plan for managed growth and open roads; a plan for quality neighborhoods and traffic relief. El Dorado County Planning Department, Placerville, CA.

El Dorado County. January 2004, Certified 19 July 2004. El Dorado County general plan, final environmental impact report (EIR). Resolution No. 234-2004, State Clearinghouse No. 2001082030. Prepared by EDAW.

El Dorado County. Amended 10 May 2007. Interim interpretive guidelines for El Dorado County general plan policy 7.4.4.4 (option A). El Dorado County, CA.

Moyle, P. B. 2002. Inland Fishes of California. University of California Press, Berkeley and Los Angeles, CA.

U.S. Fish and Wildlife Service (USFWS). 19 September 1994. Endangered and threatened wildlife and plants; Determination of endangered status for the conservancy fairy shrimp, longhorn fairy shrimp, and the vernal pool tadpole shrimp; and threatened status for the vernal pool fairy shrimp. Federal Register 59:48136.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California vegetation, 2nd ed. California Native Plant Society, Sacramento, CA.

Zeiner, D., K. Mayer, M. White, and W. Laudenslayer, Jr., eds. 1990. California's wildlife, Volume II, Birds. California Department of Fish and Game, Sacramento, CA.

Attachment A

USFWS Letter & List
CNDDB Query
CNPS Inventory Query

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

December 10, 2012

Document Number: 121210050303

R. John Little, Ph.D.
Sycamore Environmental Consultants, Inc.
6355 Riverside Blvd., Suite C
Sacramento, CA 95831

Subject: Species List for Piedmont Oak Estates

Dear: Dr. Little

We are sending this official species list in response to your December 10, 2012 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be March 10, 2013.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found here.

Endangered Species Division

TAKE PRIDE IN AMERICA

15-1470 4G 32 of 299

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 121210050303

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Rana draytonii
California red-legged frog (T)

Plants

Senecio layneae
Layne's butterweed (=ragwort) (T)

Quads Containing Listed, Proposed or Candidate Species:

PLACERVILLE (510A)

County Lists

El Dorado County

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus (=Salmo) clarki henshawi
Lahontan cutthroat trout (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Thamnophis gigas
giant garter snake (T)

Plants

Calystegia stebbinsii
Stebbins's morning-glory (E)

Ceanothus roderickii
Pine Hill ceanothus (E)

Fremontodendron californicum ssp. decumbens
Pine Hill flannelbush (E)

Galium californicum ssp. sierrae
El Dorado bedstraw (E)

Orcuttia viscida

Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Senecio layneae
Layne's butterweed (=ragwort) (T)

Candidate Species

Amphibians

Bufo canorus
Yosemite toad (C)

Rana muscosa
mountain yellow-legged frog (C)

Mammals

Martes pennanti
fisher (C)

Plants

Rorippa subumbellata
Tahoe yellow-cress (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.

- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential

to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be March 10, 2013.

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
1	Accipiter gentilis	northern goshawk	ABNKC12060			G5	S3		SC
2	Agelaius tricolor	tricolored blackbird	ABPBXB0020			G2G3	S2		SC
3	Allium jepsonii	Jepson's onion	PMLIL022V0			G1	S1	1B.2	
4	Arctostaphylos nissenana	Nissenan manzanita	PDERI040V0			G2	S2.2	1B.2	
5	Ardea alba	great egret	ABNGA04040			G5	S4		
6	Calochortus clavatus var. avius	Pleasant Valley mariposa-lily	PMLIL0D095			G4T2	S2	1B.2	
7	Calystegia stebbinsii	Stebbins' morning-glory	PDCON040H0	Endangered	Endangered	G1	S1	1B.1	
8	Ceanothus roderickii	Pine Hill ceanothus	PDRHA04190	Endangered	Rare	G1	S1	1B.2	
9	Central Valley Drainage Hardhead/Squawfish Stream	Central Valley Drainage Hardhead/Squawfish Stream	CARA2443CA			G?	SNR		
10	Central Valley Drainage Resident Rainbow Trout Stream	Central Valley Drainage Resident Rainbow Trout Stream	CARA2421CA			G?	SNR		
11	Chlorogalum grandiflorum	Red Hills soaproot	PMLIL0G020			G3	S3	1B.2	
12	Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	PDONA05053			G4G5T4	S4	4.2	
13	Cosumnoperla hypocrena	Cosumnes spring stonefly	IIPLE23020			G1	S1		
14	Emys marmorata	western pond turtle	ARAAD02030			G3G4	S3		SC
15	Fremontodendron decumbens	Pine Hill flannelbush	PDSTE03030	Endangered	Rare	G1	S1	1B.2	
16	Galium californicum ssp. sierrae	El Dorado bedstraw	PDRUB0N0E7	Endangered	Rare	G5T1	S1	1B.2	
17	Helianthemum suffrutescens	Bisbee Peak rush-rose	PDCIS020F0			G2Q	S2.2	3.2	
18	Horkelia parryi	Parry's horkelia	PDROS0W0C0			G2	S2.2	1B.2	
19	Lasionycteris noctivagans	silver-haired bat	AMACC02010			G5	S3S4		
20	Martes pennanti (pacifica) DPS	Pacific fisher	AMAJF01021	Candidate		G5	S2S3		SC
21	Myotis yumanensis	Yuma myotis	AMACC01020			G5	S4?		
22	Packera layneae	Layne's ragwort	PDAST8H1V0	Threatened	Rare	G2	S2	1B.2	
23	Phrynosoma blainvillii	coast horned lizard	ARACF12100			G4G5	S3S4		SC
24	Rana boylii	foothill yellow-legged frog	AAABH01050			G3	S2S3		SC
25	Riparia riparia	bank swallow	ABPAU08010		Threatened	G5	S2S3		
26	Sacramento-San Joaquin Foothill/Valley Ephemeral Stream	Sacramento-San Joaquin Foothill/Valley Ephemeral Stream	CARA2130CA			G?	SNR		
27	Strix nebulosa	great gray owl	ABNSB12040		Endangered	G5	S1		
28	Viburnum ellipticum	oval-leaved viburnum	PDCPR07080			G5	S2.3	2.3	
29	Wyethia reticulata	El Dorado County mule ears	PDAST9X0D0			G2	S2	1B.2	

CNPS California Native Plant Society Inventory of Rare and Endangered Plants

Plant List

20 matches found. *Click on scientific name for details*

Search Criteria

Found in 9 Quads around 38120F7

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Allium jepsonii	Jepson's onion	Alliaceae	perennial bulbiferous herb	1B.2	S1	G1
Allium sanbornii var. congdonii	Congdon's onion	Alliaceae	perennial bulbiferous herb	4.3	S3.3	G3T3
Arctostaphylos nissenana	Nissenan manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
Bolandra californica	Sierra bolandra	Saxifragaceae	perennial herb	4.3	S3.3	G3
Calochortus clavatus var. avius	Pleasant Valley mariposa lily	Liliaceae	perennial bulbiferous herb	1B.2	S2	G4T2
Calystegia stebbinsii	Stebbins' morning-glory	Convolvulaceae	perennial rhizomatous herb	1B.1	S1	G1
Ceanothus roderickii	Pine Hill ceanothus	Rhamnaceae	perennial evergreen shrub	1B.2	S1	G1
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	1B.2	S3	G3
Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	Onagraceae	annual herb	4.2	S4	G4G5T4
Clarkia virgata	Sierra clarkia	Onagraceae	annual herb	4.3	S3.3	G3
Claytonia parviflora ssp. grandiflora	streambank spring beauty	Montiaceae	annual herb	4.2	S3.2	G5T3
Fremontodendron decumbens	Pine Hill flannelbush	Malvaceae	perennial evergreen shrub	1B.2	S1	G1
Galium californicum ssp. sierrae	El Dorado bedstraw	Rubiaceae	perennial herb	1B.2	S1	G5T1
Helianthemum suffrutescens	Bisbee Peak rush-rose	Cistaceae	perennial evergreen shrub	3.2	S2.2	G2Q
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	1B.2	S2.2	G2
Lilium humboldtii ssp. humboldtii	Humboldt lily	Liliaceae	perennial bulbiferous herb	4.2	S3.2	G4T3
Navarretia prolifera ssp. lutea	yellow bur navarretia	Polemoniaceae	annual herb	4.3	S3.3	G4T3
Packera layneae	Layne's ragwort	Asteraceae	perennial herb	1B.2	S2	G2
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	2.3	S2.3	G5

Wyethia reticulata	El Dorado County mule ears	Asteraceae	perennial herb	1B.2	S2	G2

Suggested Citation

California Native Plant Society (CNPS). 2012. Inventory of Rare and Endangered Plants (online edition, v8-01a). California Native Plant Society. Sacramento, CA. Accessed on Monday, December 10, 2012.

Search the Inventory
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About the Rare Plant Program
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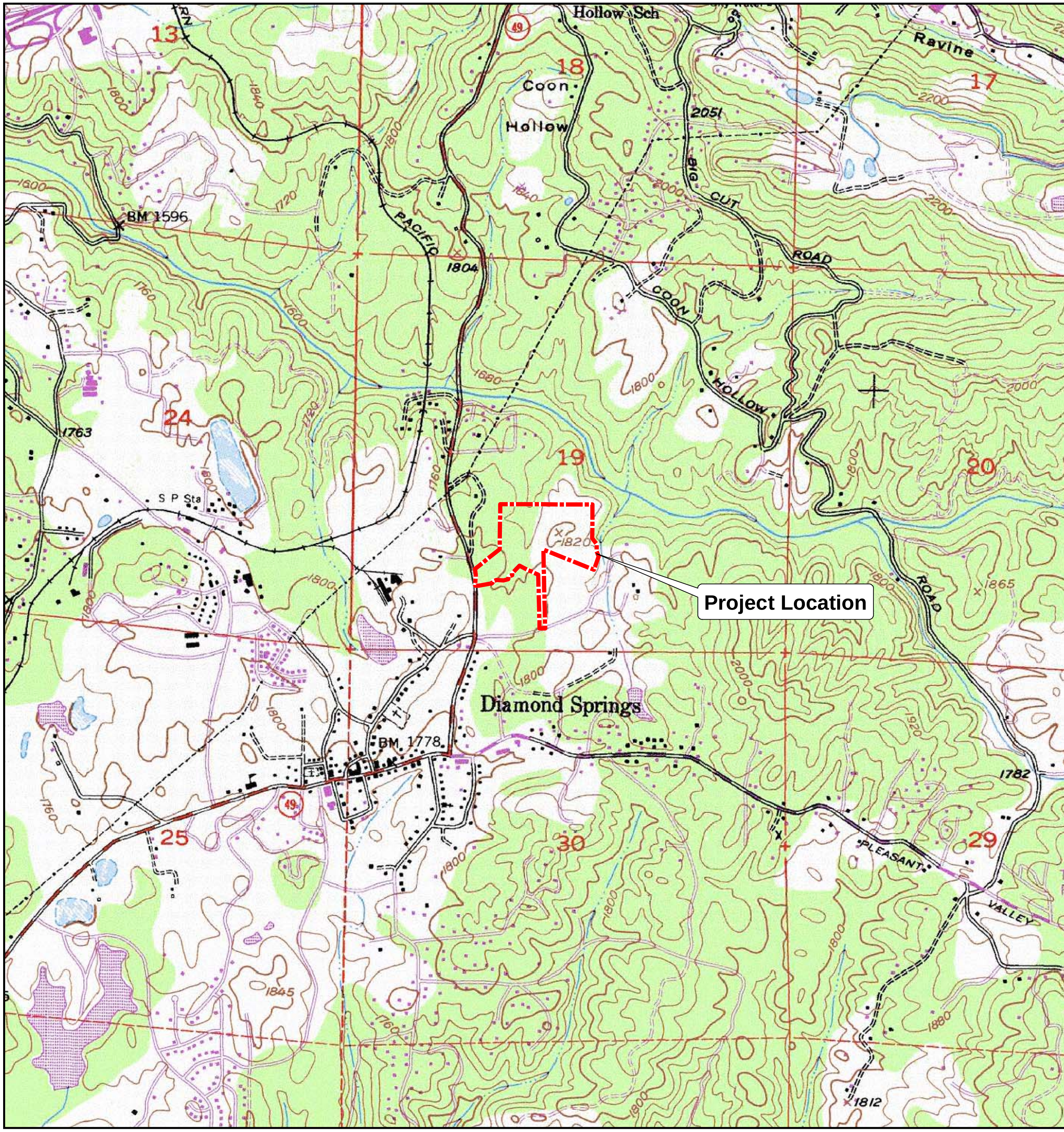
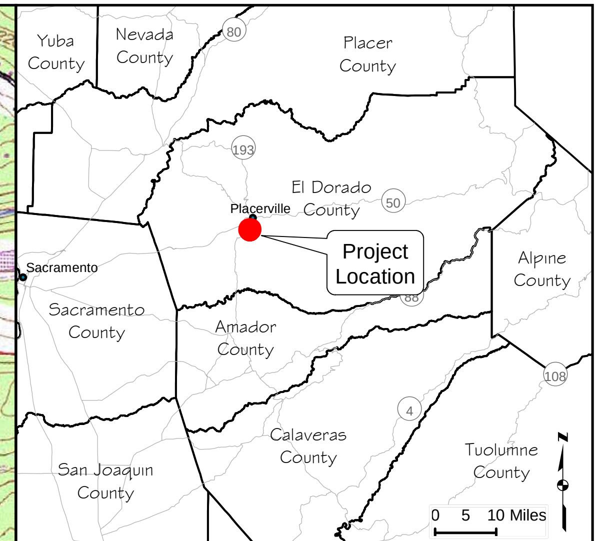
Jenkins Family
Bilisoly Bequest Grant
California Natural Diversity Database
The Calflora Database
Studio Simple
TRC

Attachment B

Project Location Map
Aerial Photograph
Biological Resources Map
Biological Impacts Map





Piedmont Oak Estates
El Dorado County, CA
6 February 2013

Project Location Map

Project Location

2,000 1,000 0 2,000 Feet

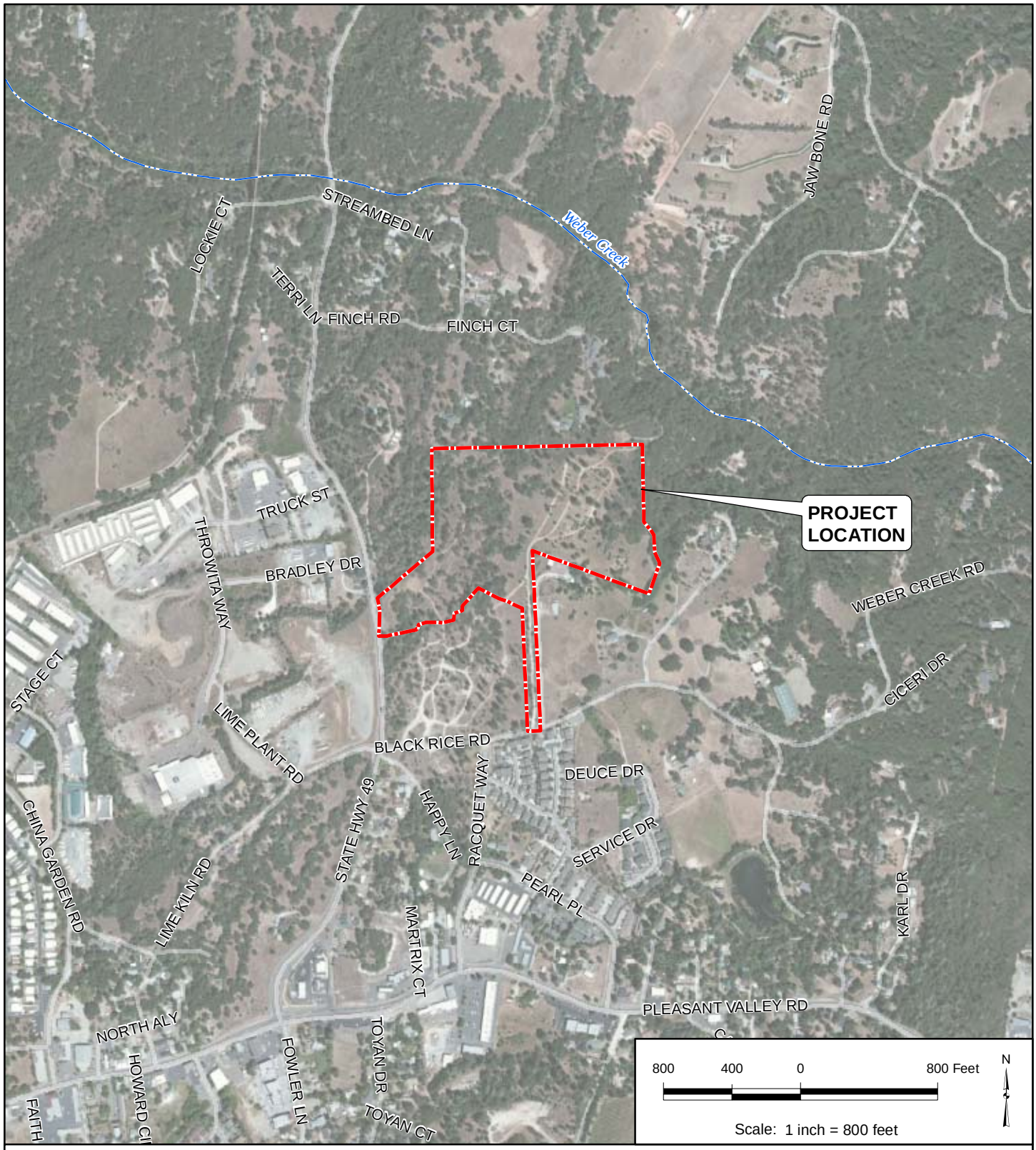
N

Scale: 1 inch = 2,000 feet

SYCAMORE
Environmental
Consultants, Inc.

Placerville, CA (Revised 1973)
CASIL California USGS Digital Raster Graphics (DRG),
7.5 Minute (C) Series, Albers Nad83 Mosaics (MrSID)
o_nw0101.sid & o_nw0102.sid

LocationMap.mxd



Piedmont Oak Estates
El Dorado County, CA
6 February 2013

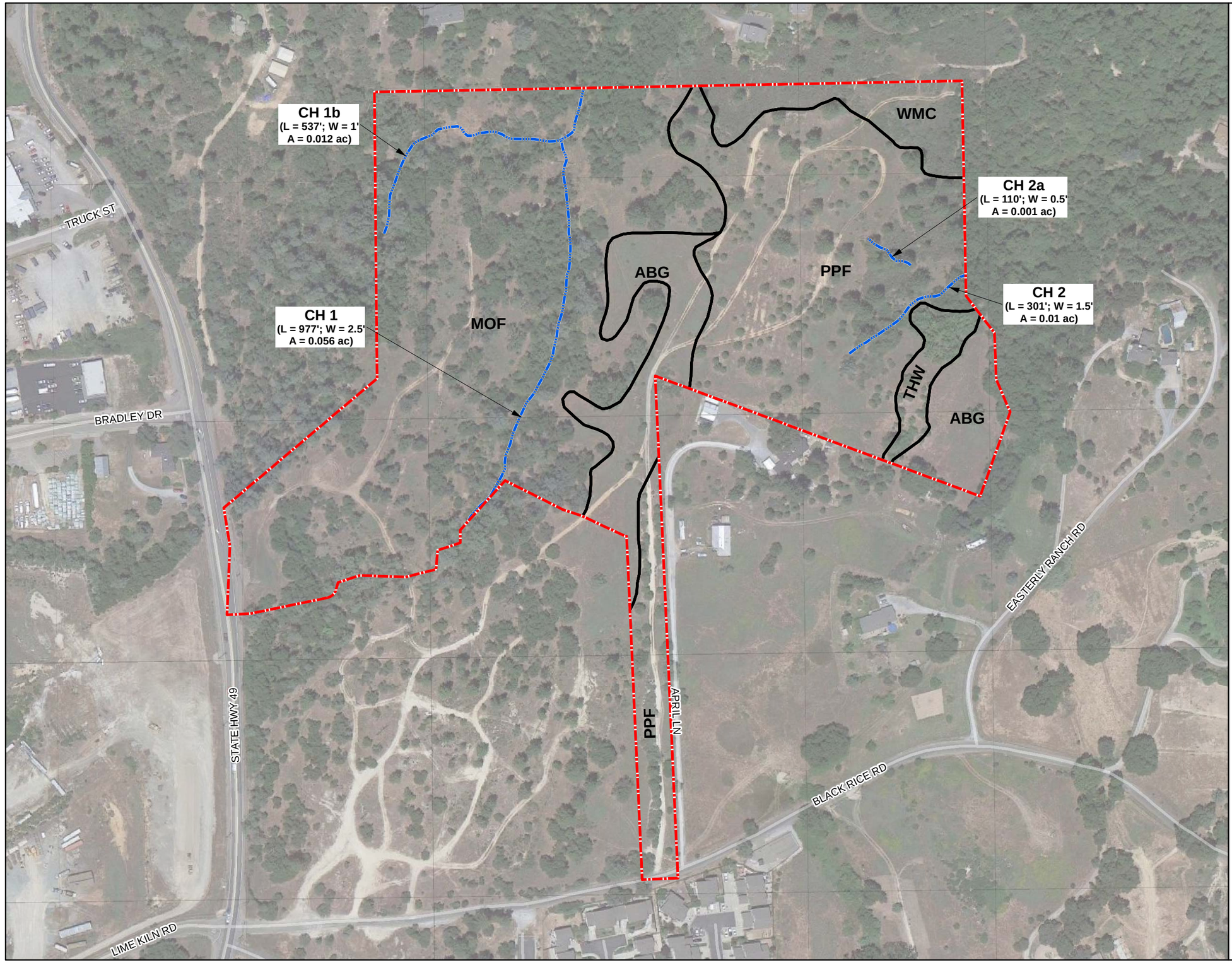
Project Location

SYCAMORE Environmental Consultants, Inc.

Aerial Photograph: 20 July 2010
2010 NAIP Imagery, USDA FSA Imagery
ArcGIS Imagery Basemap Layer

El Dorado County GIS Roads and River layer

Aerial Photograph



Piedmont Oak Estates
El Dorado County, CA
6 February 2013

Biological Resources Map

Project Study Area (PSA; 27.39 ac)
Biological Community Boundary
Channel

Label	Biological Community	Area (ac)
MOF	Mixed Oak Forest	13.96
PFF	Ponderosa Pine Forest	8.56
ABG	Annual Brome Grassland	2.99
WMC	White Leaf Manzanita Chaparral	1.23
THW	Tree-of-Heaven Woodland	0.57
--	Ephemeral Channels	0.08
	Total	**27.39**

Channel (CH)	Length (ft)	Avg. Width (ft)	Area (ac)
CH 1	977	2.5	0.056
CH 1b	537	1.0	0.012
CH 2	301	1.5	0.010
CH 2a	110	0.5	0.001
Total	**1,925**	**--**	**0.079**

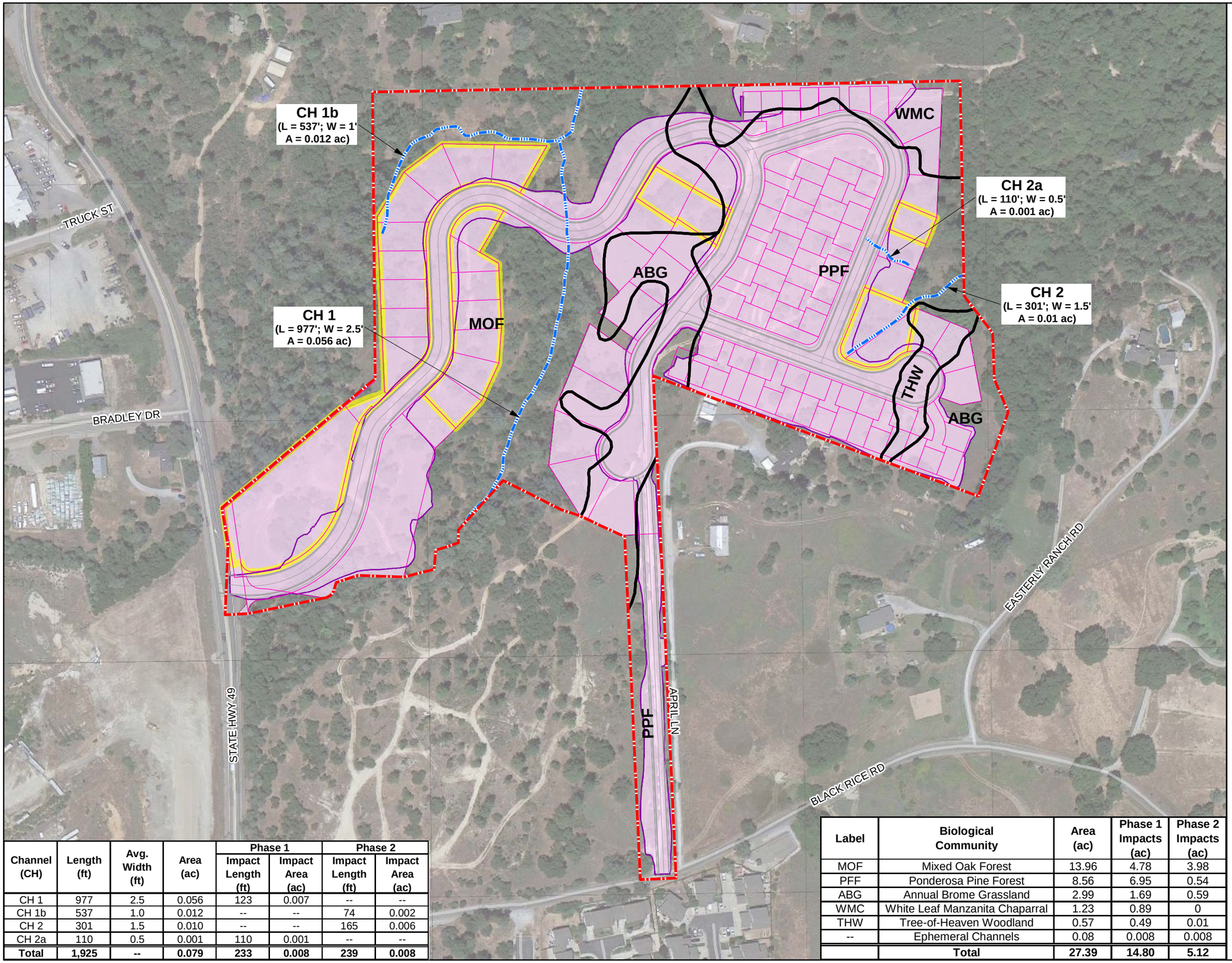
200 100 0 200 Feet
N
Scale: 1 inch = 200 feet

SYCAMORE Environmental Consultants, Inc.

Aerial Photograph: 11 June 2012
Google Earth Imagery
Piedmont Oak Estates
Tentative Map and Project
Development Plan (Sept. 2012)
TSM-1.dwg by BTConsulting, Inc.

Piedmont Oak Estates
El Dorado County, CA
6 February 2013

Biological Impacts Map



Project Study Area (PSA; 27.39 ac)
Biological Community Boundary
Channel (CH)
Lot Lines
Proposed Paved Roads
Limits of Grading
Phase II Lots

200 100 0 200 Feet
N
Scale: 1 inch = 200 feet

Channel (CH)	Length (ft)	Avg. Width (ft)	Area (ac)	Phase 1		Phase 2	
				Impact Length (ft)	Impact Area (ac)	Impact Length (ft)	Impact Area (ac)
CH 1	977	2.5	0.056	123	0.007	--	--
CH 1b	537	1.0	0.012	--	--	74	0.002
CH 2	301	1.5	0.010	--	--	165	0.006
CH 2a	110	0.5	0.001	110	0.001	--	--
Total	**1,925**	**--**	**0.079**	**233**	**0.008**	**239**	**0.008**

Label	Biological Community	Area (ac)	Phase 1 Impacts (ac)	Phase 2 Impacts (ac)
MOF	Mixed Oak Forest	13.96	4.78	3.98
PFF	Ponderosa Pine Forest	8.56	6.95	0.54
ABG	Annual Brome Grassland	2.99	1.69	0.59
WMC	White Leaf Manzanita Chaparral	1.23	0.89	0
THW	Tree-of-Heaven Woodland	0.57	0.49	0.01
--	Ephemeral Channels	0.08	0.008	0.008
	Total	**27.39**	**14.80**	**5.12**

SYCAMORE Environmental Consultants, Inc.

Aerial Photograph: 11 June 2012
Google Earth Imagery
Piedmont Oak Estates
Tentative Map and Project
Development Plan (Sept. 2012)
TSM-1.dwg by BTConsulting, Inc.

SYCAMORE ENVIRONMENTAL CONSULTANTS, INC.
6355 Riverside Blvd., Suite C, Sacramento, CA 95831
916/ 427-0703 Fax 916/ 427-2175

2 July 2009

Mr. Jim Davies
Piedmont Oak Estates, LLC
854 Diablo Road
Danville, CA 94526-2760

Phone: 925/ 855-8489
Fax: 925/ 943-7409

Subject: Botanical Survey Update for Piedmont Oak Estates, El Dorado County, CA

Dear Mr. Davies:

Sycamore Environmental prepared a Biological Resources Evaluation and Preliminary Jurisdictional Delineation Report (BRE) on 9 April 2007 for the Piedmont Oak Estates Project. The BRE identified the Project Study Area (PSA) as potential habitat for four special-status plants. Fieldwork for the BRE was conducted on 9 and 10 September 2006, at which time three of the four special-status plants were not evident and identifiable. This Botanical Survey Update was prepared to document the results of a botanical survey conducted in the PSA during the evident and identifiable period of the special-status plants with the potential to occur in the PSA.

Methods

For the preparation of the BRE, background studies were conducted that included reviewing maps, aerial photographs, lists of special-status species from the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (DFG), and reviewing the soils map of the PSA. General biological surveys were conducted that identified habitat in the PSA and the potential for special-status species occurrence. The results of these background studies are documented in the BRE. The PSA is in County rare plant mitigation area 2. The PSA is not in the recommended preserve boundary for the Pine Hill Plants (USFWS 2002). The BRE concluded potential habitat was present for the special-status plants in Table 1.

The botanical survey was conducted by Chuck Hughes, M.S., on 12 June 2009 and by Michael Bower, (M.S. in prep) and Jessica Easley on 24 June 2009. The survey followed the guidelines set forth by the Department of Fish and Game (DFG 2000) except that impacts and mitigation were not identified because project design was not available. Scientific nomenclature follows Hickman, ed. (1993).

Approximately 13 person-hours were spent in the field during the June 2009 botanical fieldwork. The PSA was searched by walking systematic transects. An additional approximately two hours were spent keying plant specimens collected in the field. Approximately 11.5 person-hours were spent in the field during the September 2006 general biological surveys. All plants found in the

PSA were identified to the taxonomic level necessary to determine legal status. A list of all plant species observed in the PSA is in Attachment A.

Table 1. Special-Status Plant Species with the Potential to Occur in the PSA

Special-Status Plant Species	Common Name	Federal Status [a]	State Status/ CNPS List [b]	Habitat Present? / Species Observed?
Arctostaphylos nissenana	Nissenan manzanita	--	--/ 1B.2	Yes/ No
Calochortus clavatus var. *avius*	Pleasant Valley mariposa lily	--	--/ 1B.2	Yes/ No
Clarkia biloba ssp. *brandegeae*	Brandegee's clarkia	--	--/ 1B.2	Yes/ No
Viburnum ellipticum	Oval-leaved viburnum	--	--/ 2.3	Yes/ No

[a] **Status:** **E** = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare; * = Possibly extinct; **CH** = Critical habitat designated.

[b] **CNPS:** **1A** = Presumed Extinct in CA; **1B** = Rare or Endangered (R/E) in CA and elsewhere; **2** = R/E in CA and more common elsewhere; **3** = Need more information; **4** = Plants of limited distribution; **0.1** = Seriously endangered in CA; **0.2** = Fairly endangered in CA; **0.3** = Not very endangered in CA.

The June 2009 botanical fieldwork was conducted outside the published blooming period of Nissenan manzanita (CNPS 2009); however, Nissenan manzanita is a perennial evergreen shrub that is evident and identifiable year-round based on vegetative characteristics. The June 2009 botanical fieldwork was conducted during the published blooming period of the other special-status plants with the potential to occur in the PSA.

Results

No special-status plant species were observed in the PSA during the general biological surveys or the botanical survey conducted during the evident and identifiable period for the special-status plants with the potential to occur in the PSA.

Please contact me you have any questions.

Cordially,

Chuck Hughes, M.S.
Botanist/ Biologist

c: Mr. Mike Smith, P.E. Thorne & Associates, Inc.

Attachment A. Plant Species Observed

Literature Cited

California Department of Fish and Game (DFG). May 2000. Guidelines for assessing the effects of proposed projects on rare, threatened, and endangered plants and natural communities. Sacramento, CA. http://www.dfg.ca.gov/bdb/pdfs/guideplt.pdf

California Native Plant Society (CNPS). Accessed May 2009. Inventory of rare and endangered plants (online edition, v7-09b 4-10-09). California Native Plant Society, Sacramento, CA. <http://www.cnps.org/inventory>

Hickman, J., ed. 1993. The Jepson manual: Higher plants of California. University of California Press, Berkeley, CA.

Sycamore Environmental Consultants, Inc. 9 April 2007. Biological resources evaluation and preliminary jurisdictional delineation report for Piedmont Oak Estates, El Dorado County, CA. Prepared for Piedmont Oak Estates, LLC., Danville, CA.

U.S. Fish and Wildlife Service (USFWS). 2002. Recovery plan for Gabbro soil plants of the Central Sierra Nevada Foothills. Portland, OR.

ATTACHMENT A.

Plant Species Observed

Piedmont Oak Estates

El Dorado County, CA

Family	Scientific Name	Common Name	Native/ Introduced
FERNS & ALLIES			
Dryopteridaceae	*Dryopteris arguta*	Wood fern	N
Polypodiaceae	*Polypodium calirhiza*	Polypody	N
Pteridaceae	*Pentagramma triangularis*	Goldback fern	N
CONIFERS			
Cupressaceae	*Calocedrus decurrens*	Incense cedar	N
Pinaceae	*Pinus ponderosa*	Pacific ponderosa pine	N
	Pinus sabiniana	Gray pine	N
	Pseudotsuga menziesii	Douglas fir	N
DICOTS			
Amaranthaceae	*Amaranthus* sp.	Pigweed	--
Anacardiaceae	*Toxicodendron diversilobum*	Western poison oak	N
Apiaceae	*Daucus carota*	Carrot	I
	Daucus pusillus	--	N
	Lomatium sp.	--	N
	Sanicula bipinnatifida	Purple sanicle	N
	Sanicula crassicaulis	Sanicle	N
	Torilis arvensis	Hedge parsley	I
Asclepiadaceae	*Asclepias fascicularis*	Narrow-leaf milkweed	N
Asteraceae	*Achillea millefolium*	Yarrow	N
	Agoseris sp.	--	N
	Anaphalis margaritacea	Pearly everlasting	N
	Anthemis cotula	Mayweed	I
	Artemisia douglasiana	Mugwort	N
	Baccharis pilularis	Coyote brush	N
	Calycadenia sp.	--	N
	Carduus pycnocephalus	Italian thistle	I
	Centaurea solstitialis	Yellow star-thistle	I
	Chamomilla suaveolens	Pineapple weed	I
	Chondrilla juncea	Skeleton weed	I
	Cichorium intybus	Chicory	I
	Cirsium vulgare	Bull thistle	I
	Ericameria sp.	Goldenbrush	N
	Eriophyllum lanatum var. *croceum*	Woolly sunflower	N
	Filago californica	Herba impia	N
	Gnaphalium sp.	Cudweed	--
	Grindelia hirsutula var. *davyi*	Gumplant	N
	Hemizonia fitchii	Fitch's hemizonia	N
	Holocarpha virgata	--	N
	Hypochaeris radicata	Rough cat's-ear	I
	Lactuca serriola	Prickly lettuce	I
	Leontodon taraxacoides	Hawkbit	I
	Madia sp. (2 species present)	Tarweed	N

Family	Scientific Name	Common Name	Native/ Introduced
	Micropus californicus var. *californicus*	Slender cottonweed	N
	Psilocarphus tenellus ssp. *tenellus*	Woolly-heads	N
	Sonchus asper ssp. *asper*	Prickly sow thistle	I
	Tragopogon sp.	Goat's beard	I
Bignoniaceae	*Catalpa* sp.	--	I
Brassicaceae	*Brassica nigra*	Black mustard	I
	Rorippa curvisiliqua	Water cress	N
	Sisymbrium officinale	Hedge mustard	I
Boraginaceae	*Plagiobothrys* sp.	Popcornflower	N
Caprifoliaceae	*Lonicera subspicata* var. *denudata*	Honeysuckle	N
	Lonicera interrupta	Honeysuckle	N
	Symphoricarpos albus var. *laevigatus*	Snowberry	N
Caryophyllaceae	*Cerastium glomeratum*	Mouse-ear chickweed	I
	Scleranthus annuus	Knawel	I
	Spergularia sp.	Sand-spurrey	--
	Stellaria media	Common chickweed	I
Convolvulaceae	*Calystegia occidentalis*	Morning glory	N
Ericaceae	*Arctostaphylos viscida* ssp. *viscida*	Manzanita	N
Euphorbiaceae	*Eremocarpus setigerus*	Dove weed; Turkey mullein	N
Fabaceae	*Lathyrus latifolius*	Perennial sweet pea	I
	Lotus micranthus	--	N
	Lotus purshianus var. *purshianus*	--	N
	Lupinus sp.	Lupine	N
	Trifolium dubium	Little hop clover	I
	Trifolium glomeratum	Clover	I
	Trifolium hirtum	Rose clover	I
	Trifolium microcephalum	Clover	N
	Trifolium subterraneum	Subterranean clover	I
	Trifolium willdenovii	Clover	N
	Vicia sativa ssp. *sativa*	Common vetch	I
	Vicia villosa ssp. *villosa*	Hairy vetch	I
Fagaceae	*Quercus chrysolepis*	Maul oak	N
	Quercus douglasii	Blue oak	N
	Quercus kelloggii	California black oak	N
	Quercus lobata	Valley oak	N
	Quercus wislizenii var. *wislizenii*	Interior live oak	N
Gentianaceae	*Centaurium muehlenbergii*	Centaury	N
Geraniaceae	*Erodium botrys*	Filaree	I
	Erodium cicutarium	Filaree	I
	Geranium dissectum	Cranesbill	I
	Geranium molle	Cranesbill	I
Hippocastanaceae	*Aesculus californica*	California buckeye	N
Hydrophyllaceae	*Eriodictyon californicum*	Yerba santa	N
Hypericaceae	*Hypericum perforatum*	Klamathweed	I
Lamiaceae	*Lamium amplexicaule*	Dead nettle	I
	Mentha sp.	Mint	--
	Monardella villosa ssp. *villosa*	Coyote-mint	N
	Scutellaria californica	Skullcap	N
	Stachys sp.	Hedge nettle	N
	Trichostema lanceolatum	Vinegar weed	N
Lythraceae	*Lythrum hyssopifolium*	--	I

Family	Scientific Name	Common Name	Native/ Introduced
Malvaceae	*Sidalcea malviflora* ssp. *asprella*	Checker mallow	N
Onagraceae	*Clarkia biloba* ssp. *biloba*	--	N
	Clarkia purpurea ssp. *quadrivulnera*	Four-spot	N
	Epilobium brachycarpum	Fireweed	N
	Epilobium sp.	Fireweed	--
Papaveraceae	*Eschscholzia californica*	California poppy	N
Plantaginaceae	*Plantago lanceolata*	English plantain	I
Polemoniaceae	*Allophyllum diaricatum*	--	N
	Navarretia intertexta ssp. *intertexta*	--	N
Polygonaceae	*Polygonum arenastrum*	Common knotweed	I
	Polygonum sp.	Knotweed	--
	Rumex acetosella	Sheep sorrel	I
	Rumex conglomeratus	Dock	I
	Rumex crispus	Curly dock	I
	Rumex pulcher	Fiddle dock	I
Portulacaceae	*Claytonia perfoliata* ssp. *perfoliata*	Miner's lettuce	N
Primulaceae	*Anagallis arvensis*	Scarlet pimpernel	I
Ranunculaceae	*Delphinium variegatum* ssp. *variegatum*	Royal larkspur	N
	Ranunculus muricatus	Buttercup	I
Rhamnaceae	*Ceanothus cuneatus* var. *cuneatus*	Buck brush	N
	Rhamnus ilicifolia	Holly-leaved redberry	N
	Rhamnus tomentella ssp. *tomentella*	Hoary coffeeberry	N
Rosaceae	*Aphanes occidentalis*	--	N
	Heteromeles arbutifolia	Toyon	N
	Potentilla glandulosa	Cinquefoil	N
	Prunus sp.	--	--
	Pyrus communis	Common pear	I
	Rubus discolor	Himalayan blackberry	I
	Sanguisorba minor ssp. *muricata*	Garden burnet	I
Rubiaceae	*Galium aparine*	Goose grass	N
	Galium murale	Tiny bedstraw	I
	Galium parisiense	Wall bedstraw	I
	Galium porrigens var. *tenue*	Climbing bedstraw	N
	Sherardia arvensis	Field madder	I
Salicaceae	*Salix* sp.	Willow	N
Scrophulariaceae	*Collinsia* sp.	--	N
	Kickxia elatine	Fluellin	I
	Mimulus guttatus	Yellow monkeyflower	N
	Verbascum blattaria	Moth mullein	I
	Verbascum thapsus	Woolly mullein	I
Simaroubaceae	*Ailanthus altissima*	Tree of heaven	I
Solanaceae	*Solanum* sp.	Nightshade	--
Verbenaceae	*Verbena litoralis*	Verbena	I
Viscaceae	*Arceuthobium occidentale*	Foothill-pine dwarf mistletoe	N
	Phoradendron villosum	Oak mistletoe	N
Vitaceae	*Vitis californica*	California wild grape	N

Family	Scientific Name	Common Name	Native/ Introduced
MONOCOTS			
Cyperaceae	*Carex sp.*	Sedge	N
	Cyperus eragrostis	Nut sedge	N
	Eleocharis macrostachya	Spikerush	N
Iridaceae	*Sisyrinchium bellum*	Blue-eyed-grass	N
Juncaceae	*Juncus balticus*	Baltic rush	N
	Juncus bufonius	Toad rush	N
	Juncus occidentalis	Rush	N
	Juncus phaeocephalus var. *paniculatus*	Rush	N
	Luzula comosa	Hairy wood rush	N
Liliaceae	*Brodiaea elegans* ssp. *elegans*	Harvest brodiaea	N
	Calochortus albus	White globe lily	N
	Chlorogalum pomeridianum var. *pomeridianum*	Soap plant	N
	Dichelostemma multiflorum	Wild hyacinth	N
	Dichelostemma volubile	Twining brodiaea	N
Poaceae	*Aegilops triuncialis*	Barbed goatgrass	I
	Agrostis sp.	Bent grass	--
	Aira caryophyllea	Silver European hairgrass	I
	Avena fatua	Wild oat	I
	Avena sativa	Cultivated oat	I
	Briza minor	Quaking grass	I
	Bromus diandrus	Ripgut grass	I
	Bromus hordeaceus	Soft brome	I
	Bromus laevipes	Brome	N
	Bromus madritensis ssp. *rubens*	Foxtail chess	I
	Cynodon dactylon	Bermuda grass	I
	Cynosurus echinatus	Hedgehog dogtail	I
	Deschampsia danthonioides	Annual hairgrass	N
	Elymus glaucus	Blue wildrye	N
	Elymus multisetus	Big squirreltail	N
	Gastridium ventricosum	Nit grass	I
	Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	I
	Lolium multiflorum	Italian ryegrass	I
	Melica torreyana	Melic	N
	Muhlenbergia rigens	Deergrass	N
	Nassella pulchra	Purple needlegrass	N
	Phalaris sp.	--	--
	Poa bulbosa	Bulbous bluegrass	I
	Polypogon monspeliensis	Annual beard grass	I
	Taeniatherum caput-medusae	Medusa head	I
	Vulpia myuros var. *myuros*	Vulpia	I

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

April 24, 2013

Regulatory Division SPK-2009-00928

Mr. Jim Davies
Piedmont Oak Estates, LLC
854 Diablo Road
Danville, California 94526-2760

Dear Mr. Davies:

We are responding to your April 9, 2013, request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the Piedmont Oak Estates site. The approximately 27.39-acre site is located near Weber Creek, Section 19, Township 10 North, Range 11 East, Mount Diablo Meridian, Latitude 38.7025313162938°, Longitude -120.808560315998°, Town of Diamond Spring, El Dorado County, California.

Based on available information, **we concur with the amount and location of wetlands and/or other water bodies on the site as depicted on the enclosed 16 April, 2013, *Piedmont Oak Estates, El Dorado County, CA*, prepared by Sycamore Environmental Consultants, Inc** (enclosure 1). The approximately 0.0709 acre of other water bodies present within the survey area are potential waters of the United States regulated under Section 404 of the Clean Water Act.

A copy of our RGL 08-02 Preliminary Jurisdictional Determination Form for this site is enclosed (enclosure 2). Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization for the activity. You may request an approved JD for this site at any time prior to starting work within waters. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

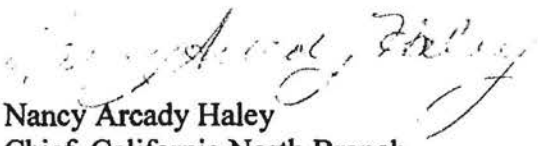
This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and Request for

Appeal Form is enclosed to notify you of your options with this determination (enclosure 3). This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*.

Please refer to identification number SPK-2009-00928 in any correspondence concerning this project. If you have any questions, please contact Mr. Peck Ha at our California North Branch Office, Regulatory Division, Sacramento District, U.S. Army Corps of Engineers, 1325 J Street, Room 1350, Sacramento, California 95814-2922, email *Peck.Ha@usace.army.mil*, or telephone 916-557-6617. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,



Nancy Arcady Haley
Chief, California North Branch

Enclosures

Copy Furnished with enclosures:
Ms. Lillian Macleod, El Dorado County Planning Department, 2850 Fairlane Court, Placerville, California 95667

Copies Furnished without enclosures:
Mr. Chuck Hughes, Sycamore Environmental Consultants, Inc., 6355 Riverside Boulevard, Suite C, Sacramento, California 95831
Ms. Elizabeth Lee, California Regional Water Quality Control Board, Central Valley Region, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Ms. Tina Bartlett, California Department of Fish and Game, Region 2, 1701 Nimbus Drive, Rancho Cordova, California 95670-4599
U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-3901
Mr. Jason Brush, Environmental Protection Agency, WRT-8, 75 Hawthorne Street, San Francisco, California 94105-3922

Biological Resources Evaluation
and
Preliminary Jurisdictional Delineation Report
for
Piedmont Oak Estates

EL Dorado County, CA

Prepared by:

Sycamore Environmental Consultants, Inc.
6355 Riverside Blvd., Suite C
Sacramento, CA 95831-1143
Phone: 916/ 427-0703
Fax: 916/ 427-2175
Contact: R. John Little, Ph.D.

Prepared for:
Piedmont Oak Estates, LLC
854 Diablo Road
Danville, CA 94526-2760
Phone: 925/ 855-8489
Fax: 925/ 943-7409
Contact: Mr. Jim Davies

9 April 2007

Biological Resources Evaluation
and
Preliminary Jurisdictional Delineation Report
for
Piedmont Oak Estates

El Dorado County, CA

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APPENDICES

I. SUMMARY OF FINDINGS AND CONCLUSIONS

No state- or federal-listed species were observed in the Piedmont Oak Estates project study area (PSA). The PSA does not contain habitat for state- or federal-listed wildlife species. The PSA does not contain habitat for state and or federal-listed plant species.

The PSA contains potential habitat for special-status plant species including Pleasant Valley mariposa lily, Brandegee's clarkia, and oval-leaved viburnum. The PSA is located in El Dorado County rare plant mitigation area 2 (El Dorado Irrigation District Service Area).

Potential wetlands and other waters of the U.S. occur in the PSA. Dredging or fill activities in wetlands and other waters of the U.S. require a section 404 permit from the U.S. Army Corps of Engineers (Corps), a section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB) and a 1602 Streambed Alteration Agreement from the California Department of Fish and Game (DFG).

II. INTRODUCTION

A. Purpose of Report

This report documents biological resources, wetlands, and other waters of the U.S. in the PSA. This report can be used in support of state and federal permit applications and CEQA documents. This report does not evaluate project impacts or identify mitigation measures.

B. Project Location

The 46.36 ac PSA is located east of the intersection of State Highway 49 and Black Rice Road north of the community of Diamond Springs in El Dorado County, CA (Figure 1). The PSA is located on the Placerville USGS topographic quadrangle (T10N, R11E, Sections 19 and 30). The PSA is in the South Fork American River watershed (hydrologic unit code 18020129). The PSA centroid is 38N 42' 05.94" and 120W 48' 34.89" (UTM zone 10, NAD 1983).

The PSA is located in El Dorado County rare plant mitigation area 2. The PSA is located outside the El Dorado County Important Biological Community (IBC) and Ecological Preserve areas (El Dorado County 2004).

To access the PSA from Sacramento, take State Highway 50 east and take Exit 44a towards Diamond Springs. Turn right onto Missouri Flat Road. Turn left at the intersection of Missouri Flat Road and State Highway 49. Veer left at the intersection of State Highway 49 and Pleasant Valley Road. Proceed north on State Highway 49 and turn right onto Black Rice

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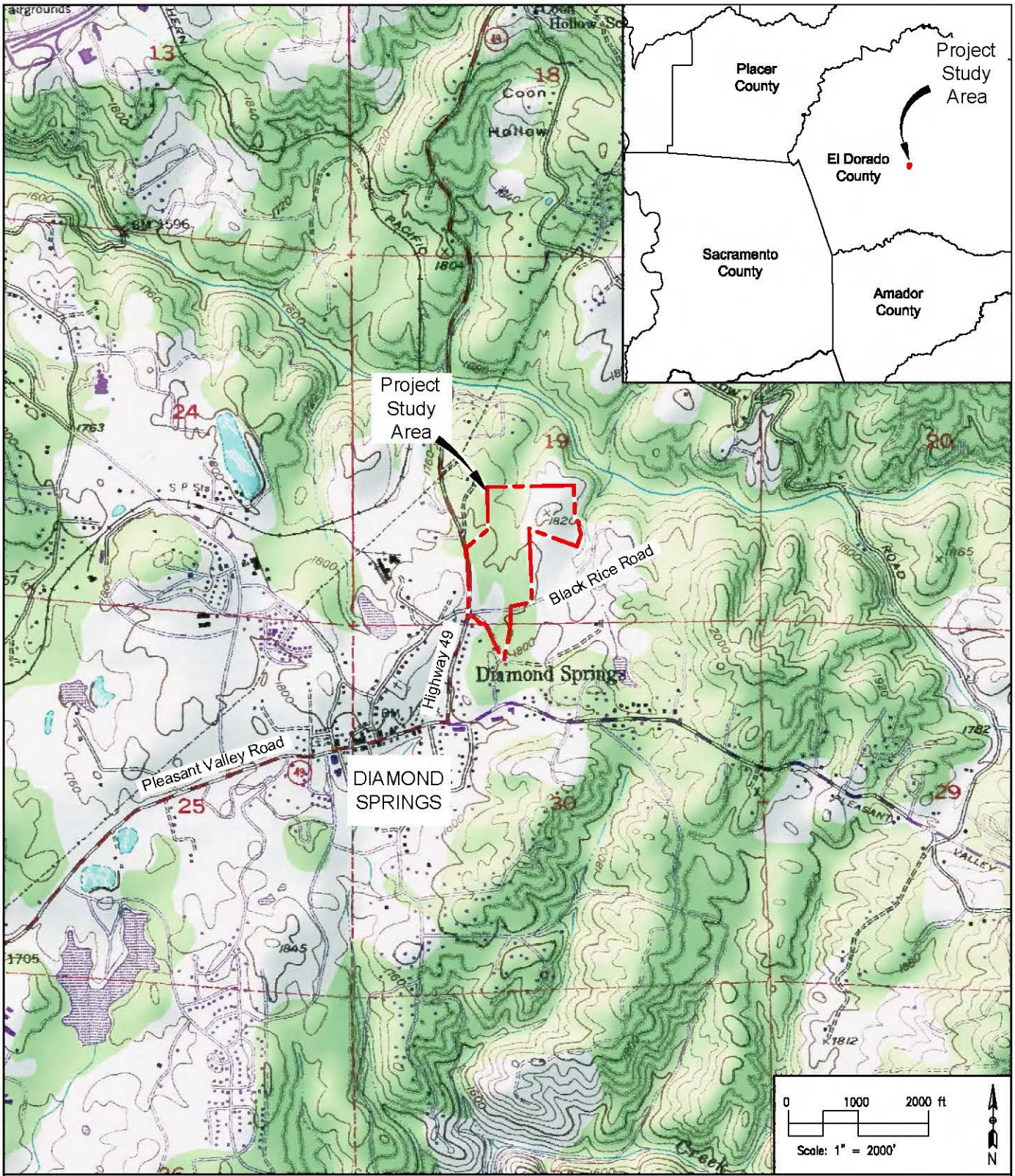

Piedmont Oak Estates
El Dorado County, CA
9 April 2007

= Project Study Area (PSA)

SYCAMORE Environmental Consultants, Inc.

Figure 1.
Location Map

Photograph:
Placerville, CA
USGS 7.5' Quadrangle

06039_Location.pdf

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Road. The PSA is located immediately east of the intersection of State Highway 49 and Black Rice Road on the north and south side of Black Rice Road.

C. Project Applicant and Engineer

Piedmont Oak Estates, LLC
854 Diablo Road
Danville, CA 94526-2760
Contact: Mr. Jim Davies
Phone: 925/ 855-8489
Fax: 925/ 943-7409

Gene E. Thorne & Associates, Inc.
3025 Alhambra Drive
Cameron Park, CA 95682
Contact: Mr. Gene Thorne
Phone: 916/ 985-7745
Fax: 530/ 676-4205

D. Project Description

Project design has not yet been completed.

III. STUDY METHODS

A. Studies Conducted

Studies included conducting field surveys; obtaining and analyzing data from state and federal agencies; and reviewing maps, aerial photographs, and published and unpublished literature. A preliminary jurisdictional delineation was conducted to determine if potential wetlands or other waters of the U.S. occur in the PSA.

B. Literature Search

Information on the biology, distribution, taxonomy, legal status, and other aspects of the special-status species was obtained from documents on file in the library of Sycamore Environmental. Standard references used for the biology and taxonomy of plants included Abrams (1923-1960); California Native Plant Society (2005); California Department of Fish and Game (2003, 2006b, d); Hickman, ed. (1993); Mason (1957); Munz (1959); and Sawyer and Keeler-Wolf (1995). Standard references used for the biology and taxonomy of wildlife included Behler and King (1979); California Department of Fish and Game (2006a, 5c); Ehrlich et al. (1988); Jameson and Peeters (2004); Jennings and Hayes (1994); Mayer and Laudenslayer, eds. (1988); McGinnis (1984); Peterson (1990); Sibley (2003); Stebbins (2003); Udvardy (1977); Verner and Boss (1980); Whitaker (1980); and Zeiner et al. (1988; 1990a, b).

A search of the California Natural Diversity Database (database release date 6 September 2006) was conducted for the Placerville USGS quad and the eight surrounding quads to determine if known records of federal- or state-listed species occur in, or in the vicinity of the PSA (Appendix A).

Sycamore Environmental obtained a list, dated 13 October 2006, from the U.S. Fish and Wildlife Service (USFWS), Sacramento Field Office that identifies special-status species that potentially occur in or could be affected by projects on the Placerville USGS quad (Appendix B)

C. Survey Dates and Personnel

Fieldwork for the jurisdictional delineation and biological survey was conducted by Adam Forbes, M.S. on 9 and 10 September 2006.

D. Survey Methods

Field surveys consisted of walking through the PSA to assess potential habitat for special-status species, sensitive communities, and potential wetlands and other waters of the U.S. Plant and animal species and vegetative communities were identified and recorded. A list of plant and wildlife species observed during the surveys is in Appendix D. Photographs of the PSA are in Appendix E.

E. Jurisdictional Delineation

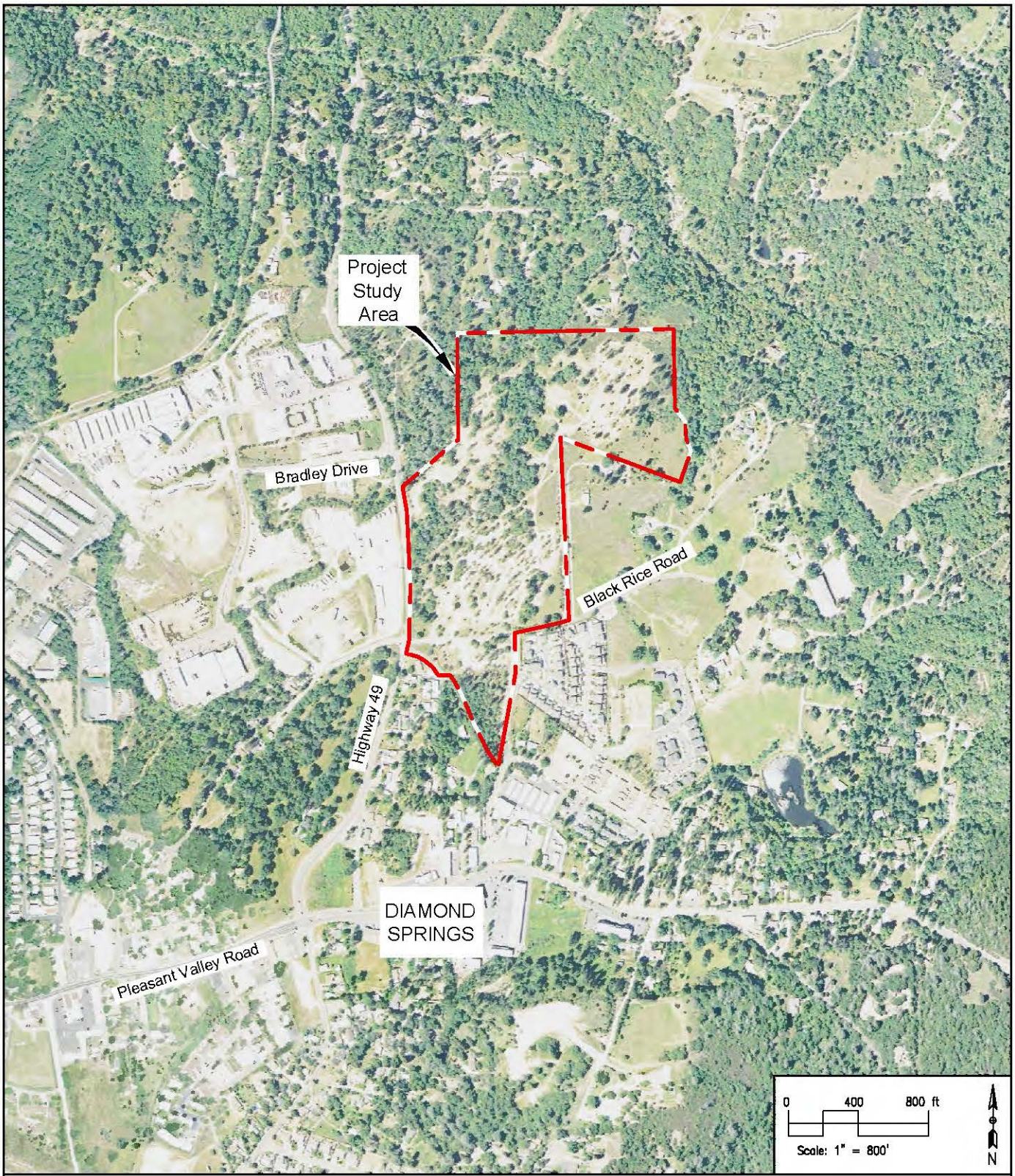
The jurisdictional delineation was conducted in accordance with Corps guidelines (1987). The results are in Section VI of this document.

F. Problems Encountered and Limitations That May Influence Results

Biological surveys of the PSA were conducted outside the documented blooming period of Pleasant Valley mariposa lily (*Calochortus clavatus* var. *avius*), Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeae*), and oval-leaved viburnum (*Viburnum ellipticum*). These species may not have been detected during the general biological survey of the PSA. No other problems or limitations were encountered that may have influenced the results.

G. Mapping

Biological and potential jurisdictional features observed by Sycamore Environmental were mapped using a Trimble GeoXT™ sub-meter accurate GPS. The 1 May 2006 aerial photo in Figures 2 and 3 was downloaded from the GlobeXplorer® website. The AutoCAD® base map used for Figure 5 was provided by Gene E. Thorne & Associates, Inc. The GPS data were exported to AutoCAD® and placed on the aerial photo (Figure 3) and AutoCAD® base map (Figure 5).



Piedmont Oak Estates
El Dorado County, CA
9 April 2007

= Project Study Area (PSA)

SYCAMORE Environmental Consultants, Inc.

Figure 2.
Aerial Photograph of the PSA

Photograph:
1 May 2006

06039_Aerial.pdf

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IV. ENVIRONMENTAL SETTING

The PSA is located in the western foothills of the Sierra Nevada north of the community of Diamond Springs in El Dorado County, CA. Elevation in the PSA ranges from 1,735 to 1,835 ft above sea level. Topography in the PSA consists of gentle to moderately steep slopes of varying aspect. Land use adjacent to the PSA consists of residential housing and undeveloped land.

A. Biological Communities and Other Features in the PSA

Biological communities are defined by species composition and relative abundance. Biological communities described below correlate where applicable with the list of California terrestrial natural communities recognized by the California Natural Diversity Database (DFG 2003) and the El Dorado County General Plan EIR (2004). Biological communities and other features are mapped in Figure 3; their acreages are in Table 1.

Table 1. Biological communities and other features in the PSA.

Feature Type	DFG Code [1]	El Dorado County Major Habitat Type [2]	Acreage [3] (ac)
Biological Community			
Mixed Oak Woodland	71.000.00	Blue Oak-Foothill Pine	19.16
California Annual Grassland	42.040.00	Annual Grassland	4.43
Manzanita Chaparral	37.300.00	Mixed Chaparral	1.24
Channels	--	--	0.21
Seasonal Wetland	--	--	0.12
Other Features			
Partially Cleared Land	--	--	21.20
Total:			**46.36**

[1] DFG 2003
[2] El Dorado County 2004
[3] Acreages were calculated using AutoCAD® functions.

1. Mixed Oak Woodland

This biological community occurs in the west central, northwest, northeast, and southern portions of the PSA. Tree species present include interior live oak (*Quercus wislizenii var. wislizenii*), blue oak (*Quercus douglasii*), Valley oak (*Quercus lobata*), California black oak (*Quercus kelloggii*), Pacific ponderosa pine (*Pinus ponderosa*), and foothill pine (*Pinus sabiniana*). Canopy cover in this community is generally open. Native shrubs present include coyote brush (*Baccharis pilularis*), buck brush (*Ceanothus cuneatus* var. *cuneatus*), western poison oak (*Toxicodendron diversilobum*), manzanita (*Arctostaphylos* sp.), and toyon (*Heteromeles arbutifolia*). Species present in the herb layer include hedgehog dogtail

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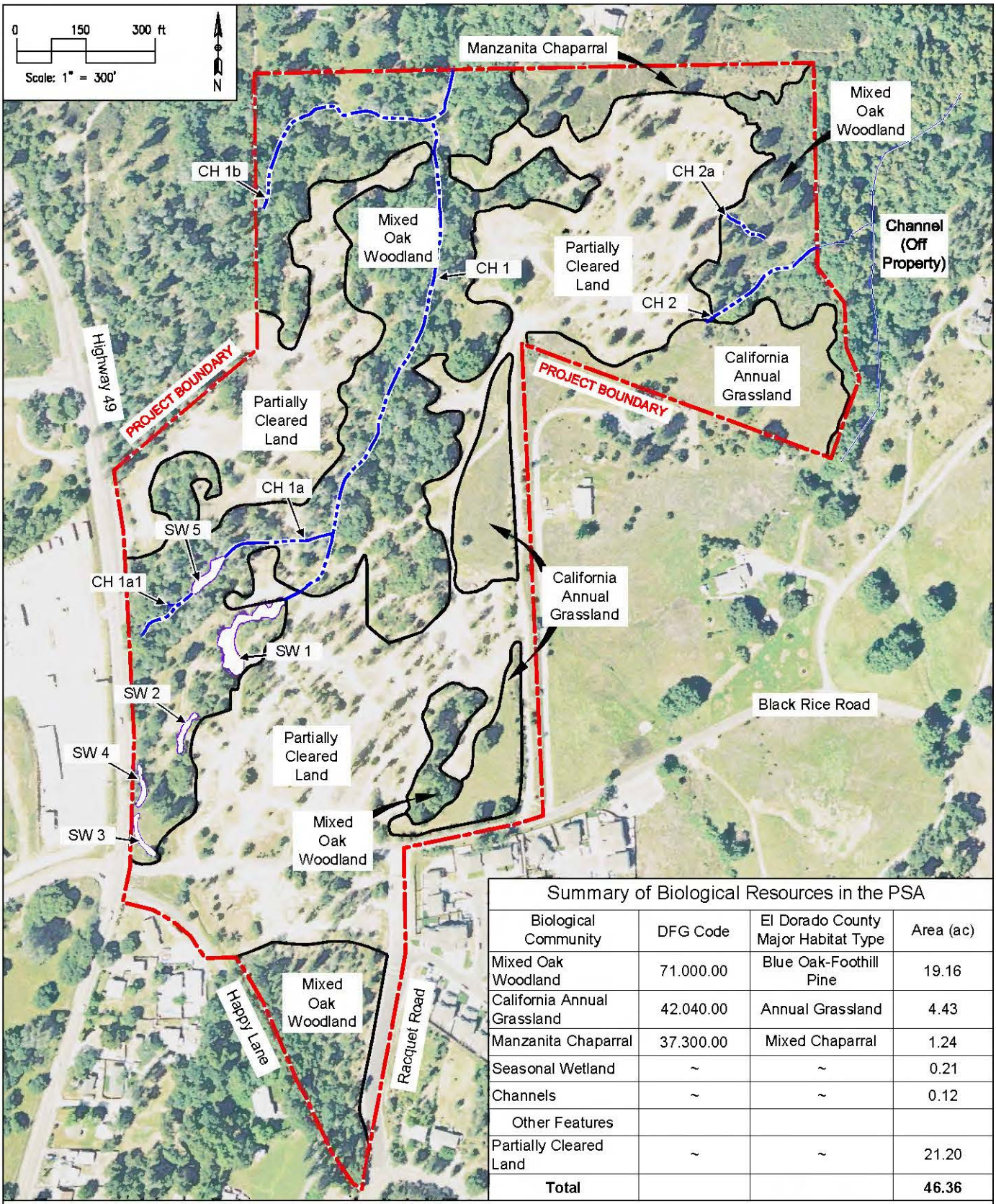

Summary of Biological Resources in the PSA

Biological Community	DFG Code	El Dorado County Major Habitat Type	Area (ac)
Mixed Oak Woodland	71.000.00	Blue Oak-Foothill Pine	19.16
California Annual Grassland	42.040.00	Annual Grassland	4.43
Manzanita Chaparral	37.300.00	Mixed Chaparral	1.24
Seasonal Wetland	~	~	0.21
Channels	~	~	0.12
Other Features			
Partially Cleared Land	~	~	21.20
Total			**46.36**

Piedmont Oak Estates
El Dorado County, CA
9 April 2007

= Project Boundary
= Channel (CH)
= Seasonal Wetland (SW)

SYCAMORE Environmental Consultants, Inc.

Figure 3.
Biological Resources Map

Photograph:
1 May 2006

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(*Cynosurus echinatus*), blue wildrye (*Elymus glaucus*), *Torilis arvensis*, wall bedstraw (*Galium parisiense*), and silver European hairgrass (*Aira caryophyllea*). Mixed oak woodland is given no special designation by DFG (2003). Oak woodlands under County jurisdiction are subject to California Public Resources Code (PRC) §21083.4.

2. California Annual Grassland

This biological community occurs in the eastern portion of the PSA. Species present include hedgehog dogtail, blue wildrye, wild oat (*Avena fatua*), Italian ryegrass (*Lolium multiflorum*), soft brome (*Bromus hordeaceus*), silver European hairgrass, *Torilis arvensis*, nit grass (*Gastridium ventricosum*), yellow star-thistle (*Centaurea solstitialis*), rose clover (*Trifolium hirtum*), and Klamath weed (*Hypericum perforatum*). Scattered trees and scrub species present in this community included pear (*Pyrus* sp.), coyote brush, tree of heaven (*Ailanthus altissima*), and buck brush. California annual grassland is given no special designation by DFG (2003).

3. Manzanita Chaparral

This community occurs in a small area in the north central portion of the PSA. Manzanita is the dominant shrub species. Other shrub species present include coyote brush and buck brush. The herb layer is poorly developed due to the closed canopy of the shrub layer. Manzanita chaparral is given no special designation by DFG (2003).

4. Channels

Six ephemeral channels occur in the PSA. No riparian corridor is associated with the six ephemeral drainages in the PSA. Species present in and adjacent to the ephemeral channels include western poison oak, interior live oak, and California buckeye (*Aesculus californica*). Channels in the PSA are potential jurisdictional features and are discussed Section VI.H.

5. Seasonal Wetland

Five seasonal wetlands occur in the PSA. Closed depressional wetlands, such as vernal pools, do not occur in the PSA. Seasonal wetlands in the PSA consist of open sloped depressions that drain to the adjacent ephemeral channels. Species present in seasonal wetland habitat include Himalayan blackberry, deer grass (*Muhlenbergia rigens*), curly dock (*Rumex crispus*), toad rush (*Juncus bufonius*), Italian ryegrass, Baltic rush (*Juncus balticus*), *Lythrum hyssopifolium*, quaking grass (*Briza minor*), spikerush (*Eleocharis macrostachya*), and nutsedge (*Cyperus eragrostis*). Seasonal wetlands in the PSA are potential jurisdictional features and are discussed Section VI.H.

6. Partially Cleared Land

Prior to the September 2006 biological surveys approximately 21.20 ac of the PSA had been partially cleared of vegetation. A review of aerial photographs indicates that the prior to the removal vegetation in these areas approximately 50% of the area was composed of mixed oak

woodland. Approximately 40% of the area was likely vegetated with manzanita chaparral and scattered pine trees. The remaining 10% of the area was composed of nonnative grassland. Not all of the vegetation was cleared from the 21.20 ac. Scattered tree and shrub species present include Ponderosa pine, blue oak, interior live oak, coyote brush, and buck brush. Ruderal herbaceous species present include hedgehog dogtail, dove weed (*Eremocarpus setigerus*), vinegar weed (*Trichostema lanceolatum*), and woolly mullein (*Verbascum thapsus*). Multiple unpaved roads occur in the areas were vegetation was removed. Most of these roads appear to have been created during vegetation removal activities.

B. The Existing Level of Disturbance

The PSA is composed of undeveloped land located in a rural residential setting. A total of 21.20 ac of the PSA have been partially cleared of vegetation. Two ditches, likely associated with previous mining activities, occur in the PSA. Piles of spoils associated with previous mining activities occur at various locations in the PSA.

V. BIOLOGICAL RESOURCES IN THE PROJECT STUDY AREA

A. Determination of Special-Status Species in the Project Study Area

File data from CNDDB records, USFWS, and field surveys were used to determine the species that could occur in the PSA. The CNDDB/ RareFind summary report for the Placerville quad and the eight adjacent quads is in Appendix A. The USFWS list of special-status species that could occur on the Placerville quad and in El Dorado County is in Appendix B. Field surveys were conducted to determine if habitat for special-status species identified in file data is present in the PSA. Special-status species for which suitable habitat is present are listed in Table 2.

B. Special-Status Species not in the Project Study Area

Special-status species for which suitable habitat is not present, or whose distributional limits preclude the possibility of their occurrence in the PSA, are not discussed further in this report. These species are evaluated in Appendix C.

Table 2. Special-status species for which suitable habitat occurs in the PSA

Special-Status Species	Common Name	Federal Listing Status/ USFWS Codes [a]	State Listing Status/ DFG Code or CNPS List [b]	Source [c]	Habitat Present? / Species Observed?
Amphibian					
Rana aurora draytonii	California red-legged frog	T	CSC	1, 2	No/ No
Birds					
Migratory birds/ Birds of prey/	--	--/ --	--/ --	3	Yes/ Yes
Plants		**USFWS**	**State/ CNPS**		
Arctostaphylos nissenana	Nissenan Manzanita	--	--/ 1B.2	2	--
Calochortus clavatus var. *avius*	Pleasant Valley mariposa lily	--	--/ 1B.2	2	Yes/ No
Clarkia biloba ssp. *brandegeae*	Brandegee's clarkia	--	--/ 1B.2	2	Yes/ No
Viburnum ellipticum	Oval-leaved viburnum	--	--/ 2.3	2	Yes/ No

[a] **Listing Status** Federal status determined from USFWS letter. State status determined from DFG (2006 c, d). Codes used in table are:
E = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare; **CH** = Critical Habitat

[b] **Other Codes** Other codes determined from USFWS letter, DFG (2006 a, b), and CNPS (2005). Codes used in table are as follows:
CSC = DFG Species of Special Concern
CNPS List (plants only): **1B** = Rare or Endangered (R/E) in CA and elsewhere; **2** = R/E in CA and more common elsewhere
CNPS List Decimal Extensions: .1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** = Fairly endangered in California (20-80% occurrences threatened); **.3 =** Not very endangered in California (<20% of occurrences threatened or no current threats known).

[c] **Sources 1** = From USFWS letter. **2** = From CNDDB/ RareFind. **3** = Observed during survey.

C. Evaluation of Special-Status Wildlife Species

1. Amphibians

California red-legged frog (***Rana aurora draytonii***)

HABITAT AND BIOLOGY: CRLF habitat combines both a specific aquatic and riparian component. The adults typically require dense, shrubby, or emergent riparian vegetation closely associated with deep (>2.3 ft) still or slowly moving water. Deep-water pools with dense stands of overhanging willows intermixed with cattails support the highest densities of CRLF. Well-vegetated terrestrial areas within a riparian corridor may provide important sheltering habitat during the winter. Frogs spend considerable time resting and feeding in riparian vegetation when it is present (USFWS 2002a; 2005).

CRLF require water to breed. Female CRLF deposit egg masses on emergent vegetation so that the masses float on the surface of the water. Breeding habitats for CRLF vary from deep still or slow moving water with dense riparian or emergent vegetation to shallow sections of streams that are not covered with riparian vegetation. While frogs successfully breed in streams, high flows and cold temperatures in streams during the spring often make these sites risky environments for eggs and tadpoles. Stock ponds that have vegetative cover and few

nonnative predators may be used by CRLF for breeding. CRLF do not occupy water that exceeds temperatures of 70° F (USFWS 2002a).

During summer, CRLF often disperse upstream or downstream from their breeding habitat to forage or seek aestivation habitat if water is not available. Aestivation habitat is essential for the survival of CRLF within a watershed. During dry periods, CRLF are rarely encountered far from water. Summer habitat could include spaces under boulders or rocks and organic debris, such as downed trees or logs; or industrial debris, such as drains and watering troughs. CRLF use small mammal burrows and moist leaf litter to aestivate during the summer if water is not available. CRLF use large cracks in the bottom of dried ponds as refugia. CRLF are frequently encountered in seeps and springs located in open grasslands. Such bodies may not be suitable for breeding but may function as foraging habitat or refugia for frogs (USFWS 2002a; 2005).

RANGE: CRLF are endemic to CA and Baja California, Mexico. The known elevation range extends from near sea level to elevations of about 5,200 ft (USFWS 2002a). Nearly all sightings have occurred below 3,500 ft (USFWS 2002a). CRLF historically occurred through Pacific slope drainages from the vicinity of Redding (Shasta Co.) inland, west to Point Reyes (Marin Co., CA), and southward to the Santo Domingo River drainage in Baja California, Mexico (Jennings and Hayes 1994). CRLF are now known only from isolated localities in the Sierra Nevada, northern Coast, and northern Transverse Ranges (USFWS 2002a).

KNOWN RECORDS: There are no CNDDB records for CRLF on the Placerville or 8 surrounding quads. The closest record to the PSA is from 2005 and is located approximately 14.8 mi west-northwest of the PSA on the east side of Folsom Lake, southwest of Iron Mountain on the Clarksville quad. One juvenile CRFL was observed on a footbridge that that crosses a small watercourse. USFWS has determined that this is an unsubstantiated record (pers. comm. Pete Trenham, USFWS). The closest known breeding population is located approximately 11.6 mi northeast of the PSA. The record is located at Spivey Pond, on the North Fork of Weber Creek on the Sly Park quad in El Dorado County.

HABITAT PRESENT IN THE PSA: There is no CRLF breeding habitat in the PSA.

DISCUSSION: The PSA is outside the dispersal range of the nearest known breeding population and there is no breeding habitat for CRLF in the PSA.

2. Birds

Birds of prey and other migratory bird nests

HABITAT PRESENT IN THE PSA: Trees and shrubs in the PSA provide potential nesting habitat for birds of prey and migratory birds.

DISCUSSION: No birds of prey or their nests were observed in the PSA. Several migratory birds were observed in or soaring above the PSA. No migratory bird nests were observed in the PSA. Fish and Game Code 3503.5 protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds of prey). Migratory birds are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes

it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). All migratory bird species are protected by the MBTA.

D. Evaluation of Special-Status Plant Species

Nissenan manzanita (*Arctostaphylos nissenana*)

HABITAT AND BIOLOGY: Evergreen shrub found in rocky closed-cone coniferous forest and chaparral from 1,475 to 3,610 ft in elevation. Blooms February through March (CNPS 2005).

RANGE: Known from El Dorado and Tuolumne cos.

KNOWN RECORDS: There closest CNDDB record is from 1938 and is located approximately 1.2 mi east-southeast of the PSA on the Placerville quad. The record is located at the head of Martinez Creek approximately 2 mi southeast of Diamond Springs.

HABITAT PRESENT IN THE PSA: The manzanita chaparral community in the PSA provides habitat for this species.

DISCUSSION: This species was not observed in the PSA during the general biological survey. Although the survey was conducted after the blooming period, Nissenan manzanita is a perennial evergreen shrub that is identifiable year-round. Nissenan manzanita does not occur in the PSA.

Pleasant Valley mariposa lily (*Calochortus clavatus* var. *avius*)

HABITAT AND BIOLOGY: This bulbiferous herb occurs in lower montane coniferous forest from 1,000 to 5,900 feet in elevation (CNPS 2005). Blooms May through July (CNPS 2005).

RANGE: Amador, Calaveras, El Dorado, and Mariposa cos (CNPS 2005).

KNOWN RECORDS: There are no CNDDB records for this species on the Placerville quad. The closest record for this species is 7.2 mi east of the PSA. The record is located on a ridge top between Avinsino Corner and Newton, approximately 2.5 air mi south of Camino on the Camino quad.

HABITAT PRESENT IN THE PSA: Habitat for this species occurs in the portions of the PSA dominated by mixed oak woodland.

DISCUSSION: Pleasant Valley mariposa lily was not observed in the PSA during biological surveys. The general biological survey was conducted at a time of year when this species may not have been identifiable. Although this species was not observed in the PSA during the biological survey, its potential to occur in the PSA cannot be excluded.

Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeae*)

HABITAT AND BIOLOGY: This annual herb is found in chaparral and cismontane woodland, often in road cuts, from 740 to 3,000 ft in elevation (CNPS 2005). Blooms May through July (CNPS 2005).

RANGE: This species is known from Butte, El Dorado, Nevada, Placer, Sierra, and Yuba cos (CNPS 2005).

KNOWN RECORDS: There is one CNDDB record for this species on the Placerville quad. The record is from 1943 and is approximately 4 mi northeast of the PSA. The record is located west of the Institute for Forest Genetics on a dry hillside of a wooded ravine.

HABITAT PRESENT IN THE PSA: Habitat for this species occurs in the PSA.

DISCUSSION: Brandegee's clarkia was not observed in the PSA during biological surveys. The general biological survey was conducted at a time of year when this species may not have been identifiable. Although this species was not observed in the PSA during the biological survey, its potential to occur in the PSA cannot be excluded.

Oval-leaved viburnum (*Viburnum ellipticum*)

HABITAT AND BIOLOGY: This deciduous shrub found in chaparral, cismontane woodland, and lower montane coniferous forest from 700 to 4,600 ft elevation (CNPS 2005, Hickman 1993). Blooms May through June (CNPS 2005).

RANGE: Contra Costa, Fresno, El Dorado, Glenn, Humboldt, Mendocino, Napa, Placer, Shasta, and Sonoma cos and north to Oregon and Washington.

KNOWN RECORDS: There is one CNDDB record for this species on the Placerville quad. The record is from 1901 and the location of the record is listed as "Placerville".

HABITAT PRESENT IN THE PSA: Habitat for this species occurs in the PSA.

DISCUSSION: Oval-leaved viburnum was not observed in the PSA during biological surveys. The general biological survey was conducted at a time of year when this species may not have been identifiable. Although this species was not observed in the PSA during the biological survey, its potential to occur in the PSA can not be excluded.

VI. JURISDICTIONAL DELINEATION

A. Literature Review

Sycamore Environmental reviewed the Placerville USGS quadrangle, the USFWS wetlands online mapper for the Placerville quad (USFWS 13 October 2006), the Soil Survey of El Dorado Area, CA, and aerial photograph map sheets (Soil Conservation Service (SCS) 1974).

B. Delineation Methods

Jurisdictional data were recorded using the Routine On-Site Determination Method (Corps 1987). Six channel data sheets were completed. Five wetland and 22 upland data points were taken. Soil pits were dug to observe the chroma, texture, degree of saturation, and other characteristics. Plant species were identified by Adam Forbes, M.S. Hydrophytic classifications of plants were determined from the U.S. Fish and Wildlife Service national list of plant species that occur in wetlands (USFWS 1988). Data sheets are in Appendix F. Color photos of the PSA are in Appendix E. This jurisdictional delineation is preliminary until verified by the Corps.

This jurisdictional delineation report has been prepared in accordance with the Sacramento District minimum standards (Corps 2001). This report was prepared prior to the implementation of the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (the supplement) (Corps 2006). The supplement is intended to bring the Corps Manual (Corps 1987) up to date with current knowledge and practice in the region and not to change wetland boundaries. Use of the Corps Manual in combination with the supplement is intended to improve the accuracy and efficiency of wetland-delineation procedures in the Arid West Region. Sycamore Environmental has reviewed the delineation data compiled for this report in light of the Interim Arid West Manual. The acreage of potential jurisdictional wetlands in the PSA would not change as a result of the wetland indicator procedures contained in the supplement.

C. Definitions

The U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency regulate the discharge of dredge and fill material into "waters of the United States" under Section 404 of the Clean Water Act (33 U.S.C. 1344). The Corps issues permits for certain dredge and fill activities in waters of the U.S. pursuant to the regulations in 33 CFR 320-330.

The lateral limits of jurisdiction in those waters may be divided into three categories. The categories include the territorial seas, tidal waters, and non-tidal waters (see 33 CFR 328.4 (a), (b), and (c), respectively). The term "waters of the U.S." is defined at 33 CFR 328.3(a) as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    iii. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
5. Tributaries of waters identified in paragraphs (a)(1)-(4) of this section;
6. The territorial seas;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1)-(6) of this section.

The limits of jurisdiction are identified in 33 CFR 328.4 as:

a. Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)
b. Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:
    1. Extends to the high tide line, or
    2. When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.
c. Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:
    1. In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or

2. When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
3. When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

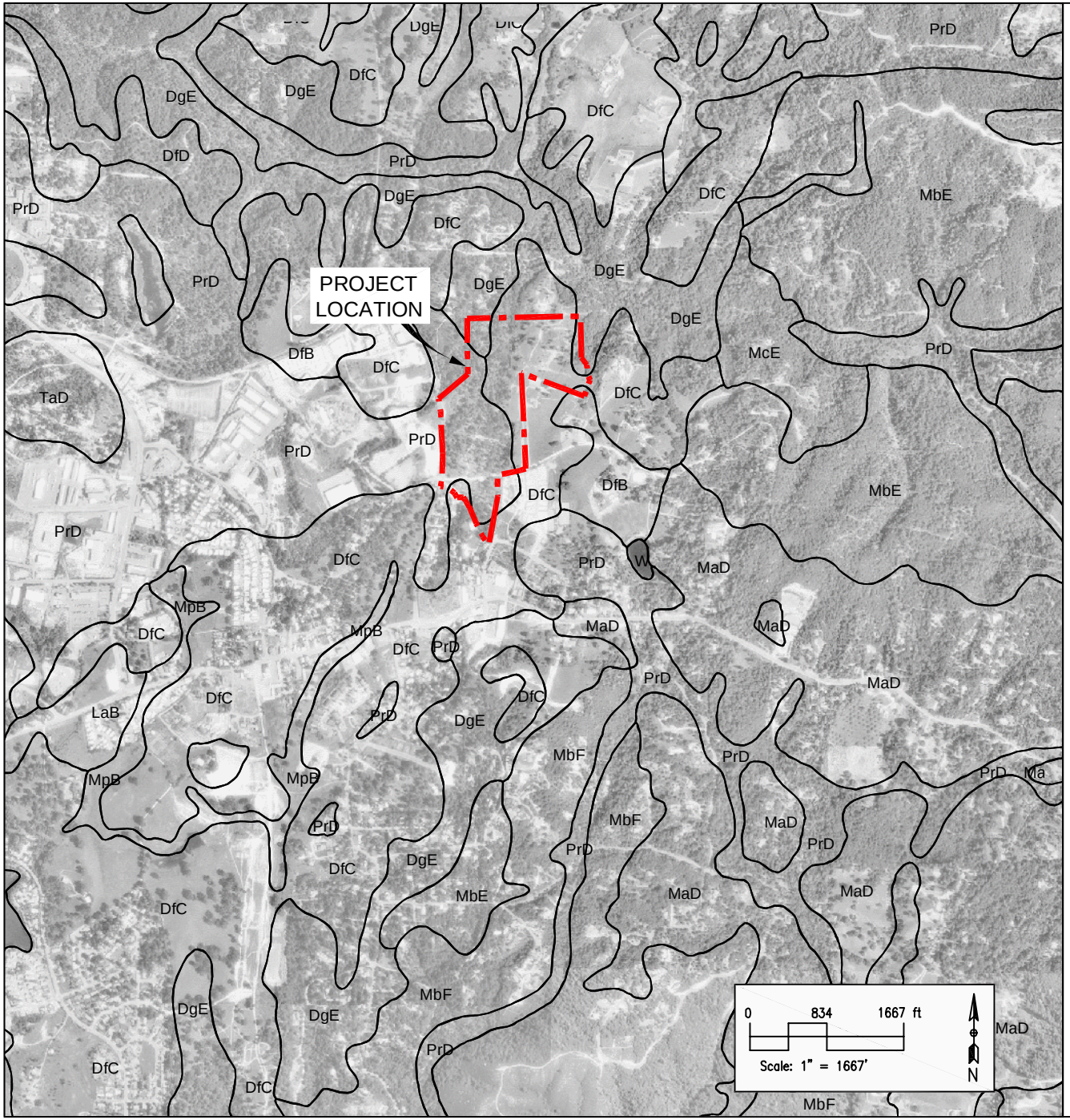
Wetlands, as defined by the Corps for regulatory purposes, are identified using a three-parameter test that considers whether hydrophytic vegetation, hydric soils, and hydrology are present (Corps 1987). Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328.3, 40 CFR 230.3). Wetlands also include less conspicuous wetland types such as vernal pools and other seasonal wetlands.

An ephemeral stream has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow. However, an intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow (66 FR 42099).

D. Soils

Mapped soil units in the PSA were determined using the Soil Survey of El Dorado Area (SCS 1974). Four soil mapping units occur in the PSA: Diamond Springs very fine sandy loam, 3-9% slopes, Diamond Springs very fine sandy loam, 9-15% slopes, Diamond Springs very rocky very fine sandy loam, 3-50% slopes, and placer diggings (Figure 4). Placer diggings located in channels are listed as hydric (NRCS 25 October 2006). The three remaining soil units are not listed as hydric (NRCS 25 October 2006). The soil descriptions provided below are from SCS (1974) with editing.

Diamond Springs very fine sandy loam, 3-9% slopes, Diamond Springs very fine sandy loam, 9-15% slopes, Diamond Springs very rocky very fine sandy loam, 3-50% slopes: The Diamond Springs series consists of well-drained soils underlain by fine-grained acidic igneous rocks at a depth of 24 to 50 inches. A typical profile of Diamond Springs very fine sandy loam, 3-9% slopes has pale-brown (10YR 6/3) very fine sandy loam from 0 to 3 inches, very pale brown (10YR 7/3) loam from 3 to 9 inches, very pale brown (10YR 8/4) light clay loam from 9 to 14 inches, very pale brown (10YR 8/4, 7/4) clay loam from 14 to 20 inches, white (10YR 8/2) clay loam from 28 to 36 inches and well-weathered meta-dacite below 40 inches. Permeability is moderately slow, surface runoff is medium, and the erosion hazard is slight to moderate. Diamond Springs very fine sandy loam. 9-15% slopes similar to the profile described above, except it occurs on slopes ranging from 9 to 15 %. Diamond Springs



Piedmont Oak Estates
El Dorado County, CA
9 April 2007

Figure 4.
Soil Map

Soil Types in the PSA:

PrD Placer Diggings

DfC Diamond Springs Very Fine Sandy Loam, 9 to 15 percent slopes

DgE Diamond Springs Very Rocky Very Fine Sandy Loam, 3 to 50 percent slopes

DfB Diamond Springs Very Fine Sandy Loam, 3 to 9 percent slopes

= Project Location

SYCAMORE
Environmental
Consultants, Inc.

Photograph:
1 May 1993

Soil Data:
NRCS Soil Data Mart
Soil Survey of El Dorado Area, CA 1974
http://www.soildatamart.nrcs.usda.gov

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very rocky very fine sandy loam is similar to the profile described above, except 5-25% of the surface is rock outcrops.

Placer Diggings: This soil type consists of areas of stony, cobbly, and gravelly material, commonly in beds of creeks and other streams, or of areas that have been placer mined and contain enough fine sand or silt to support some grass for grazing. Material included in this land type is derived from a mixture of rocks and commonly is stratified or poorly sorted.

E. Hydrology

A detailed description of the hydrology of potential jurisdictional features is in Section IV.H.

F. National Wetlands Inventory (NWI) Map

No mapped wetlands or waters occur in the PSA.

G. Existing Field Conditions

The average accumulated precipitation for the National Weather Service, Placerville gauge through August is 37.73 inches. Prior to the delineation, the Placerville gauge had received 59.00 inches of precipitation, or 156% of average accumulated precipitation (CDWR 2006).

H. Wetlands and Other Waters of the U.S. in the PSA

The U.S. Supreme Court, in its decision in Rapanos et ux., et. al. v. United States (19 June 2006), left open the possibility that certain wetlands and waters may not be regulated under section 404 of the Clean Water Act unless there is a "significant nexus" to traditionally navigable waters of the U.S. The Corps and U.S. Environmental Protection Agency (EPA) have not released new guidance for how to evaluate whether ephemeral or intermittent waters have a "significant nexus." The Sacramento District of the Corps is currently using the presence of a surface water connection, no matter how distant, to establish "adjacency." As a result, the District regulates most ephemeral and intermittent channels as "waters of the U.S." and wetlands adjacent to other waters. Potential jurisdictional features are shown on Figure 5 and their acreages are shown in Table 3.

1. Waters of the U.S.

Channel 1 (CH 1): CH 1 is an ephemeral channel located in the western portion PSA. CH 1 did not contain water on the day of the delineation. Hydrology for CH 1 is provided by surface runoff from surrounding upland areas and from its three ephemeral tributaries. The bed of CH 1 is composed of scoured soil, cobble, and bedrock. There is no riparian corridor associated with CH 1.

Channel 1a (CH 1a): CH 1a is an ephemeral channel located in the western portion of the PSA. CH 1a is a tributary of CH 1 and did not contain water on the day of the delineation.

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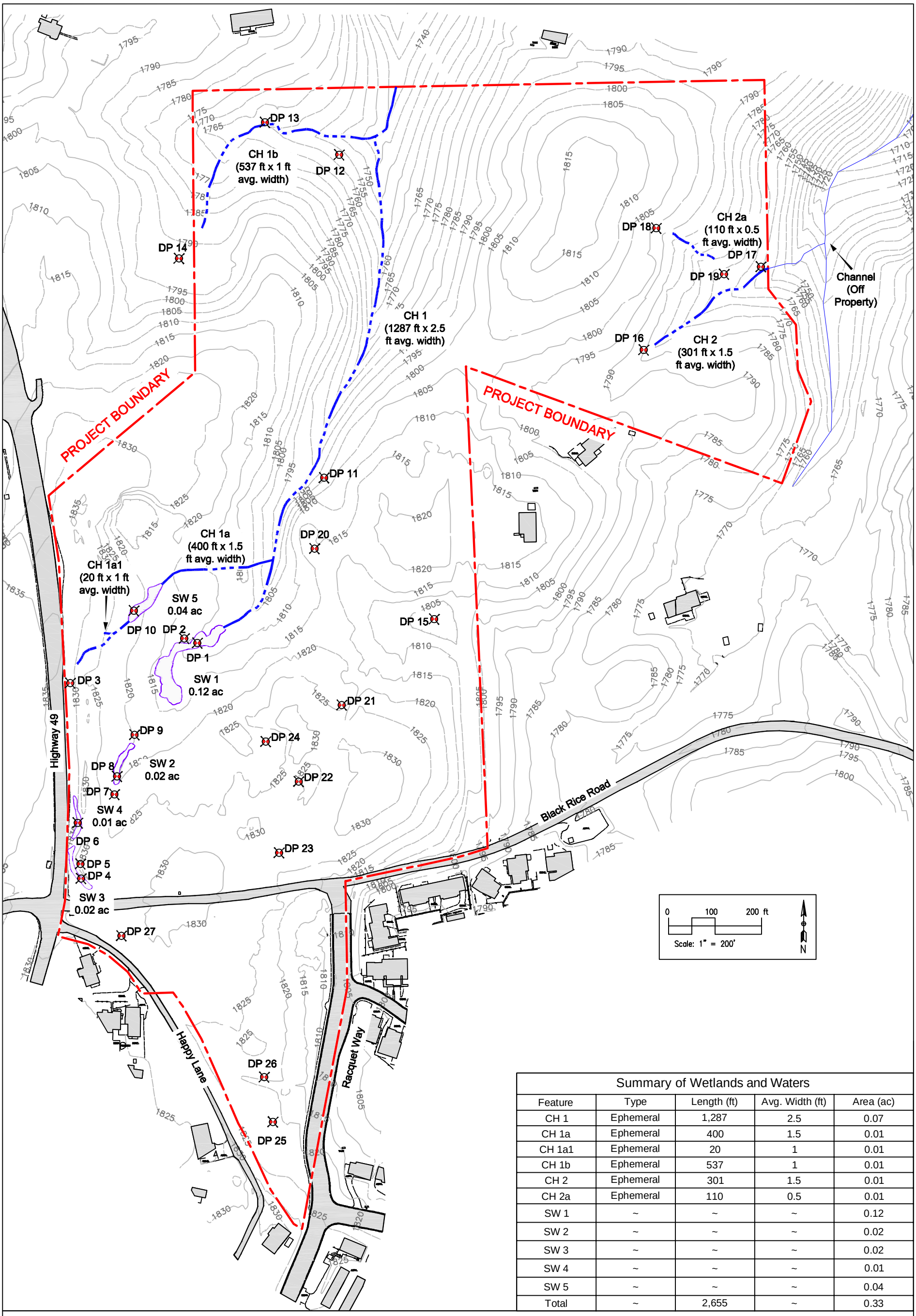

Summary of Wetlands and Waters				
Feature	Type	Length (ft)	Avg. Width (ft)	Area (ac)
CH 1	Ephemeral	1,287	2.5	0.07
CH 1a	Ephemeral	400	1.5	0.01
CH 1a1	Ephemeral	20	1	0.01
CH 1b	Ephemeral	537	1	0.01
CH 2	Ephemeral	301	1.5	0.01
CH 2a	Ephemeral	110	0.5	0.01
SW 1	~	~	~	0.12
SW 2	~	~	~	0.02
SW 3	~	~	~	0.02
SW 4	~	~	~	0.01
SW 5	~	~	~	0.04
Total	~	2,655	~	0.33

Piedmont Oak Estates
El Dorado County, CA
9 April 2007

= Project Boundary
= Channel (CH)
= Seasonal Wetland (SW)
DP 1 = Soil Point

Figure 5.
Preliminary Jurisdictional Delineation Map

SYCAMORE
Environmental
Consultants, Inc.

Date	Submittal	Delineators
9 Apr 07	Original	ACF

Basemap:
Piedmont.dwg
Gene Thorne & Associates, Inc.

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Hydrology for CH 1a is provided by flow from a concrete box culvert and by surface runoff from surrounding upland areas in the PSA. The concrete box culvert is located west of and upslope from the upstream terminus of CH 1a. The concrete box culvert is associated with an old ditch segment that was likely related to previous mining activities. Within the PSA the ditch segment extents from the intersection of Highway 49 and Black Rice Road north approximately 500 ft to a culvert that extends under Highway 49. The culvert under Highway 49 is damaged and it is unknown if the culvert is functioning. No culvert was observed at the southern terminus of the ditch segment. As water collects in the ditch it appears to flow through the concrete box culvert and drop approximately 10 vertical ft and enter CH 1a. Additional flow is provided by surface runoff from upland areas surrounding CH 1a. The upper reach of CH 1a drains to seasonal wetland 5 (SW 5). At the downsteam end of SW 5 flow reenters CH 1a and drains to CH 1. The bed of CH 1a is composed of scoured soil. Spoils piles are located adjacent to the upstream portions of CH 1a. There is no riparian corridor associated with CH 1a.

Table 3. Potential Wetlands and Other Waters of the U.S. in the PSA.

Wetland Feature	Hydrology/ Wetland Data Points/ Paired Upland Point	Length (ft)	Avg. Width (ft)	Area (ac) [1]
Wetlands				
SW 1	1/ 2	--	--	0.12
SW 2	8/ 7, 9	--	--	0.02
SW 3	4/ 5	--	--	0.02
SW 4	6/ 5	--	--	0.01
SW 5	10/ 2, 3	--	--	0.04
Subtotal Wetlands:		--	--	**0.21**
Other Waters of the U.S.				
CH 1	Ephemeral	1,287	2.5	0.07
CH 1a	Ephemeral	400	1.5	0.01
CH 1a1	Ephemeral	20	1	0.01
CH 1b	Ephemeral	537	1	0.01
CH 2	Ephemeral	301	1.5	0.01
CH 2a	Ephemeral	110	0.5	0.01
Subtotal Waters of the U.S.:	--			**0.12**
Total Waters of the U.S.:	--	**2,655**	--	**0.33**

[1] Acreages of jurisdictional features were calculated with AutoCAD® functions.

Channel 1a1 (CH 1a1): CH 1a1 is an ephemeral channel located in the western portion of the PSA. CH 1a1 did not contain water on the day of the delineation. Hydrology for CH 1a1 is provided by surface runoff from surrounding upland areas within the PSA. The bed of CH 1a1 is composed of scoured soil. Spoils piles are located adjacent to CH 1a1. There is no riparian corridor associated with CH 1a1.

Channel 1b (CH 1b): CH 1b is an ephemeral channel located in the northwestern portion of the PSA. CH 1b did not contain water on the day of the delineation. Hydrology for CH 1b is provided by surface runoff from surrounding upland areas within and immediately adjacent to the PSA. The bed of CH 1b is composed of scoured soil. There is no riparian corridor associated with CH 1b.

Channel 2 (CH 2): CH 2 is an ephemeral channel located in the northeast potion of the PSA. CH 2 did not contain water on the day of the delineation. CH 2a drains to an unnamed channel east of and outside the PSA. Hydrology for CH 2 is provided by surface runoff from surrounding upland areas in the PSA. The bed of CH 2 is composed of scoured soil and bedrock. There is no riparian corridor associated with CH 2.

Channel 2a (CH 2a): CH 2a is an ephemeral channel located in the northeast potion of the PSA. CH 2a did not contain water on the day of the delineation. Hydrology for CH 2a is provided by surface runoff from surrounding upland areas in the PSA. The downstream terminus of CH 2a is located approximately 60 ft north west of CH 2. Upland data point 19 (DP 19) was taken between the terminus of CH 2a and CH 2. No defined surface connection between CH 2a and CH 2 was observed. The bed of CH 2a is composed of scoured soil. There is no riparian corridor associated with CH 2a.

2. Wetlands

Seasonal Wetland 1 (SW 1): SW 1 is located in the west central portion of the PSA immediately south of the upstream terminus of CH 1. SW 1 is an open sloped depression that drains to CH 1. Hydrology for SW 1 is provided by surface runoff from surrounding uplands and likely includes runoff from SW 2. A dirt road crosses the central portion of SW 1. Hydrophytic species present include curly dock, yellow monkey flower (*Mimulus guttatus*), Italian ryegrass, and toad rush. Hydric soils in SW 1 are characterized by a brown (7.5YR 4/2) matrix color with common/ prominent yellowish red (5YR 4/6) mottles.

Seasonal Wetland 2 (SW 2): SW 2 is located in the western portion of the PSA approximately 120 ft southwest of SW 1. SW 2 is an open sloped depression that drains to SW 2. Hydrology for SW 2 is provided by surface runoff from surrounding upland areas. Hydrophytic species present include curly dock, yellow monkey flower, Italian ryegrass, *Ranunculus* sp., and toad rush. Hydric soils in SW 2 are characterized by a dark grayish brown (2.5Y 4/2) matrix color with common/ prominent yellowish red (5YR 5/8) mottles.

Seasonal Wetland 3 (SW 3): SW 3 is in the southwestern portion of the PSA approximately 30 ft north of the intersection of Highway 49 and Black Rice Road. SW 3 is an open sloped depression located in an old ditch segment that was likely related to previous mining activities. Hydrology for SW 3 is provided by surface runoff from surrounding uplands and likely includes runoff from Highway 49. Hydrophytic species present include deer grass, curly dock, Baltic rush, *Lythrum hyssopifolium*, and spikerush. Hydric soils in SW 3 are

characterized by a dark gray (2.5Y 4/1) matrix color with common/ prominent yellowish red (5YR 4/6) mottles.

Seasonal Wetland 4 (SW 4): SW 4 is an open sloped depression located approximately 20 ft north of SW 3 in the same ditch segment. Hydrology for SW 4 is provided by surface runoff from surrounding uplands and likely includes runoff from Highway 49. Hydrophytic species present include nutsedge, Bermuda grass (*Cynodon dactylon*), Italian ryegrass, spikerush, annual beard grass (*Polypogon monspeliensis*), and curly dock. Hydric soils in SW 4 are characterized by a dark grayish brown (2.5Y 4/2) matrix color with common/ prominent reddish brown (5YR 4/4) mottles.

Seasonal Wetland 5 (SW 5): SW 5 is an open depression located in the western portion of the PSA. Hydrology for SW 5 is provided by flow from CH 1a and surface runoff from surrounding upland areas. Hydrophytic species present include dock (*Rumex conglomeratus*), willow, Baltic rush, mugwort (*Artemisia douglasii*), and Himalayan blackberry. Hydric soils in SW 5 are characterized by a dark grayish brown (10YR 4/2) matrix color with common/ prominent strong brown (7YR 5/6) mottles.

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B. Personal Communications

Mr. Pete Trenham, Biologist, USFWS, Sacramento, CA.

VIII. PREPARERS

R. John Little, Ph.D., Botany, Claremont Graduate School, Claremont, CA. Over 26 years experience managing and conducting environmental projects involving impact assessment and preparation of numerous NEPA/CEQA compliance documents, Biological Assessments, and Caltrans Natural Environmental Studies. Experience includes conducting special-status plant and wildlife species surveys, jurisdictional wetland delineations, general biological surveys, permitting and biological report preparation.
Responsibilities: Senior technical lead.

Jeffery Little, A.A., Sacramento City College, Sacramento, CA. Over 14 years of experience with preparation of NES, BA, and NEPA/CEQA compliance documents, and impact analysis, and project management. Consultations for Corps 404 permit issues and DFG Streambed Alteration Agreements; USFWS for both formal and informal section 7 consultations. Conducts special-status species surveys, jurisdictional delineations, and prepares mitigation and monitoring plans. CAD/ GIS Manager.
Responsibilities: Project manager; Report and figure preparation.

Adam C. Forbes, M.S., Range Science (emphasis on plant systematics), New Mexico State University, Las Cruces, NM. Over six years experience conducting biological studies for the public and private sector. As a botanist/ biologist with Sycamore Environmental, Mr. Forbes conducts plant and wildlife surveys, prepares and edits reports, serves as assistant project manager, and conducts informal consultations with regulatory agency personnel. Responsibilities also include assisting with proposal preparation and marketing activities. Provides technical support for wetland delineations, biological resource evaluations, mitigation plans, and other documents used in the CEQA/NEPA process.
Responsibilities: Biological surveys, jurisdictional delineation, and report preparation.

Stephanie Brown, B.S., Industrial Engineering, Cal Poly San Luis Obispo, San Luis Obispo, CA. Prepares CAD/ GIS and ArcView® figures, assists with general project planning, and assists with the maintenance of project performance feedback.
Responsibilities: Figure preparation.

Cynthia Little, Principal, Sycamore Environmental.
Responsibilities: Senior editor, quality control.

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APPENDIX A.

California Natural Diversity Database (CNDDB)/
RareFind Summary Report for the Placerville and eight adjacent quads

Piedmont Oak Estates

El Dorado County, CA

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Landscape
Placerville, Coloma, Garden Valley, Slate Mt., Shingle Springs, Camino, Latrobe, Fiddletown, and Aukum quads

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	R-E-D	CDFG
1	***Accipiter gentilis***	northern goshawk	ABNKC12060			G5	S3			SC
2	***Agelaius tricolor***	tricolored blackbird	ABPBXB0020			G2G3	S2			SC
3	***Allium jepsonii***	Jepson's onion	PMLIL022V0			G1	S1.2	1B	3-2-3	
4	***Arctostaphylos nissenana***	Nissenan manzanita	PDERI040V0			G2	S2.2	1B	3-2-3	
5	***Calochortus clavatus var. avius***	Pleasant Valley mariposa lily	PMLIL0D095			G4T3	S3.2	1B	2-2-3	
6	***Calystegia stebbinsii***	Stebbins's morning-glory	PDCON040H0	Endangered	Endangered	G1	S1.1	1B	3-3-3	
7	***Ceanothus roderickii***	Pine Hill ceanothus	PDRHA04190	Endangered	Rare	G2	S2.1	1B	3-2-3	
8	***Central Valley Drainage Hardhead/Squawfish Stream***	Central Valley Drainage Hardhead/Squawfish Stream	CARA2443CA			G?	S?			
9	***Central Valley Drainage Resident Rainbow Trout Stream***	Central Valley Drainage Resident Rainbow Trout Stream	CARA2421CA			G?	S?			
10	***Chlorogalum grandiflorum***	Red Hills soaproot	PMLIL0G020			G2	S2.2	1B	2-2-3	
11	***Clarkia biloba ssp. brandegeeae***	Brandegee's clarkia	PDONA05053			G4G5T2	S2.2	1B	2-2-3	
12	***Emys (=Clemmys) marmorata marmorata***	northwestern pond turtle	ARAAD02031			G3G4T3	S3			SC
13	***Fremontodendron decumbens***	Pine Hill flannelbush	PDSTE03030	Endangered	Rare	G1	S1.2	1B	3-2-3	
14	***Galium californicum ssp. sierrae***	El Dorado bedstraw	PDRUB0N0E7	Endangered	Rare	G5T1	S1.2	1B	3-2-3	
15	***Helianthemum suffrutescens***	Bisbee Peak rush-rose	PDCIS020F0			G2Q	S2.2	3	2-2-3	
16	***Horkelia parryi***	Parry's horkelia	PDROS0W0C0			G2	S2.2	1B	2-2-3	
17	***Lasionycteris noctivagans***	silver-haired bat	AMACC02010			G5	S3S4			SC
18	***Myotis yumanensis***	Yuma myotis	AMACC01020			G5	S4?			
19	***Packera layneae***	Layne's ragwort	PDAST8H1V0	Threatened	Rare	G2	S2.1	1B	2-2-3	
20	***Phrynosoma coronatum (frontale population)***	Coast (California) horned lizard	ARACF12022			G4G5	S3S4			SC
21	***Rana boylii***	foothill yellow-legged frog	AAABH01050			G3	S2S3			SC
22	***Sacramento-San Joaquin Foothill/Valley Ephemeral Stream***	Sacramento-San Joaquin Foothill/Valley Ephemeral Stream	CARA2130CA			G?	S?			
23	***Viburnum ellipticum***	oval-leaved viburnum	PDCPR07080			G5	S2.3	2	2-1-1	
24	***Wyethia reticulata***	El Dorado County mule ears	PDAST9X0D0			G2	S2.2	1B	2-2-3	

APPENDIX B.

USFWS Online Species List

Piedmont Oak Estates

El Dorado County, CA

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

October 13, 2006

Document Number: 061013110815

R. John Little, Ph.D.
Sycamore Environmental Consultants, Inc.
6355 Riverside Blvd., Suite C
Sacramento, CA 95831

Subject: Species List for Piedmont Oak Estates

Dear: Dr. Little

We are sending this official species list in response to your October 13, 2006 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be January 11, 2007.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

TAKE PRIDE IN AMERICA

15-1470 4G 95 of 299

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 061013110815
Database Last Updated: October 3, 2006

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation became final on May 15, 2006. See our map index.

Species

Listed Species

Invertebrates

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Rana aurora draytonii
California red-legged frog (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Plants

Senecio layneae
Layne's butterweed (=ragwort) (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)

Selected Quads

PLACERVILLE (510A)

County Lists

El Dorado County

Listed Species

Invertebrates

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Oncorhynchus (=Salmo) clarki henshawi
Lahontan cutthroat trout (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Plants

Calystegia stebbinsii
Stebbins's morning-glory (E)

Ceanothus roderickii
Pine Hill ceanothus (E)

Fremontodendron californicum ssp. decumbens

Pine Hill flannelbush (E)

Galium californicum ssp. sierrae
El Dorado bedstraw (E)

Senecio layneae
Layne's butterweed (=ragwort) (T)

Candidate Species

Amphibians

Bufo canorus
Yosemite toad (C)

Rana muscosa
mountain yellow-legged frog (C)

Mammals

Martes pennanti
fisher (C)

Plants

Rorippa subumbellata
Tahoe yellow-cress (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be

carried to their habitat by air currents.

- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys includ any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepa for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally liste wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, tra capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by o of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that n result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together t avoid or minimize the impact on listed species and their habitat. Such consultation would resu in a biological opinion by the Service addressing the anticipated effect of the project on listed proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and a likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct a indirect impacts to listed species and compensates for project-related loss of habitat. You sho include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, wat

air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are n restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See o critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end o your project.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be January 11, 2007.

APPENDIX C.

Species Evaluated Table

Piedmont Oak Estates

El Dorado County, CA

Special-Status Species/ Common Name	Listing Status [a] Federal/State	Other DFG Codes [b]	Source [c]	Habitat Requirements	Potential to Occur within the Project Study Area?
Invertebrates					
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	T/ --	--	1	Requires an elderberry shrub (*Sambucus mexicana* or *Sambucus racemosa* var. *microbotrys*) as a host plant (USFWS 1991).	No. No elderberry shrubs were observed in the PSA.
Lepidurus packardi Vernal pool tadpole shrimp	E/ --	--	1	Occurs in a variety of vernal pool habitats (USFWS 1994a).	No. No vernal pools occur in the PSA.
Fish					
Hypomesus transpacificus Delta smelt	T, CH/ T	--	1	Euryhaline (tolerant of a wide salinity range) species that spawns in freshwater dead-end sloughs and shallow edge-waters of channels of the Delta (USFWS 1994b).	No. Habitat for this species does not occur in the PSA.
Oncorhynchus clarki henshawi Lahontan cutthroat trout	T/ --	--	1	There are three populations of this species known: 1) Western Lahontan basin comprised of Truckee, Carson, and Walker river basins; 2) Northwestern Lahontan basin comprised of Quinn River, Black Rock Desert, and Coyote Lake basins; and 3) Humboldt River basin (USFWS 1994c).	No. The PSA is outside the geographic distribution of this species. Habitat for this species does not occur in the PSA.
Oncorhynchus mykiss Central Valley steelhead ESU	T/ --	--	1	Historically, this species was widely distributed in the Sacramento and San Joaquin drainages. While steelhead are found elsewhere in the Sacramento River system, the principal remaining wild populations are a few hundred fish that spawn annually in Deer and Mill Creeks in Tehama County and a population of unknown size in the lower Yuba River (Moyle 2002). With the possible exception of a small population in the lower Stanislaus River, steelhead appears to have been extirpated from the San Joaquin basin (Moyle 2002). Spawning occurs in small tributaries on coarse gravel beds in riffle areas (Busby 1996).	No. Habitat for this species does not occur in the PSA.
Oncorhynchus tshawytscha Central Valley fall/late fall-run chinook salmon ESU	C/ --	CSC	1	This anadromous species enters the Sacramento/San Joaquin Basin from July through April and spawns from October through February. Adult female chinook will prepare a spawning bed in a stream with suitable gravel composition, water depth, and velocity (McGinnis 1984).	No. Habitat for this species does not occur in the PSA.

Special-Status Species/ Common Name	Listing Status [a] Federal/State	Other DFG Codes [b]	Source [c]	Habitat Requirements	Potential to Occur within the Project Study Area?
Oncorhynchus tshawytscha Central Valley spring-run chinook salmon ESU	T/ T	--	1	Extant populations of this ESU spawn in the Sacramento River and its tributaries. Populations in the San Joaquin River are believed to be extirpated (NMFS 1998). Enters the Sacramento River from March to July and spawns from late August through early October. Adult female chinook will prepare a spawning bed in a stream with suitable gravel composition, water depth, and velocity. After hatching, fry and subyearlings return to the ocean and complete their development (McGinnis 1984).	No. Habitat for this species does not occur in the PSA.
Amphibians					
Ambystoma californiense California tiger salamander	PT/ --	CSC	1	Frequents grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Spends much time underground in mammal burrows. Usually breeds in temporary ponds such as vernal pools but may also breed in slower parts of streams and some permanent waters (Stebbins 2003). Ponds with large populations of this species larvae usually contain very few larvae of other amphibian species (Zeiner et al. 1988).	No. The PSA is outside the geographic distribution of this species. Habitat for this species does not occur in the PSA.
Bufo canorus Yosemite toad	C/ --	CSC	1	Restricted to the vicinities of wet meadows in the central high Sierra. Occurs at elevations of 6,400 to 11, 300 ft. Frequents montane wet meadows, but also occurs in seasonal ponds associated with lodgepole pine and sub-alpine conifer forests (Zeiner et al. 1988).	No. The PSA is outside the elevational range of this species. Habitat for this species does not occur in the PSA.
Rana aurora draytonii California red-legged frog	T, CH/ --	CSC	1	Inhabits quiet pools of streams, marshes, and occasionally ponds. Requires permanent or nearly permanent pools for larval development (Zeiner et al. 1988).	No. See text.
Rana boylii Foothill yellow-legged frog	--/ --	CSC	1	Occurs in woodland and forest areas near streams and rivers, especially near riffles where there are exposed rocks. Requires permanent streams in which to reside (Zeiner et al. 1988).	No. Habitat for this species does not occur in the PSA.
Rana muscosa Mountain yellow-legged frog	C/ --	CSC	1	Occurs primarily at elevations above 5,900 ft in the Sierra Nevada from Plumas County to southern Tulare County. Associated with streams, lakes, and ponds in montane riparian, lodgepole pine, sub-alpine conifer, and wet meadow habitat types. Always encountered within a few feet of water (Zeiner et al. 1988).	No. The PSA is outside the elevational range of this species. Habitat for this species does not occur in the PSA.
Reptiles					
Emys (=Clemmys) marmorata marmorata Northwestern pond turtle	--/ --	CSC	2	Prefers aquatic habitats with abundant vegetative cover and exposed basking sites such as logs. They are associated with permanent or nearly permanent water in a wide variety of habitat types, normally in ponds, lakes, streams, irrigation ditches or permanent pools along intermittent streams (Zeiner et al. 1988).	No. Habitat for this species does not occur in the PSA.

Special-Status Species/ Common Name	Listing Status [a] Federal/State	Other DFG Codes [b]	Source [c]	Habitat Requirements	Potential to Occur within the Project Study Area?
Phrynosoma coronatum frontale California horned lizard	--/ --	CSC	2	Occurs in valley-foothill hardwood, conifer, and riparian habitats, as well as in pine-cypress, juniper and annual grass habitats. Common in the lowlands along sandy washes where scattered low shrubs provide cover. Also needs open areas for sunning and fine, loose soil where it can bury itself (Stebbins 2003).Ranges in the Central Valley from southern Tehama Co. south; in the Sierra foothills from Butte Co. to Tulare Co. below 4,000 ft; below 6,000 ft in the mountains of southern California exclusive of desert regions; throughout the Coast Ranges south from Sonoma Co. An isolated population occurs in Siskiyou Co. (Stebbins 2003).	No. Habitat for this species does not occur in the PSA.
Thamnophis gigas Giant garter snake	T/ T	--	1, 2	Habitat requisites consist of 1) adequate water during the snake's active season (early spring through mid-fall) to provide food and cover; 2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; 3) grassy banks and openings in waterside vegetation for basking; and 4) higher elevation uplands for cover and refuge from flood waters during the snake's winter dormant season (Stebbins 2003).	No. Habitat for this species does not occur in the PSA. The PSA is outside the geographic distribution of this species.
Birds					
Accipiter gentilis Northern goshawk	--/ --	CSC	2	Breeds in the North Coast Ranges and through the Sierra Nevada, Klamath, Cascade, and Warner Mountains. Possibly also breeds in Mt. Piños, San Jacinto, San Bernardino, and White Mts. Remains yearlong in breeding areas as a scarce to uncommon resident. Prefers middle and higher elevations, and mature, dense conifer and deciduous forests. Usually nests on north slopes, near water, in densest parts of stands, but close to openings (Zeiner et al. 1990a).	No. Habitat for this species does not occur in the PSA.
Agelaius tricolor Tricolored blackbird	--/ --	CSC	2	Nomadic, breeds near freshwater, preferably in emergent marsh of dense cattails or tules, and also in thickets of willow, blackberry, and wild rose. Highly colonial; nesting area must be large enough to support a minimum colony of about 50 pairs (Zeiner et al. 1990a).	No. Habitat for this species does not occur in the PSA.
Haliaeetus leucocephalus Bald eagle	T/ E	FP	1	Restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties. More widespread as a winter migrant. Occurs along coasts, rivers, and large, deep lakes and reservoirs inland. Requires large, stoutly limbed trees, snags, broken topped trees, or high rock ledges for perches (Zeiner et al. 1990a).	No. Habitat for this species does not occur in the PSA.
Mammals					

Special-Status Species/ Common Name	Listing Status [a] Federal/State	Other DFG Codes [b]	Source [c]	Habitat Requirements	Potential to Occur within the Project Study Area?
Lasionycteris noctivagans Silver-haired bat	--/--	CSC	2	Primarily a forest dweller, feeding over streams, ponds, and open brushy areas. Summer distribution includes coastal and montane forests from Oregon border along the coast to San Francisco Bay and along the sierra Nevada and Great Basin region to Inyo County. Also in Stanislaus and Monterey Counties. Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats below 2,750 m (9000 ft) May be found anywhere in California during spring and fall migrations (Zeiner et al. 1990b).	No. There is no habitat for this species in the PSA.
Martes pennanti Fisher	C/ --	CSC	1	Permanent resident of Sierra Nevada, Cascades, Klamath Mountains, and the North Coast Range. Occurs above 3,200 ft in the Sierra Nevada and Cascades (Jameson and Peeters 2004). Prefers coniferous or deciduous riparian habitats with intermediate to large trees and closed canopies. Dens in tree/ log cavities and brush piles. Active yearlong, mostly nocturnal. Young born February through May (Zeiner et al. 1990b).	No. The PSA is outside the elevational range of this species. Habitat for this species does not occur in the PSA.
Myotis yumanensis Yuma myotis bat	--/ --	--	1	Closely associated with water in a wide variety of habitats; optimal in open forests and woodlands with sources of water (ponds, streams) over which to feed. Roosts in buildings, mines, caves, or crevices; also in abandoned swallow nests and under bridges. May form large colonies, roosting with some other bat species (Zeiner et al. 1990b).	No. Habitat for this species does not occur in the PSA.
Special-Status Species/ Common Name	**Listing Status [a] Federal/State**	**Other DFG Codes [b] / CNPS [d]**	**Source [c]**	**Habitat Requirements**	**Potential to Occur within the Project Study Area?**
Plants					
Allium jepsonii Jepson's onion	--/ --	--/ 1B.2	2	Bulbiferous perennial herb found in serpentine or volcanic soils of chaparral, cismontane woodland, and lower montane coniferous forest from 950 to 4,350 ft. Blooms May through August (CNPS 2005).	No. Habitat for this species does not occur in the PSA.
Arctostaphylos nissenana Nissenan Manzanita	--/ --	--/ 1B.2	2	Evergreen shrub found in rocky closed-cone coniferous forest and chaparral from 1,475 to 3,610 ft in elevation. Known from El Dorado and Tuolumne counties. Blooms February through March (CNPS 2005).	Yes. See text.
Calochortus clavatus var. avius Pleasant Valley mariposa lily	--/ --	--/ 1B.2	2	Bulbiferous herb found in lower montane coniferous forest from 1,000-5,900 ft in elevation. Known from Amador, Calaveras, El Dorado, and Mariposa Cos. Blooms May through July (CNPS 2005).	Yes. See text.
Calystegia stebbinsii Stebbins' morning-glory	E/ E	--/ 1B.1	1	A perennial rhizomatous herb found in serpentine or gabbroic soils in chaparral openings and cismontane woodland from 600 to 2,400 ft elevation. Known from El Dorado and Nevada Counties. Blooms April through July (CNPS 2005).	No. The soil in the PSA is unsuitable for this species.
Ceanothus roderickii Pine Hill Ceanothus	E/ R	--/ 1B.2	1	Evergreen shrub found in serpentine or gabbroic soils in chaparral and cismontane woodland from 850 to 2,100 ft elevation. Known from El Dorado County. Blooms May through June (CNPS 2005).	No. The soil in the PSA is unsuitable for this species.

Special-Status Species/ Common Name	Listing Status [a] Federal/State	Other DFG Codes [b]	Source [c]	Habitat Requirements	Potential to Occur within the Project Study Area?
Chlorogalum grandiflorum Red Hills soaproot	--/ --	--/ 1B.2	2	Perennial bulbiferous herb found in serpentine or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 800 to 3,300 ft. Blooms May through June (CNPS 2005).	No. The soil in the PSA is unsuitable for this species.
Clarkia biloba ssp. brandegeae Brandegee's clarkia	--/ --	--/ 1B.2	2	Annual herb found in chaparral and cismontane woodland, often on roadcuts, from 735 to 3,000 ft in elevation. Blooms May through July (CNPS 2005).	Yes. See text.
Fremontodendron californicum ssp. decumbens Pine Hill flannelbush	E/ R	--/ 1B.2	1	Evergreen shrub found in rocky areas of serpentine or gabbroic soils in chaparral and cismontane woodland from 1,400 to 2,500 ft in elevation. Known from El Dorado, Nevada, and Yuba counties. Blooms April through July (CNPS 2005).	No. The soil in the PSA is unsuitable for this species.
Galium californicum ssp. sierrae El Dorado bedstraw	E/ R	--/ 1B.2	1	Perennial herb found in gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 300 to 1,900 ft in elevation. Known from El Dorado County. Blooms May through June (CNPS 2005).	No. The PSA is above the elevational range of this species. The soil in the PSA is unsuitable for this species.
Helianthemum suffrutescens Amador (Bisbee Peak) rush-rose	--/ --	--/ 3.2	2	Evergreen shrub found in chaparral from 150 to 2,750 ft elevation. Often found on serpentine, gabbroic or Ione soils. Blooms April through June (CNPS 2005).	No. The soil in the PSA is unsuitable for this species.
Horkelia parryi Parry's horkelia	--/ --	--/ 1B.2	2	Perennial herb found in chaparral and cismontane woodland, especially of the Ione formation, from 260 to 3,400 ft in elevation. Blooms April through June (CNPS 2005).	No. The soil in the PSA is unsuitable for this species.
Rorippa subumbellata Tahoe yellow-cress	C/ E	--/ 1B.1	1	Perennial herb found in decomposed granitic beaches of lower montane coniferous forest and meadows and seeps from 6,200 to 6,250 ft in elevation. Known only from Lake Tahoe area. Blooms May through September (CNPS 2005).	No. The PSA is outside the elevational range of this species. Habitat for this species does not occur in the PSA.
Senecio (=*Packaera*) *layneae* Layne's butterweed (ragwort)	T/ R	--/ 1B.2	1	Perennial herb found in rocky areas with serpentine or gabbroic soils in chaparral and cismontane woodland from 650 to 3,300 ft in elevation. Known from El Dorado, Tuolumne, and Yuba counties. Blooms April through July (CNPS 2005).	No. The soil in the PSA is unsuitable for this species.
Viburnum ellipticum Oval-leaved viburnum	--/ --	--/ 2.2	2	Deciduous shrub found in chaparral, cismontane woodland and lower montane coniferous forest from 705 to 4,593 ft in elevation. Blooms May through June (CNPS 2005).	Yes. See text.
Wyethia reticulata El Dorado County mule ears	--/ --	--/ 1B.2	2	Perennial rhizomatous herb found in clay or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 600 to 2,050 ft elevation. Known from El Dorado Co. Blooms May through July (Ayres and Ryan 1999, CNPS 2005).	No. The soil in the PSA is unsuitable for this species.
Natural Communities					
Central Valley Drainage Resident Rainbow Trout	--/ --	--/ --	2	This community classification identifies drainages in the Central Valley that contain resident rainbow trout. This species requires near permanent waterbodies.	The channels in the PSA do not provide habitat for rainbow trout.
Central Valley Drainage Hardhead/ Squawfish Stream	--/ --	--/ --	2	Hardhead occur in low- to mid-elevation streams and the mainstem Sacramento River. Sacramento pikeminnow (squawfish) occur in similar streams with clear water (Moyle 2002).	The channels in the PSA do not provide habitat for Hardhead.

Special-Status Species/ Common Name	Listing Status [a] Federal/State	Other DFG Codes [b]	Source [c]	Habitat Requirements	Potential to Occur within the Project Study Area?
Sacramento-San Joaquin Foothill/Valley Ephemeral Stream	--/ --	--/ --	2	This community classification apparently identifies perennial streams that contain a diverse group of aquatic invertebrates. The meaning "ephemeral" as used in the title of this community classification is unknown. The one CNDDB record for this community is located on a solid blueline stream (Jackass Canyon) on the Camino USGS 7.5" quad. The solid blueline indicates that this stream is perennial.	This community does not occur in the PSA.

[a] Listing Status: Federal status determined from USFWS letter. State status determined from DFG (2006c, d). Codes used in table are as follows:
E = Endangered; **T** = Threatened; **CH** = Critical Habitat; **P** = Proposed; **PT** = Proposed Threatened; **PE** = Proposed Endangered; **R** = California Rare; ***** = Possibly extinct.
C = Candidate: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.

[b] **CSC** = State Species of Special Concern, **FP** = Fully Protected.

[c] Sources. 1 = Compiled from USFWS letter; 2 = From CNDDB Lists or RareFind; 3 = Observed during survey.

[d] CNPS List. **1A** = Presumed Extinct in CA; **1B** = Rare or Endangered in CA and elsewhere; **2** = R/E in CA and more common elsewhere; **3** = Need more information; **4** = Plants of limited distribution.

[e] CNPS List Decimal Extensions: **.1** = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** = Fairly endangered in California (20-80% occurrences threatened); **.3 =** Not very endangered in California (<20% of occurrences threatened or no current threats known).

APPENDIX D.

Plant and Wildlife Species Observed

Piedmont Oak Estates

El Dorado County, CA

Plant Species Observed.

Family	Scientific Name	Common Name	*
FERNS & ALLIES			
Pteridaceae	*Pentagramma triangularis*	Goldback fern	N
CONIFERS			
Pinaceae	*Pinus ponderosa*	Pacific ponderosa pine	N
	Pinus sabiniana	Gray pine	N
	Pseudotsuga menziesii	Douglas fir	N
DICOTS			
Amaranthaceae	*Amaranthus* sp.	Pigweed	--
Anacardiaceae	*Toxicodendron diversilobum*	Western poison oak	N
Apiaceae	*Daucus carota*	Carrot	I
	Torilis arvensis		I
Asteraceae	*Achillea millefolium*	Yarrow	N
	Artemisia douglasiana	Mugwort	N
	Baccharis pilularis	Coyote brush	N
	Carduus pycnocephalus	Italian thistle	I
	Centaurea solstitialis	Yellow star-thistle	I
	Cichorium intybus	Chicory	I
	Cirsium vulgare	Bull thistle	I
	Gnaphalium sp.	Cudweed	--
	Holocarpha virgata		N
	Lactuca serriola	Prickly lettuce	I
	Micropus californicus var. *californicus*	Slender cottonweed	N
	Tragopogon sp.	Goat's beard	I
Bignoniaceae	*Catalpa* sp.		I
Brassicaceae	*Rorippa* sp.**	Water cress	N
Caprifoliaceae	*Lonicera* sp.		N
Caryophyllaceae	*Spergularia* sp.	Sand-spurrey	--
	Stellaria media	Common chickweed	I
Ericaceae	*Arctostaphylos* sp.	Manzanita	N
Euphorbiaceae	*Eremocarpus setigerus*	Dove weed; Turkey mullein	N
Fabaceae	*Trifolium hirtum*	Rose clover	I
	Trifolium sp.		--
	Vicia villosa ssp. *villosa*	Hairy vetch	I
Fagaceae	*Quercus douglasii*	Blue oak	N
	Quercus kelloggii	California black oak	N
	Quercus lobata	Valley oak	N
	Quercus wislizenii var. *wislizenii*	Interior live oak	N
Geraniaceae	*Erodium cicutarium*	Filaree	I
Hippocastanaceae	*Aesculus californica*	California buckeye	N
Hypericaceae	*Hypericum perforatum*	Klamathweed	I
Lamiaceae	*Mentha* sp.		--
	Stachys sp.	Hedge nettle	N
	Trichostema lanceolatum	Vinegar weed	N
Lythraceae	*Lythrum hyssopifolium*		I

Malvaceae	*Sidalcea* sp.		N
Onagraceae	*Epilobium brachycarpum*	Fireweed	N
Papaveraceae	*Eschscholzia californica*	California poppy	N
Plantaginaceae	*Plantago lanceolata*	English plantain	I
Polygonaceae	*Polygonum arenastrum*	Common knotweed	I
	Polygonum sp.		--
	Rumex conglomeratus	Dock	I
	Rumex crispus	Curly dock	I
Ranunculaceae	*Ranunculus* sp.		--
Rhamnaceae	*Ceanothus cuneatus* var. *cuneatus*	Buck brush	N
	Rhamnus tomentella ssp. *tomentella*	Hoary coffeeberry	N
Rosaceae	*Heteromeles arbutifolia*	Toyon	N
	Prunus sp.		I
	Pyrus sp.	Pear	I
	Rubus discolor	Himalayan blackberry	I
Rubiaceae	*Galium aparine*	Goose grass	N
	Galium parisiense	Wall bedstraw	I
Salicaceae	*Salix* sp.	Willow	N
Scrophulariaceae	*Kickxia elatine*	Fluellin	I
	Mimulus guttatus	Yellow monkeyflower	N
	Verbascum thapsus	Woolly mullein	I
Simaroubaceae	*Ailanthus altissima*	Tree of heaven	I
Verbenaceae	*Verbena litoralis*	Verbena	I
Vitaceae	*Vitis californica*	California wild grape	N
MONOCOTS			
Cyperaceae	*Carex sp.*		N
	Cyperus eragrostis	Nut sedge	N
	Eleocharis macrostachya	Spikerush	N
Juncaceae	*Juncus balticus*	Baltic rush	N
	Juncus bufonius	Toad rush	N
	Juncus sp.	Rush	N
Liliaceae	*Chlorogalum grandiflorum*	Red Hills soaproot	N
Poaceae	*Aegilops triuncialis*	Barbed goatgrass	I
	Aira caryophyllea	Silver European hairgrass	I
	Avena fatua	Wild oat	I
	Briza minor	Quaking grass	I
	Bromus diandrus	Ripgut grass	I
	Bromus hordeaceus	Soft brome	I
	Bromus madritensis ssp. *rubens*	Foxtail chess	I
	Cynodon dactylon	Bermuda grass	I
	Cynosurus echinatus	Hedgehog dogtail	I
	Deschampsia danthonioides	Annual hairgrass	N
	Elymus glaucus	Blue wildrye	N
	Gastridium ventricosum	Nit grass	I
	Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	I
	Lolium multiflorum	Italian ryegrass	I
	Muhlenbergia rigens	Deergrass	N
	Phalaris sp.		--
	Poa bulbosa	Bulbous bluegrass	I
	Polypogon monspeliensis	Annual beard grass	I
	Taeniatherum caput-medusae	Medusa head	I
	Vulpia myuros var. *myuros*	Vulpia	I

* N = Native to CA; I = Introduced
** Not *Rorippa subumbellata*: *R. subumbellata* is a perennial species; the *Rorippa* sp. observed in the PSA was an annual.

Wildlife Species Observed.

Common Name	**Scientific Name**
BIRDS	
Acorn woodpecker	*Melanerpes formicivorus*
California quail	*Callipepla californica*
Common raven	*Corvus corax*
Bushtit	*Psaltriparus minimus*
Mourning dove	*Zenaida macroura*
Scrub jay	*Aphelocoma coerulescens*
Wild turkey	*Meleagris gallopavo*
MAMMALS	
California ground squirrel	*Spermophilus beecheyi*
Black-tailed jackrabbit	*Lepus californicus*
Mule deer/ black-tailed deer	*Odocoileus hemionus*

APPENDIX E.

Photographs of the Project Study Area

Piedmont Oak Estates

El Dorado County, CA

Photo 1. View from southwestern portion of PSA looking west at SW 3 (white arrow). Red arrow shows location of State Highway 49. 9 September 2006.

Photo 2. View from northwest central portion of the PSA looking downstream (north) at CH 1 (white arrow). 9 September 2006.

Photo 3. View from west central portion of PSA looking southeast at mixed oak woodland community (background). 9 September 2006

Photo 4. View from south central portion of PSA looking southeast a graded/ excavated area. 9 September 2006.

Photo 5. View from southern PSA looking north at mixed oak woodland community. 10 September 2006.

Photo 6. View from southwestern portion of PSA looking northeast at SW 1 (white arrow). 9 September 2006.

APPENDIX F.

Channel & Wetland Data Sheets

Piedmont Oak Estates

El Dorado County, CA

DATA FORM FOR CHANNELS/ WATERS OF THE U.S.

Field Personnel: Adam Forbes M.S. Channel #: 1

Project/ Site: Piedmont Oak Estates Date: 9 Sept 2006

Applicant/ Owner: Piedmont Oak Estates LLC County, State: El Dorado, CA

CONDITION OF CHANNEL

Channel #:	Average Width: (ft)	Condition of channel bed:	Vegetation present:	Does water flow appear permanent/ intermittent/ unknown?	Is a defined bed and bank present?
CH-1	2.5 ft	Scoured soil, sand, gravel and bedrock	*Lolium multiflorum, Aesculus californica, Juncus bufonius*	Ephemeral	Yes
Photos taken? Yes		**Data Points Mapped?** Yes	**Are hydrophytic species present?** Marginal		

Other comments/ observations:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is this channel jurisdictional? Yes

Rationale for jurisdictional decision: Defined bed and bank present. Evidence of flow.

DATA FORM FOR CHANNELS/ WATERS OF THE U.S.

Field Personnel:	Adam Forbes M.S.	Channel #:	1a &1a1
Project/ Site:	Piedmont Oak Estates	Date:	9 Sept 2006
Applicant/ Owner:	Piedmont Oak Estates LLC	County, State:	El Dorado, CA

CONDITION OF CHANNEL

Channel #:	Average Width: (ft)	Condition of channel bed:	Vegetation present:	Does water flow appear permanent/ intermittent/ unknown?	Is a defined bed and bank present?
CH-1a & 1a1	1a = 1.5 ft 1a1 = 1 ft	Scoured soil	*Pinus sabiniana, Elymus glaucus, Toxicodendron diversilobum*	Ephemeral	Yes
Photos taken?		**Data Points Mapped?** Yes	**Are hydrophytic species present?** Marginal		

Other comments/ observations:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is this channel jurisdictional? Yes

Rationale for jurisdictional decision: Defined bed and bank present. Evidence of flow.

DATA FORM FOR CHANNELS/ WATERS OF THE U.S.

Field Personnel: Adam Forbes M.S. Channel #: 1b

Project/ Site: Piedmont Oak Estates Date: 9 Sept 2006

Applicant/ Owner: Piedmont Oak Estates LLC County, State: El Dorado, CA

CONDITION OF CHANNEL

Channel #:	Average Width: (ft)	Condition of channel bed:	Vegetation present:	Does water flow appear permanent/ intermittent/ unknown?	Is a defined bed and bank present?
CH-1c	1 ft	Scoured soil	*Toxicodendron diversilobum, Elymus glaucus, Pinus sabiniana*	Ephemeral	Yes
Photos taken?		**Data Points Mapped?** Yes	**Are hydrophytic species present?** No		

Other comments/ observations:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is this channel jurisdictional? Yes

Rationale for jurisdictional decision: Defined bed and bank present.

DATA FORM FOR CHANNELS/ WATERS OF THE U.S.

Field Personnel:	Adam Forbes M.S.	Channel #:	2
Project/ Site:	Piedmont Oak Estates	Date:	9 Sept 2006
Applicant/ Owner:	Piedmont Oak Estates LLC	County, State:	El Dorado, CA

CONDITION OF CHANNEL

Channel #:	Average Width: (ft)	Condition of channel bed:	Vegetation present:	Does water flow appear permanent/ intermittent/ unknown?	Is a defined bed and bank present?
CH-2	4.5 ft	Cobble, sand, gravel, bedrock	*Rubus discolor, Vitis californica, Aesculus californica, Quercus kelloggii*	Intermittent	Yes
Photos taken? Yes		**Data Points Mapped?** Yes	**Are hydrophytic species present?** Yes		

Other comments/ observations: Shallow ponded water throughout, trickle of flow in some areas.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is this channel jurisdictional? Yes

Rationale for jurisdictional decision: Defined bed and bank present.

DATA FORM FOR CHANNELS/ WATERS OF THE U.S.

Field Personnel: Adam Forbes M.S. Channel #: 2

Project/ Site: Piedmont Oak Estates Date: 9 Sept 2006

Applicant/ Owner: Piedmont Oak Estates LLC County, State: El Dorado, CA

CONDITION OF CHANNEL

Channel #:	Average Width: (ft)	Condition of channel bed:	Vegetation present:	Does water flow appear permanent/ intermittent/ unknown?	Is a defined bed and bank present?
CH-2a	1.5 ft	Scoured soil, bedrock	*Quercus kelloggii, Lolium multiflorum, Toxicodendron diversilobum, Aesculus californica*	Ephemeral	Yes
Photos taken? Yes		**Data Points Mapped?** Yes	**Are hydrophytic species present?** Marginal		

Other comments/ observations:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is this channel jurisdictional? Yes

Rationale for jurisdictional decision: Defined bed and bank present.

DATA FORM FOR CHANNELS/ WATERS OF THE U.S.

Field Personnel: Adam Forbes M.S. Channel #: 2a

Project/ Site: Piedmont Oak Estates Date: 9 Sept 2006

Applicant/ Owner: Piedmont Oak Estates LLC County, State: El Dorado, CA

CONDITION OF CHANNEL

Channel #:	Average Width: (ft)	Condition of channel bed:	Vegetation present:	Does water flow appear permanent/ intermittent/ unknown?	Is a defined bed and bank present?
CH-2a1	1 ft	Scoured soil	*Elymus glaucus, Torilis arvensis, Bromus diandrus, Arctostaphylos* sp.	Ephemeral	Yes
Photos taken?		**Data Points Mapped?** Yes	**Are hydrophytic species present?** No		

Other comments/ observations:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is this channel jurisdictional? Yes

Rationale for jurisdictional decision: Defined bed and bank present.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 1**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Seasonal Wetland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Lolium multiflorum*	H	FAC	5. *Bromus hordeaceus*	H	FACU
2. *Juncus* sp. (at least FACW)	H	FACW	6. *Micropus californicus* var. *californicus*	H	--
3. *Rumex crispus*	H	FACW-	7. *Juncus bufonius*	H	FACW+
4. *Mimulus guttatus*	H	OBL			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 5/7 = 71%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:	Secondary Indicators (2 or more required):
☐ Inundated	☐ Oxidized root channels in upper 12 inches
☐ Saturated in upper 12 inches	☐ Local soil survey data
☐ Water marks	☒ FAC-Neutral Test
☐ Drift lines	☐ Other (explain in remarks)
☒ Sediment deposits	☐ Water-stained leaves
☒ Drainage patterns in wetlands	

Remarks:

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-10		7.5YR 4/2	5YR 4/6	Common/ Prominent	Sandy loam

Hydric Soil Indicators:

☐ Histosol	☐ Concretions
☐ Histic Epipedon	☐ High Organic Content in Surface Layer Sandy Soils
☐ Sulfidic Odor	☐ Organic Streaking in Sandy Soils
☐ Aquic Moisture Regime	☐ Listed on Local Hydric Soils List
☐ Reducing Conditions	☐ Listed on National Hydric Soils List
☒ Gleyed or Low-Chroma Colors	☐ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No
Hydric Soils Present? ☒ Yes ☐ No

Is this sampling point within a wetland? ☒ Yes ☐ No

Remarks/Rationale: Criteria met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 2**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Bromus hordeaceus*	H	FACU	5. *Bromus diandrus*	H	--
2. *Cynosurus echinatus*	H	--	6. *Toxicodendron diversilobum*	S	--
3. *Lolium multiflorum*	H	FAC	7.*Trifolium* sp.	H	--
4. *Quercus wislizenii* var. *wislizenii*	T	--	8. *Aira caryophyllea*	H	--

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/8 =13 %
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☐ Sediment deposits
☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☐ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-10		7.5YR 4/4	--	--	Sandy loam

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☐ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 3**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cynosurus echinatus*	H	--	5. *Carduus pycnocephalus*	H	--
2. *Lolium multiflorum*	H	FAC	6. *Arctostaphylos* sp.	S	--
3. *Toxicodendron diversilobum*	S	--			
4. *Quercus wislizenii* var. *wislizenii*	T	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/6 = 17%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☐ Sediment deposits
☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☐ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name
(Series and Phase):
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type?
☐ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☐ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks: Soil pit unnecessary (1987 Manual, Fig. 14, Step 9).

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 4**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Seasonal Wetland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Eleocharis macrostachya*	H	OBL	5. *Lythrum hyssopifolium*	H	FACW
2. *Muhlenbergia rigens*	H	FACW	6. *Vitis californica*	V	FACW
3. *Carex* sp.(at least FACW)	H	FACW	7. *Rumex crispus*	H	FACW-
4. *Juncus balticus*	H	OBL			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 7/7 = 100%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☒ Sediment deposits
☒ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☒ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☒ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks:

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		2.5Y 4/1	5YR 4/6	Common Prominent	Sandy Clay Loam

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☒ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No
Hydric Soils Present? ☒ Yes ☐ No

Is this sampling point within a wetland? ☒ Yes ☐ No

Remarks/Rationale: Criteria met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 5**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Centaurea solstitialis*	H	--	5. *Tragopogon* sp.	H	--
2. *Bromus diandrus*	H	--	6. *Lolium multiflorum*	H	FAC
3. *Lactuca serriola*	H	FAC	7. *Ceanothus cuneatus* var. *cuneatus*	S	--
4. *Bromus hordeaceus*	H	FACU-	8. *Torilis arvensis*	H	--

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/8 = 25%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☐ Sediment deposits
☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☐ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-10		7.5YR 4/4	--	--	Loam

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☐ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 6**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Seasonal Wetland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cynodon dactylon*	H	FAC	5. *Cynosurus echinatus*	H	--
2. *Rumex crispus*	H	FACW-	6. *Carex* sp.(at least FACW)	H	FACW
3. *Cyperus eragrostis*	H	FACW	7. *Polypogon monspeliensis*	H	FACW+
4. *Eleocharis macrostachya*	H	OBL	8. *Lolium multiflorum*	H	FAC

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 7/8 = 88%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☒ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☒ Sediment deposits
☒ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☐ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☒ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks:

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		2.5Y 4/2	5YR 4/4	Common Prominent	Sandy Loam

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☒ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No
Hydric Soils Present? ☒ Yes ☐ No

Is this sampling point within a wetland? ☒ Yes ☐ No

Remarks/Rationale: Criteria met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 7**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Lolium multiflorum*	H	FAC	5. *Torilis arvensis*	H	--
2. *Juncus* sp. (at least FACW)	H	FACW	6. *Bromus diandrus*	H	--
3. *Cynosurus echinatus*	H	--	7. *Quercus wislizenii* var. *wislizenii*	T	--
4. *Avena fatua*	H	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/7 = 29%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☐ Sediment deposits
☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☒ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks: Only one secondary indicator present.

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type?
☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		10YR 4/3	2.5YR 4/6	Common Prominent	Loam

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☐ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 8**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Seasonal Wetland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Juncus* sp. (at least FACW)	H	FACW	5. *Cynosurus echinatus*	H	--
2. *Juncus bufonius*	H	FACW+	6. *Ranunculus* sp. (at least FACW)	H	FACW
3. *Mimulus guttatus*	H	OBL	7. *Polypogon monspeliensis*	H	FACW+
4. *Lolium multiflorum*	H	FAC			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 6/7 = 86%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☒ Sediment deposits
☒ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☒ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☒ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks:

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-10		2.5Y 4/2	5YR 5/8	Common Prominent	Loam

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☒ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No
Hydric Soils Present? ☒ Yes ☐ No

Is this sampling point within a wetland? ☒ Yes ☐ No

Remarks/Rationale: Criteria met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 9**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cynosurus echinatus*	H	--	5. *Bromus diandrus*	H	--
2. *Torilis arvensis*	H	--	6. *Trifolium* sp.	H	--
3. *Lolium multiflorum*	H	FAC	7. *Vicia villosa* ssp. *villosa*	H	--
4. *Toxicodendron diversilobum*	S	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/7 = 14%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☐ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☐ Sediment deposits
☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☒ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks: Only one secondary indicator present.

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type?
☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		10YR 4/4	5YR 4/6	Few Prominent	Sandy Loam

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☐ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 10**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Seasonal Wetland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Rubus discolor*	H	FACW	5. *Toxicodendron diversilobum*	S	--
2. *Artemisia douglasiana*	H	FACW	6. *Juncus balticus*	H	OBL
3. *Carex* sp.(at least FACW)	H	FACW	7. *Salix* sp. (at least FACW)	H	FACW
4. *Mentha* sp.	H	FAC	8. *Rumex conglomeratus*	H	FACW

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 7/8 = 88%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☒ Sediment deposits
☒ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☐ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks:

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-10		10YR 4/2	7.5YR 5/6	Few Prominent	Loam (over sand)

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☒ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No
Hydric Soils Present? ☒ Yes ☐ No

Is this sampling point within a wetland? ☒ Yes ☐ No

Remarks/Rationale: Criteria met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 11**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cynosurus echinatus*	H	--	5. *Torilis arvensis*	H	--
2. *Toxicodendron diversilobum*	S	--	6. *Quercus wislizenii* var. *wislizenii*	T	--
3. *Elymus glaucus*	H	--	7. *Bromus diandrus*	H	--
4. *Pinus sabiniana*	T	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/7 = 0%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☐ Sediment deposits
☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☐ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name (Series and Phase): Diamond Springs very fine sandy loam 9 to 15% slopes
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		7.5YR 4/4	NA	--	Loam

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☐ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 12**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Elymus glaucus*	H	FACU	5. *Toxicodendron diversilobum*	S	--
2. *Cynosurus echinatus*	H	--	6. *Heteromeles arbutifolia*	S	--
3. *Bromus hordeaceus*	H	FACU-	7. *Torilis arvensis*	H	--
4. *Aesculus californica*	T	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/7 = 0%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☐ Sediment deposits
☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☒ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks: Data point is old ditch dug in upland. Only one secondary indicator present.

SOILS Map Unit Name (Series and Phase): Diamond Springs very fine sandy loam 9 to 15% slopes
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		10YR 4/6	--	--	Loam

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☐ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 13**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Bromus hordeaceus*	H	FACU-	6. *Torilis arvensis*	H	--
2. *Artemisia douglasiana*	H	FACW	7. *Trifolium* sp.	H	--
3. *Lolium multiflorum*	H	FAC	8. *Lactuca serriola*	H	FAC
4. *Hordeum marinum* ssp. *gussoneanum*	H	FAC	9. *Centaurea solstitialis*	H	--
5. *Elymus glaucus*	H	FACU			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 4/9 = 44%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☐ Sediment deposits
☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☐ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name (Series and Phase): Diamond Springs very rocky fine sandy loam 3 to 50% slopes
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-10		10YR 3/4	--	--	Loam

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☐ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 9 September 06 **DP No.: 14**
Project/Site: Piedmont Oak Estates State: CA
Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland
Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:
Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Avena fatua*	H	--	5. *Elymus glaucus*	H	FACU
2. *Toxicodendron diversilobum*	S	--	6. *Bromus hordeaceus*	H	FACU-
3. *Torilis arvensis*	H	--	7. *Aira caryophyllea*	H	--
4. *Cynosurus echinatus*	H	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/7 = 0%
Remarks:

HYDROLOGY
☐ Recorded Data (Describe in Remarks):
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No Recorded Data Available

Field Observations:
Depth of Surface Water: -- (in.)
Depth to Free Water in Pit: -- (in.)
Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:
Primary Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water marks
☐ Drift lines
☐ Sediment deposits
☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
☐ Oxidized root channels in upper 12 inches
☐ Local soil survey data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name
(Series and Phase):
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type?
☐ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☐ Gleyed or Low-Chroma Colors
☐ Concretions
☐ High Organic Content in Surface Layer Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks: Soil pit unnecessary (1987 Manual, Fig. 14, Step 9).

WETLAND DETERMINATION
Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 15**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Lolium multiflorum*	H	FAC	5. *Verbascum thapsus*	H	--
2. *Eremocarpus setigerus*	H	--	6. *Taeniatherum caput-medusae*	H	--
3. *Plantago lanceolata*	H	FAC-	7. *Juncus bufonius*	H	FACW+
4. *Centaurea solstitialis*	H	--	8. *Vulpia myuros* var. *myuros*	H	FACU

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 2/8 = 25%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☒ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: Only one secondary indicator present.

SOILS Map Unit Name (Series and Phase): Diamond Springs very fine sandy loam 9 to 15% slopes

Taxonomy (Subgroup):

Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		10YR 5/4	5YR 4/6	Few Prominent	Loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 16**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Lolium multiflorum*	H	FAC	5. *Artemisia douglasiana*	H	FACW
2. *Elymus glaucus*	H	--	6. *Cynosurus echinatus*	H	--
3. *Avena fatua*	H	--	7. *Verbena litoralis*	H	FACW
4. *Taeniatherum caput-medusae*	H	--	8. *Bromus hordeaceus*	H	FACU-

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/8 = 38%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☒ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: Only one secondary indicator present.

SOILS Map Unit Name (Series and Phase): Diamond Springs very fine sandy loam 9 to 15% slopes

Taxonomy (Subgroup):

Drainage Class:

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-6		7.5YR 4/4	--	--	Loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 17**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Torilis arvensis*	H	--	5. *Aesculus californica*	T	--
2. *Toxicodendron diversilobum*	S	--	6. *Cynosurus echinatus*	H	--
3. *Lolium multiflorum*	H	FAC	7. *Pentagramma triangularis*	H	--
4. *Quercus kelloggii*	H	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/7 = 14%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: Data point in old mining ditch that runs cross slope. No evidence of wetland hydrology.

SOILS Map Unit Name (Series and Phase): Diamond Springs very rocky fine sandy loam 3 to 50% slopes

Taxonomy (Subgroup):

Drainage Class:

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		10YR 4/4	--	--	Loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 18**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Aira caryophyllea*	H	--	5. *Plantago lanceolata*	H	FAC
2. *Avena fatua*	H	--	6. *Rhamnus tomentella* ssp. *tomentella*	S	--
3. *Gastridium ventricosum*	H	--	7. *Elymus glaucus*	H	FACU
4. *Centaurea solstitialis*	H	--	8. *Hypericum perforatum*	H	--

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/8 = 13%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name (Series and Phase): Diamond Springs very fine sandy loam 9 to 15% slopes

Taxonomy (Subgroup):

Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		10YR 4/4	--	--	Loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 19**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Elymus glaucus*	H	FACU	5. *Trifolium hirtum*	H	--
2. *Cynosurus echinatus*	H	--	6. *Centaurea solstitialis*	H	--
3. *Avena fatua*	H	--	7. *Arctostaphylos* sp.	S	--
4. *Bromus diandrus*	H	--	8. *Hypericum perforatum*	H	--

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/8 = 0%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name (Series and Phase): Diamond Springs very rocky fine sandy loam 3 to 50% slopes

Taxonomy (Subgroup):

Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		7.5YR 4/4	--	--	Sandy Loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 20**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Juncus bufonius*	H	FACW+	5. *Deschampsia danthonioides*	H	FACW
2. *Lythrum hyssopifolium*	H	FACW	6. *Gastridium ventricosum*	H	FACU
3. *Lolium multiflorum*	H	FAC	7. *Cynosurus echinatus*	H	--
4. *Hordeum marinum* ssp. *gussoneanum*	H	FAC	8. *Torilis arvensis*	H	--

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 5/8 = 63%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☒ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: Only one secondary indicator present.

SOILS Map Unit Name (Series and Phase): Placer Diggings

Taxonomy (Subgroup):

Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-6		10YR 4/4	5YR 4/6	Few/ Prominent	Loam
>6 bed rock					

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Highly disturbed area adjacent to dirt road, high point in topo. Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 21**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cynosurus* sp.	H		5. *Vulpia myuros* var. *myuros*	H	--
2. *Aira caryophyllea*	H	--	6. *Juncus bufonius*	H	FACW+
3. *Quercus wislizenii* var. *wislizenii*	T	--	7. *Torilis arvensis*	H	--
4. *Bromus madritensis* ssp. *rubens*	H	FACU			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/7 = 14%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name (Series and Phase): Placer Diggings

Taxonomy (Subgroup):

Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		7.5YR 4/6	--	--	Sandy loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not Hydric

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 22**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Hordeum marinum* ssp. *gussoneanum*	H	FAC	5. *Avena fatua*	H	--
2. *Lolium multiflorum*	H	FAC	6. *Amaranthus* sp. (at least FACW)	H	FACW
3. *Quercus wislizenii* var. *wislizenii*	T	--	7. *Eremocarpus setigerus*	H	--
4. *Verbascum thapsus*	H	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/7 = 43%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☒ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: No evidence of wetland hydrology. Area has been excavated.

SOILS Map Unit Name (Series and Phase):

Taxonomy (Subgroup):

Drainage Class:

Field Observations Confirm Mapped Type? ☐ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Soil pit unnecessary (1987 Manual, Fig. 14, Step 9).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 23**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Lolium multiflorum*	H	FAC	5. *Quercus wislizenii* var. *wislizenii*	T	--
2. *Cynosurus echinatus*	H	--	6. *Avena fatua*	H	--
3. *Torilis arvensis*	H	--	7. *Bromus diandrus*	H	--
4. *Bromus hordeaceus*	H	FACU			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 1/7 = 14%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-10		2.5YR 4/3	7.5YR 5/8	Few Prominent	Loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 24**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Rumex crispus*	H	FACW-	5. *Eremocarpus setigerus*	H	--
2. *Amaranthus* sp.	H	FACW+	6. *Toxicodendron diversilobum*	S	--
3. *Hordeum marinum* ssp. *gussoneanum*	H	FAC	7. *Cynosurus echinatus*	H	--
4. *Trichostema lanceolatum*	H	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 3/7 = %

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: No evidence of wetland hydrology. Area has been excavated.

SOILS Map Unit Name (Series and Phase): Placer Diggings

Taxonomy (Subgroup):

Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		10YR 4/4	--	--	Sandy Loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 25**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Heteromeles arbutifolia*	S	--	5. *Cynosurus echinatus*	H	--
2. *Lonicera hispidula*	S	--	6. *Elymus glaucus*	H	FACU
3. *Toxicodendron diversilobum*	S	--	7. *Bromus diandrus*	H	--
4. *Quercus wislizenii* var. *wislizenii*	T	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/7 = 0%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☒ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name
(Series and Phase):
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☐ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Soil pit unnecessary (1987 Manual, Fig. 14, Step 9).

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 26**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Heteromeles arbutifolia*	S	--	5. *Vulpia myuros* var. *myuros*	H	FACU
2. *Pinus sabiniana*	T	--	6. *Torilis arvensis*	H	--
3. *Quercus douglasii*	T	--	7. *Aira caryophyllea*	H	--
4. *Cynosurus echinatus*	H	--			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 0/7 = 0%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☐ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: No evidence of wetland hydrology.

SOILS Map Unit Name
(Series and Phase): Placer Diggings
Taxonomy (Subgroup):
Drainage Class:

Field Observations Confirm Mapped Type? ☒ Yes ☐ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-8		10YR 4/4	--	--	Loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No
Wetland Hydrology Present? ☐ Yes ☒ No
Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Field Investigator(s): Adam Forbes M.S. Date: 10 September 06 **DP No.: 27**

Project/Site: Piedmont Oak Estates State: CA

Applicant/Owner: Piedmont Oak Estates LLC County: El Dorado

Do Normal Circumstances exist on the site? Yes ☒ No ☐ Community ID: Upland

Is the site significantly disturbed (Atypical Situation)? Yes ☐ No ☒ Transect ID:

Is the site a potential Problem Area? (If needed, explain below) Yes ☐ No ☒ Plot ID:

VEGETATION Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Polygonum arenastrum*	H	FAC	5. *Amaranthus* sp. (at least FACW)	H	FACW
2. *Poa bulbosa*	H	--	6. *Quercus douglasii*	T	--
3. *Rumex crispus*	H	FACW-	7. *Cyperus eragrostis*	H	FACW
4. *Lolium multiflorum*	H	FAC	8. *Mimulus guttatus*	H	OBL

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 6/8 = 75%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: -- (in.)
- Depth to Free Water in Pit: -- (in.)
- Depth to Saturated Soil: -- (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☒ Water marks
- ☐ Drift lines
- ☐ Sediment deposits
- ☒ Drainage patterns in wetlands

Secondary Indicators (2 or more required):
- ☒ Oxidized root channels in upper 12 inches
- ☐ Local soil survey data
- ☐ FAC-Neutral Test
- ☐ Other (explain in remarks)
- ☐ Water-stained leaves

Remarks: Data point located in old mining ditch.

SOILS Map Unit Name (Series and Phase): Diamond Springs very fine sandy loam 9 to 15% slopes

Taxonomy (Subgroup):

Drainage Class:

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structure, etc.
0-4		2.5YR 4/2	--		Loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Hydric Soils Present? ☐ Yes ☒ No

Is this sampling point within a wetland? ☐ Yes ☒ No

Remarks/Rationale: Criteria not met.

PRELIMINARY DRAINAGE REPORT
for
PIEDMONT OAK ESTATES
EL DORADO, CA

PREPARED BY:

GENE E. THORNE & ASSOCIATES, INC.
4080 PLAZA GOLDORADO CIRCLE
CAMERON PARK, CA 95682-8527
530.677.1747/916.985.7745

REVIEWED BY:

GENE E. THORNE, RCE 20462

11 MAY 2009

Z12-0010 / PD12-0002
TM/12-1510

A 09-0003/Z 09-0006
PD 09-0004/TM 09-1490

BTConsulting
incorporated

October 3, 2012

Lillian MacLeod, Senior Planner
El Dorado County Development Services Dept.
Planning Services
2850 Fairlane Court
Placerville, CA 95667

RE: Piedmont Oak Estates Preliminary Drainage Report by Gene E. Thorne & Assoc, Inc.

Lillian,

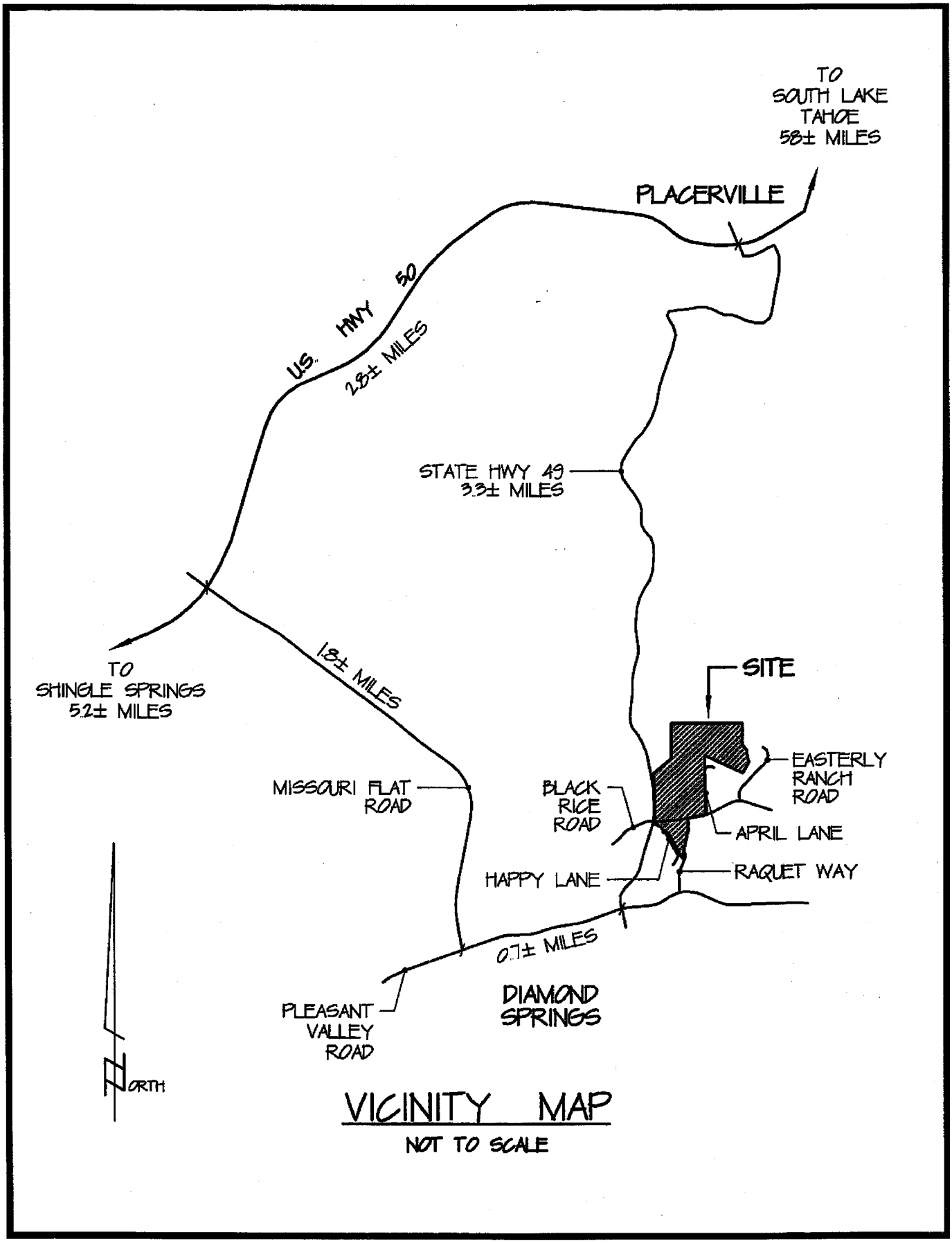
This letter serves to verify the applicability of the Preliminary Drainage Report for Piedmont Oak Estates dated May 11, 2009 by Gene E. Thorne. I have reviewed the Report, and find that it adequately demonstrates that drainage facilities, including those areas designated for detention and post construction runoff control are adequate to serve the reduced project study area currently in for review by the Development Services Department. Unfortunately, due the passing of Gene Thorne, and the resulting closure of Gene E. Thorne & Associates, revisions to the Report are impossible.

During the final design phase of the project for improvement plans, and likely required by the Conditions of Approval, a Final Drainage Report will be prepared to meet the requirements of El Dorado County Department of Transportation. The Final Drainage Report will be significantly more detailed, and will consider the current project and design standards.

With kindest regards,

Peter K. Thorne
Vice-President, BTConsulting Inc.
PE 58279

P.O. Box 304, Shingle Springs, California 95682
Phone: 530·672·2316 · Fax: 530·405·4722
www.gobtc.net



VICINITY MAP

NOT TO SCALE

Table of Contents

Introduction and Background

Piedmont Oaks Drainage Report analyzes the possibility of flooding because of development during any storm event at the project site.

The drainage report examines and recommends drainage improvements to handle computed discharges, based upon the 100-year hydraulic grade line (HGL), as stated in Section 3.2.6 of the County of El Dorado Drainage Manual, March 14, 1995.

The drainage for Piedmont Oaks was analyzed using the **Unit Hydrograph** method as discussed in Section 2.4 of the El Dorado County Drainage Manual, adopted March 14, 1995.

The hydraulic analysis of the existing and proposed drainage improvements related to the project area was based on Civil Storm modeling software by Haestad Methods.

Location:

Piedmont Oaks is located north of Pleasant Valley Road and east of State Highway 49 along Black Rice Road near Diamond Springs, California. The property is owned by Jim Davies, and encompasses approximately 48.97 acres.

Existing Conditions:

The property area is covered mostly with grass, trees and surrounded by residential development. All runoff from the project site flows north, through two existing trapezoidal channels into Weber Creek. See Quad Map in Appendix E.

Summary and Conclusions

Pre-Development Hydraulic Analysis:

See Appendix B for Pre Development Drainage Sheds, and analysis of three (3) Points of Release. Note that Point of Release "A" is analyzed for flow contributed only by the subject property in order to compare pre and post development increases or decreases in flow and does not consider the entire drainage shed for flow at that location.

Proposed Improvements:

- Drainage improvements along onsite roads with outlet pipe to daylight.
- Detention Ponds. See proposed detention basins in Appendix A.

Storm Drain Flow Calculations:

Civil Storm software computes the flow rate and analyzes the existing and future storm drain system. For quantity of flow and hydraulic grade line (HGL) in each pipe see Future and Existing Storm Drain Pipes in Appendix A and B respectively.

Post-Development Hydraulic Analysis:

With the addition of two (2) detention facilities (see Post-Development Drainage Shed Map), the project maintains pre development runoff when built. Table 1 provides a summary of results for three (3) release points.

Table 1: Existing and Proposed Peak Flow Comparison

	Pre-Development		Post-Development	
Release Point	10-yr Peak Flow (cfs)	100-yr Peak Flow (cfs)	10-yr Peak Flow (cfs)	100-yr Peak Flow (cfs)
A	15.95	28.44	19.17	31.53
B	21.01	38.98	22.32	32.05
C	2.60	4.90	3.61	4.95
Total	**39.56**	**72.32**	**45.10**	**68.51**

Procedure

A. *Watershed Areas*:

For location of delineated pre and post development watershed areas, see the attached drainage shed maps located in Appendix A and B respectively.

B. *Mean Annual Precipitation, Pptn:* The site was located on the Mean Annual Rainfall Map for El Dorado County. Then, the annual rainfall for the project was determined from the map.

Use Pptn = 38 inches (see Appendix C)

C. *Soil Survey*:

The soil survey map (Appendix E) was used in order to determine the soil types present within the watershed areas that contribute runoff to the project site. Next, data from the El Dorado Area Soil Survey (USDA, April 1974) describing each soil type was reviewed in order to determine the hydrological soil group of the soil. Soils are rated as Type A, having high infiltration rates, through Type D, having the lowest infiltration rate. This project site contains 2 soil types. Diamond Springs (DfC and DgE) , a very fine sandy loam over clay loam with bedrock found between 20 to 50 inches deep, and Placer Diggins (PrD), no interpretations made because of variable properties. DfC and DgE soils lie within soil hydrological group C. Utilizing Table 2-2a in Appendix D, pre and post-development curve numbers are determined.

D. *Time of Concentration, Tc:* Per Section 2.4 of the EDC Drainage Manual.

See Watershed Properties Table in Appendix A and B for Post and Pre Development Tc of each shed area. A minimum time of concentrations of 5 minutes was used.

E. *Unit Hydrograph:*

Using the Mean Annual Precipitation, and the El Dorado Design Rainfall Tables (See Appendix C), both 10 and 100 year event Rainfall Depths are determined. This information is then entered into Bentley Civil Storm Type 1 SCS Storm Event to produce a Temporal Distribution Model (Cumulative Rainfall) for the 10 and 100-year events. The rainfall excess and the incremental excess values are estimated per Section 2.4 of the EDC Drainage Manual. Then, the runoff hydrograph is computed using the incremental rainfall excess per Section 2.4.2 of the EDC Drainage Manual.

F. *Pipes Size Requirements:*

Pipes sizes vary to convey the 10-year event within the pipe and within storm structures as stated in Section 4.3.2 of El Dorado County Drainage Manual, adopted March 14, 1995.

G. *Detention Facilities:*

Utilizing Bentley Civil Storm, two detention ponds have been located to reduce offsite flows to be near or below existing pre development levels. Outlet control structures are designed to accomplish this.

APPENDIX A – Post Development Hydraulic Analysis

Watershed Properties Table

Watershed areas tributary to existing downstream pipes and ponds analyzed. Data imported from Bentley CivilStorm v8. See delineated watershed areas in Post-Development Drainage Shed Map.

Shed Name	SCS Curve Number	Area (Acres)	2-yr 24 hr depth	Tc (min)	100-Year Peak Flow (cfs)	10-Year Peak Flow (cfs)
CS1	98	0.32	3.34	5	0.53	0.37
CS2	98	0.34	3.34	5	0.57	0.40
CS3	98	0.25	3.34	5	0.41	0.29
CS4	98	0.26	3.34	5	0.44	0.31
CS5	90.8	2.34	3.34	10	3.56	2.35
CS6	92	1.12	3.34	10	1.73	1.16
CS7	83	1.99	3.34	15	2.49	1.50
CS8	83	4.75	3.34	15	5.97	3.59
CS9	83	5.92	3.34	15	7.44	4.48
CS10	83	0.26	3.34	10	0.33	0.20
CS11	90.4	4.15	3.34	15	6.14	4.04
CS12	74	1.17	3.34	10	1.14	0.61
CS13	74	0.52	3.34	10	0.51	0.27
CS14	79.7	9.80	3.34	20	10.80	6.21
CS15	79	14.03	3.34	20	15.20	8.64
CS16	83	1.79	3.34	10	2.30	1.38
CS17	79	1.60	3.34	10	1.84	1.05
CS18	92.4	1.24	3.34	10	1.93	1.30
CS19	90.8	1.05	3.34	10	1.59	1.05
CS20	98	0.59	3.34	5	0.99	0.70
CS21	98	0.32	3.34	5	0.53	0.37
CS22	98	0.26	3.34	5	0.43	0.30
CS23	74	0.81	3.34	5	0.80	0.43
CS24	98	0.13	3.34	5	0.22	0.16
CS25	98	0.14	3.34	5	0.24	0.17
CS26	98	0.12	3.34	5	0.20	0.14
CS27	90.8	2.85	3.34	10	4.32	2.86
CS28	98	0.31	3.34	5	0.51	0.36
CS29	90	0.92	3.34	10	1.38	0.90
CS30	90	0.13	3.34	5	0.20	0.13
CS31	98	0.14	3.34	5	0.23	0.16
CS32	98	0.10	3.34	5	0.16	0.12
CS33	98	0.12	3.34	5	0.21	0.15
CS34	90	0.85	3.34	8	1.28	0.84
CS35	84.5	1.61	3.34	10	2.15	1.32
CS36	98	0.12	3.34	5	0.20	0.14
CS37	90	0.50	3.34	7	0.77	0.51

CS38	98	0.12	3.34	5	0.20	0.14
CS39	91.2	0.21	3.34	5	0.33	0.22
CS40	84.5	1.47	3.34	10	1.95	1.20

Future Storm Drain Pipes - Hydraulic Analysis

Hydraulic analysis of 100-yr non-uniform flow in proposed storm drain pipes. (Source: Civil Storm v8).

FlexTable: Conduit Table (Piedmont Post with Det NORTH.csd)

Current Time: 483.000 min

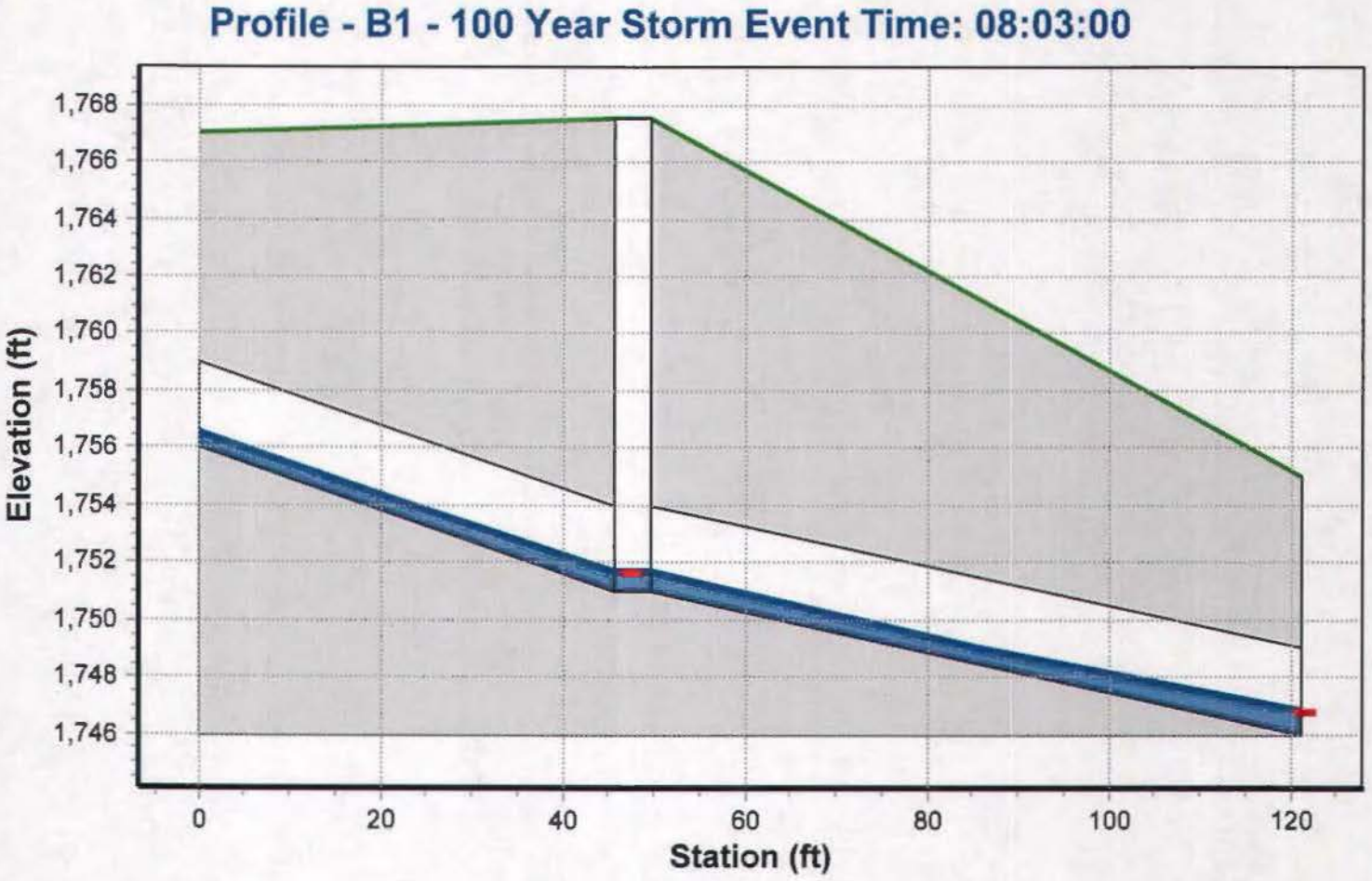
Label	Elevation (Start Invert) (ft)	Elevation (Stop Invert) (ft)	Slope (%)	Diameter (in)	Material	Manning's n	Flow (Maximum) (ft^3/s)
SD E 07	1794.00	1793.00	7.246	18.0	HDPE	0.013	4.91
SD E 06	1795.54	1794.00	8.613	12.0	HDPE	0.013	0.41
SD E 05	1810.00	1794.00	2.495	18.0	HDPE	0.013	4.51
SD E 01	1814.51	1814.01	1.518	12.0	HDPE	0.013	3.56
SD E 02	1814.01	1810.00	4.093	18.0	HDPE	0.013	3.56
SD F 01	1822.00	1821.00	4.492	12.0	HDPE	0.013	1.73
SD G 03	1819.00	1818.00	3.391	18.0	HDPE	0.013	1.25
SD E 03	1810.77	1810.00	4.784	12.0	HDPE	0.013	0.53
SD E 04	1810.77	1810.00	4.471	12.0	HDPE	0.013	0.44
SD A 01	1786.00	1785.00	3.766	12.0	HDPE	0.013	4.32
SD A 02	1785.00	1784.00	2.572	12.0	HDPE	0.013	4.82
SD B 07	1751.00	1746.00	6.978	36.0	HDPE	0.013	19.72
SD B 01	1798.33	1797.50	5.140	12.0	HDPE	0.013	1.59
SD B 02	1798.50	1797.50	4.073	12.0	HDPE	0.013	0.20
SD E 08	1793.00	1790.00	3.984	18.0	HDPE	0.013	5.47
SD A 03	1780.00	1779.00	2.051	18.0	HDPE	0.013	6.13
SD B 06	1756.00	1751.00	10.963	36.0	HDPE	0.013	16.27
SD G 01	1821.00	1820.00	2.929	18.0	None	0.013	0.80
SD B 05	1763.00	1762.00	2.794	12.0	HDPE	0.013	1.93
SD B 04	1763.00	1762.00	2.978	18.0	HDPE	0.013	0.99
SD D 01	1806.36	1805.36	3.006	12.0	HDPE	0.013	0.53
SD D 02	1805.36	1804.00	1.212	12.0	HDPE	0.013	0.96
SD G 02	1820.00	1819.00	2.555	18.0	HDPE	0.013	1.02
SD B 03	1797.00	1751.00	9.115	18.0	HDPE	0.013	1.79

Bentley Systems, Inc. Haestad Methods Solution Center
27 Siemon Company Drive Suite 200 W Watertown, CT 06795 USA
+1-203-755-1666

FlexTable: Conduit Table (Piedmont Post with Det.csd)

Current Time: 480.000 min

Label	Elevation (Start Invert) (ft)	Elevation (Stop Invert) (ft)	Slope (%)	Diameter (in)	Material	Manning's n	Flow (Maximum) (ft^3/s)
SD C 1	1825.00	1824.00	6.457	12.0	HDPE	0.013	0.16
SD C 2	1825.00	1824.00	4.431	12.0	HDPE	0.013	0.21
SD C 3	1824.00	1820.00	1.433	18.0	HDPE	0.013	0.37
SD C 4	1824.50	1823.50	2.443	12.0	HDPE	0.013	0.23
SD C 5	1820.00	1818.00	1.865	18.0	HDPE	0.013	0.60
SD C 6	1821.00	1818.00	9.676	18.0	HDPE	0.013	1.28
SD C 7	1818.00	1809.50	6.772	18.0	HDPE	0.013	1.88
SD C 8	1810.50	1809.50	3.529	18.0	HDPE	0.013	2.15
SD C 9	1809.50	1804.50	9.333	18.0	HDPE	0.013	4.01
SD C 10	1804.86	1804.50	1.786	12.0	HDPE	0.013	0.20
SD C 11	1804.50	1804.00	2.834	18.0	HDPE	0.013	4.20
SD C 15 (E)	1802.16	1799.93	2.071	18.0	HDPE	0.013	1.95
SD C 14 (E)	1799.93	1798.80	2.234	18.0	HDPE	0.013	4.95
SD C 16 (E)	1798.80	1796.00	16.393	18.0	HDPE	0.013	4.95
SD C 12	1804.00	1803.00	2.363	18.0	HDPE	0.013	4.40
SD C 13	1803.00	1799.93	6.150	18.0	None	0.013	2.91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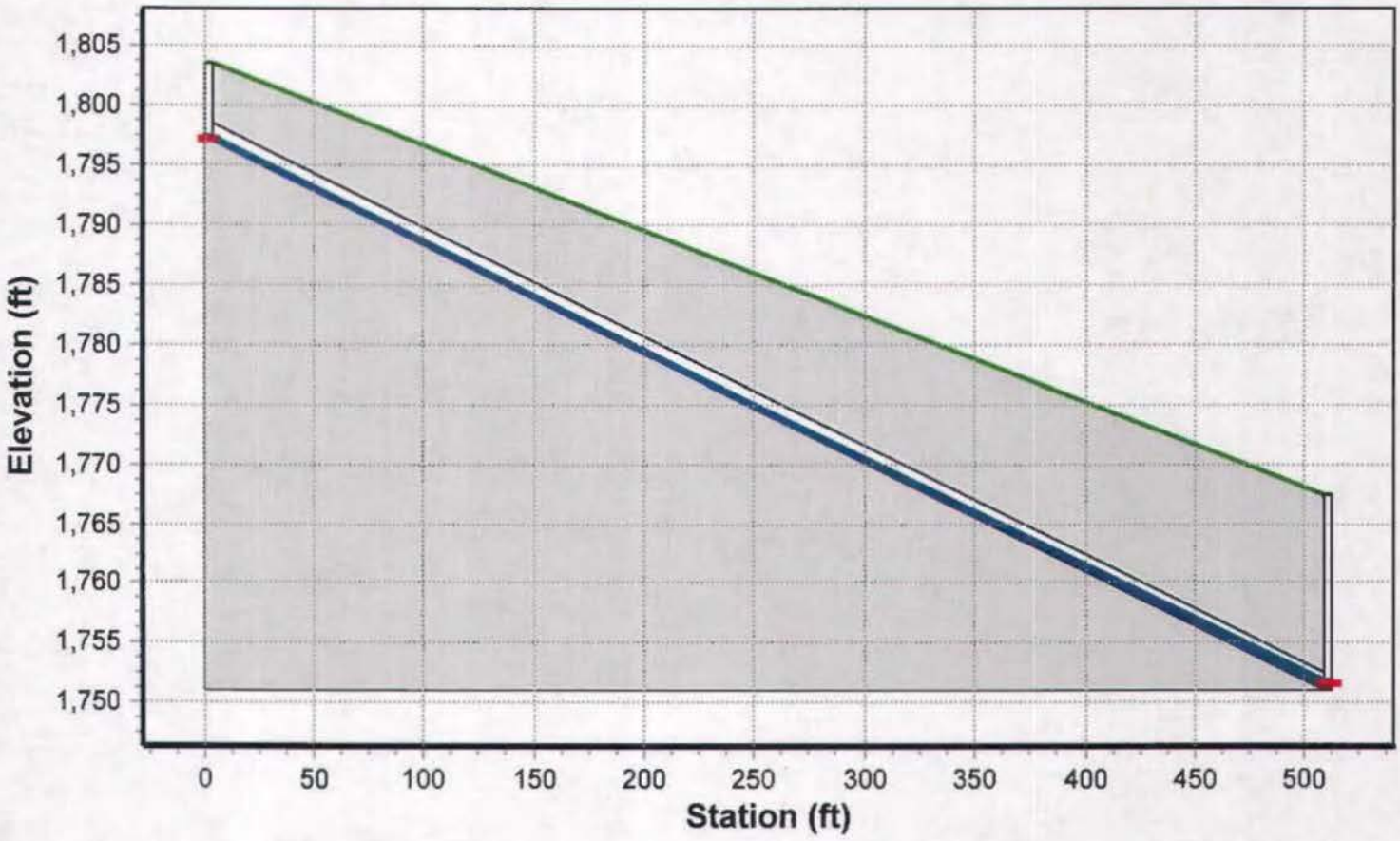
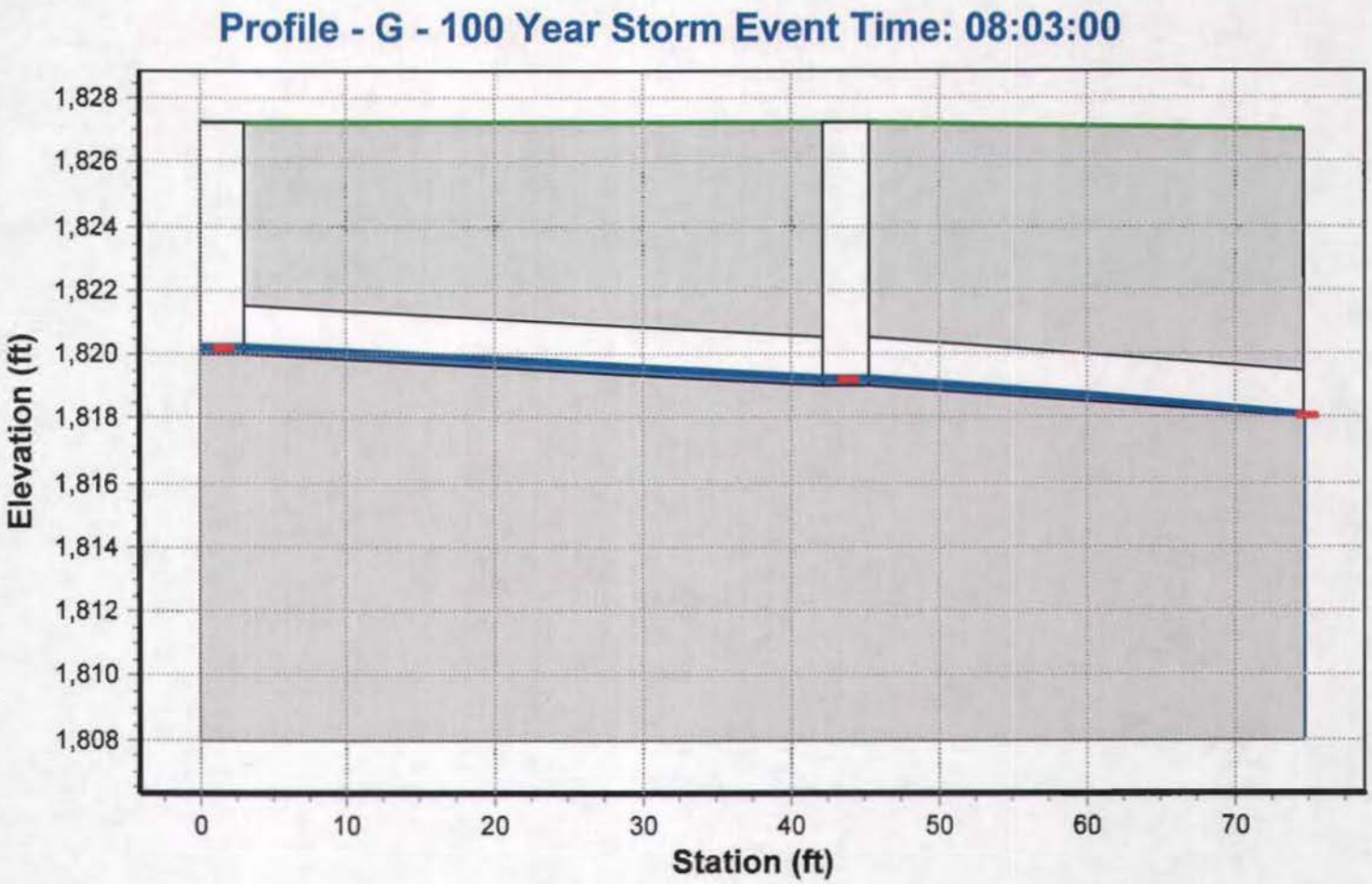
1,762
1,760
1,758
1,756
1,754
1,752
1,750
1,748
1,746
0
20
40
60
80
100
120
Station (ft)

Profile - B2 - 100 Year Storm Event Time: 08:03:00




Profile - G - 100 Year Storm Event Time: 08:03:00
Elevation (ft)
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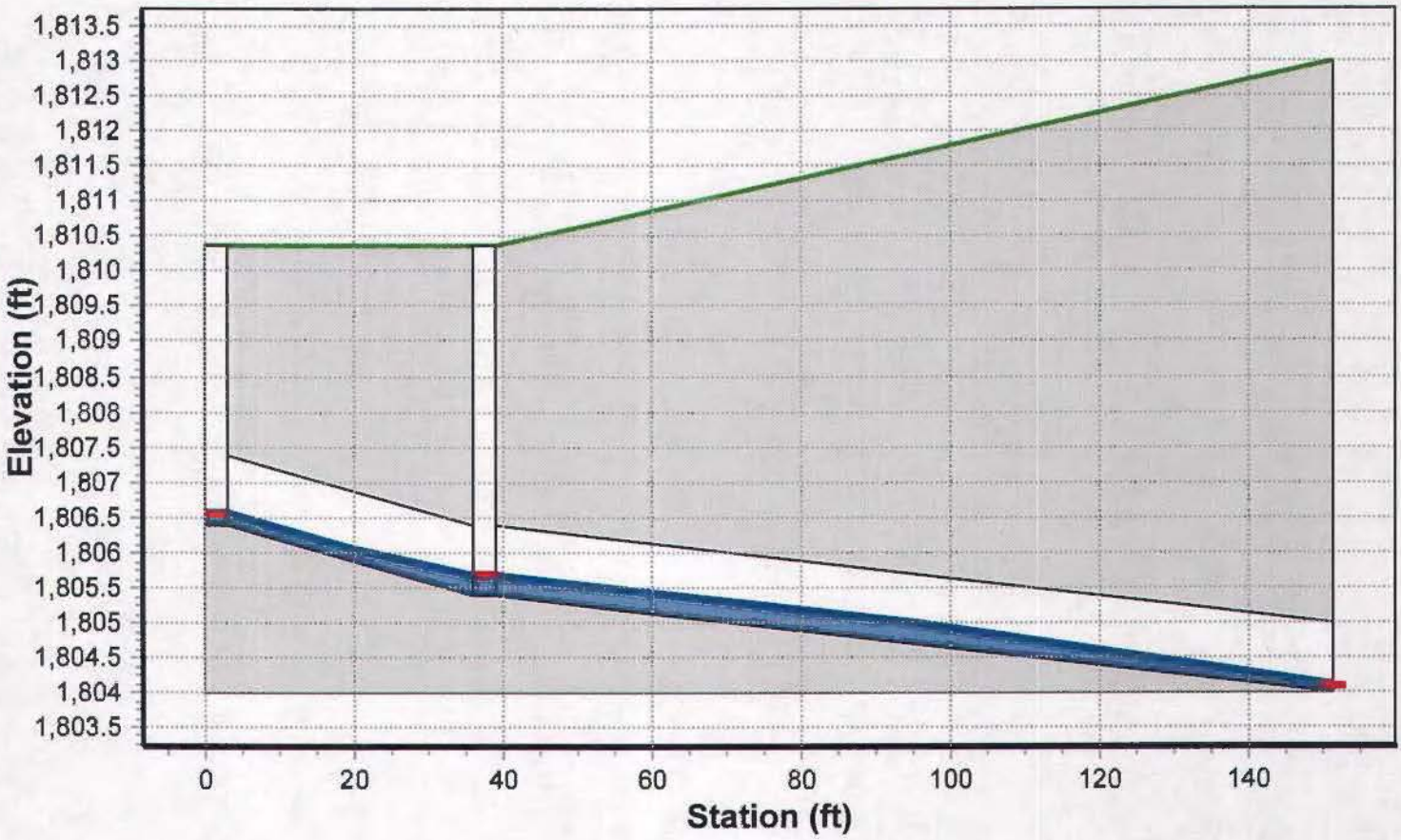
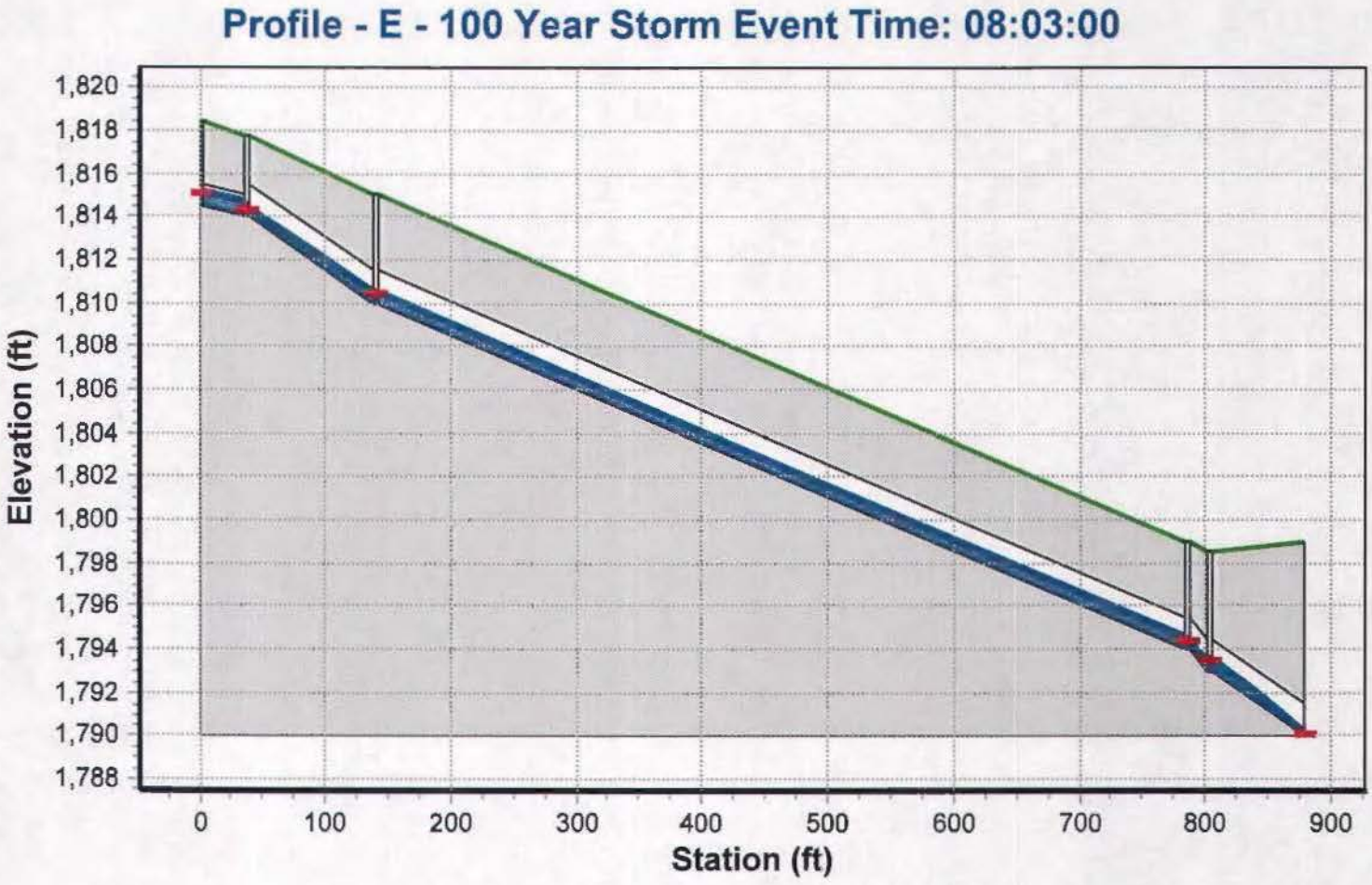
1,826
1,824
1,822
1,820
1,818
1,816
1,814
1,812
1,810
1,808
0
10
20
30
40
50
60
70
Station (ft)

Profile - D - 100 Year Storm Event Time: 08:03:00

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1,806
1,804
1,802
1,800
1,798
1,796
1,794
1,792
1,790
1,788
0
100
200
300
400
500
600
700
800
900
Station (ft)

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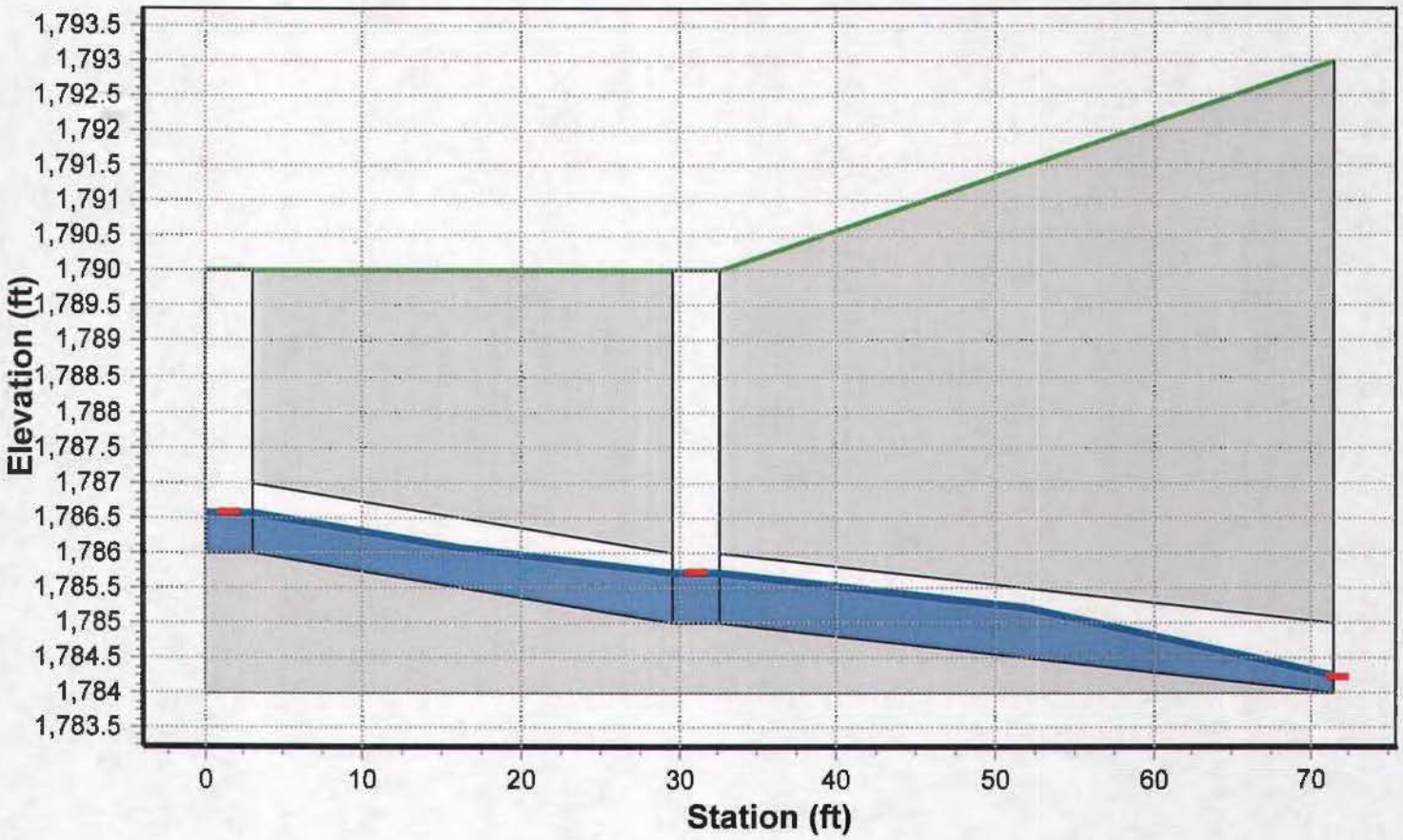

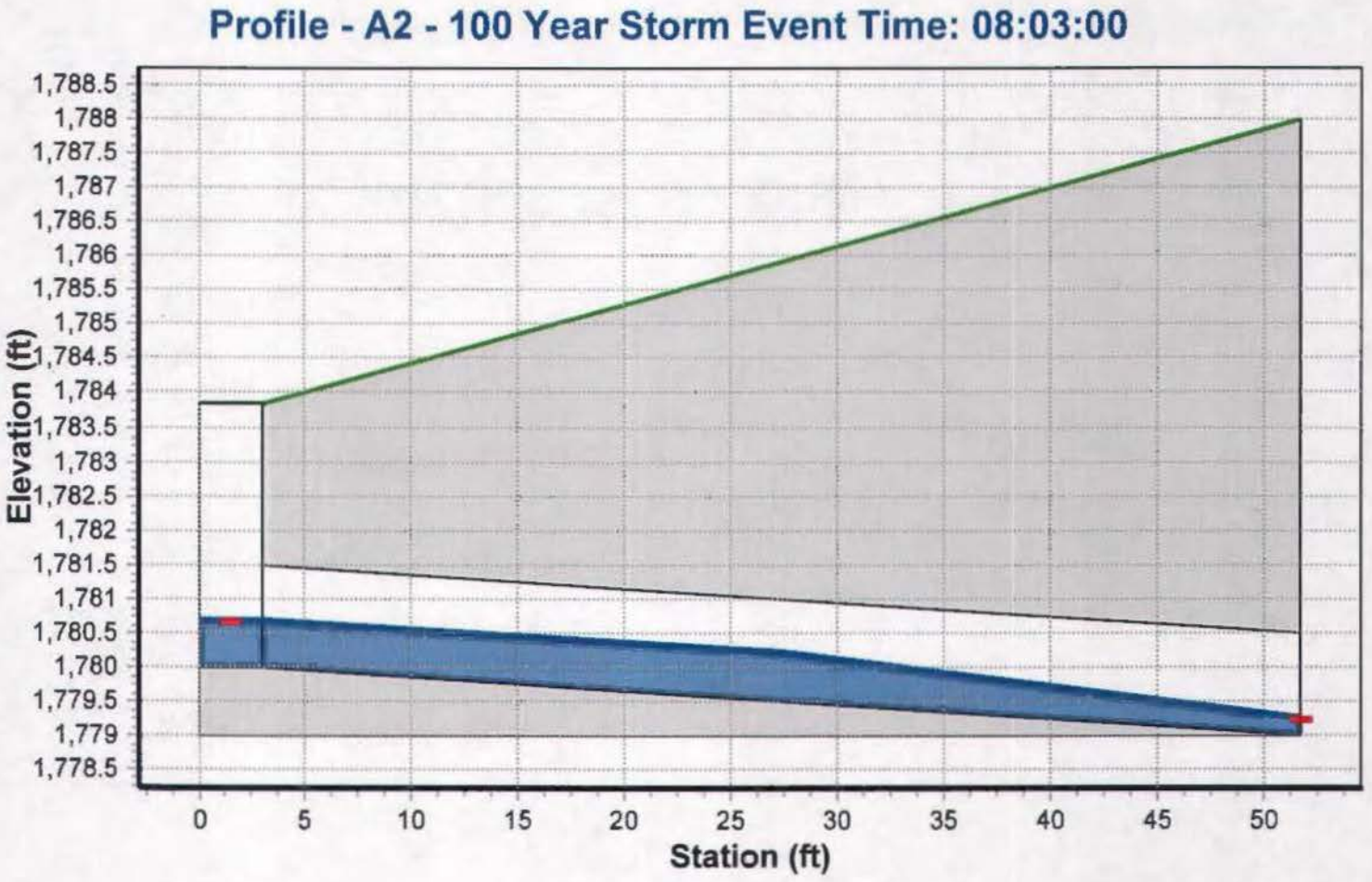
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1,783
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1,781
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1,779.5
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5
10
15
20
25
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35
40
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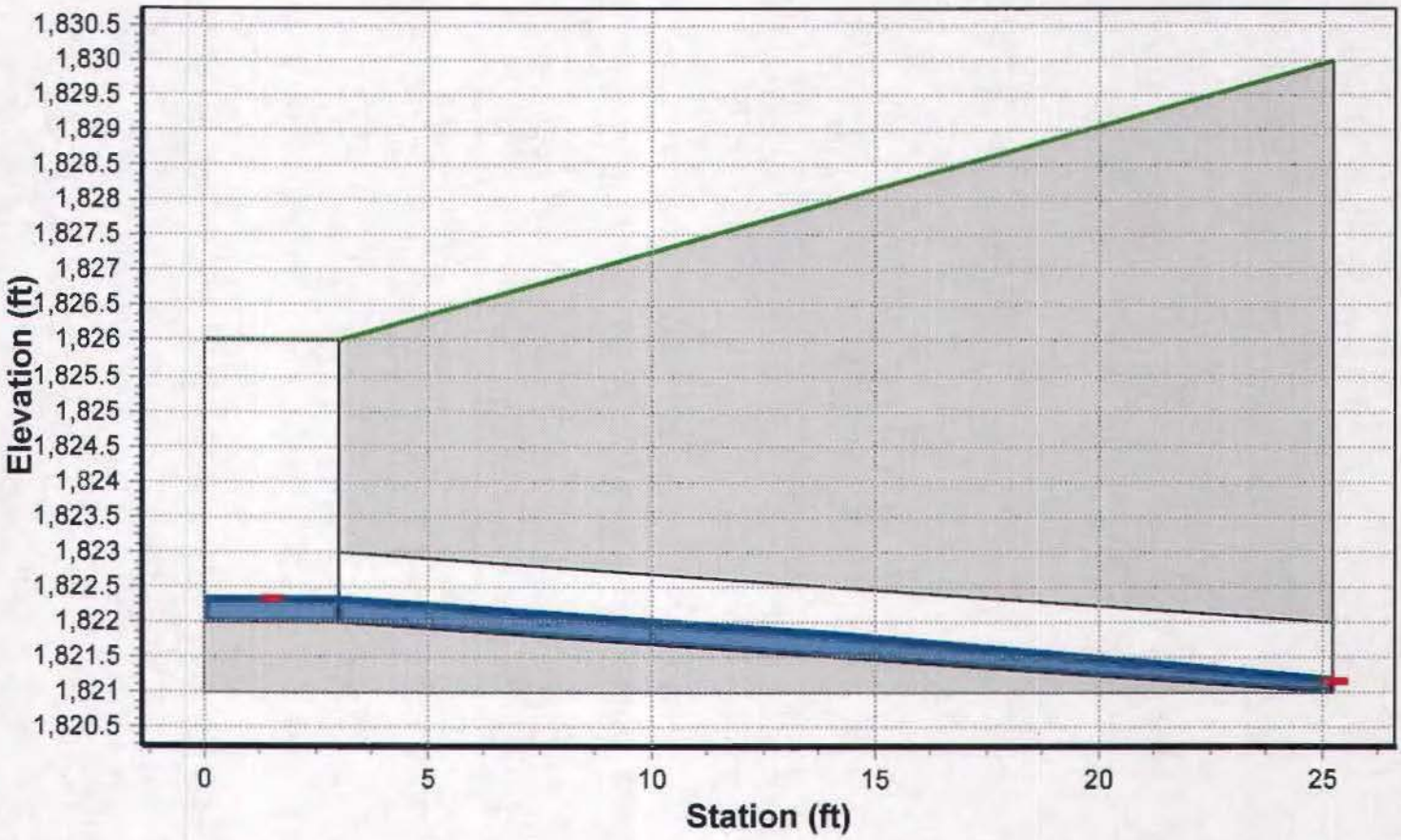
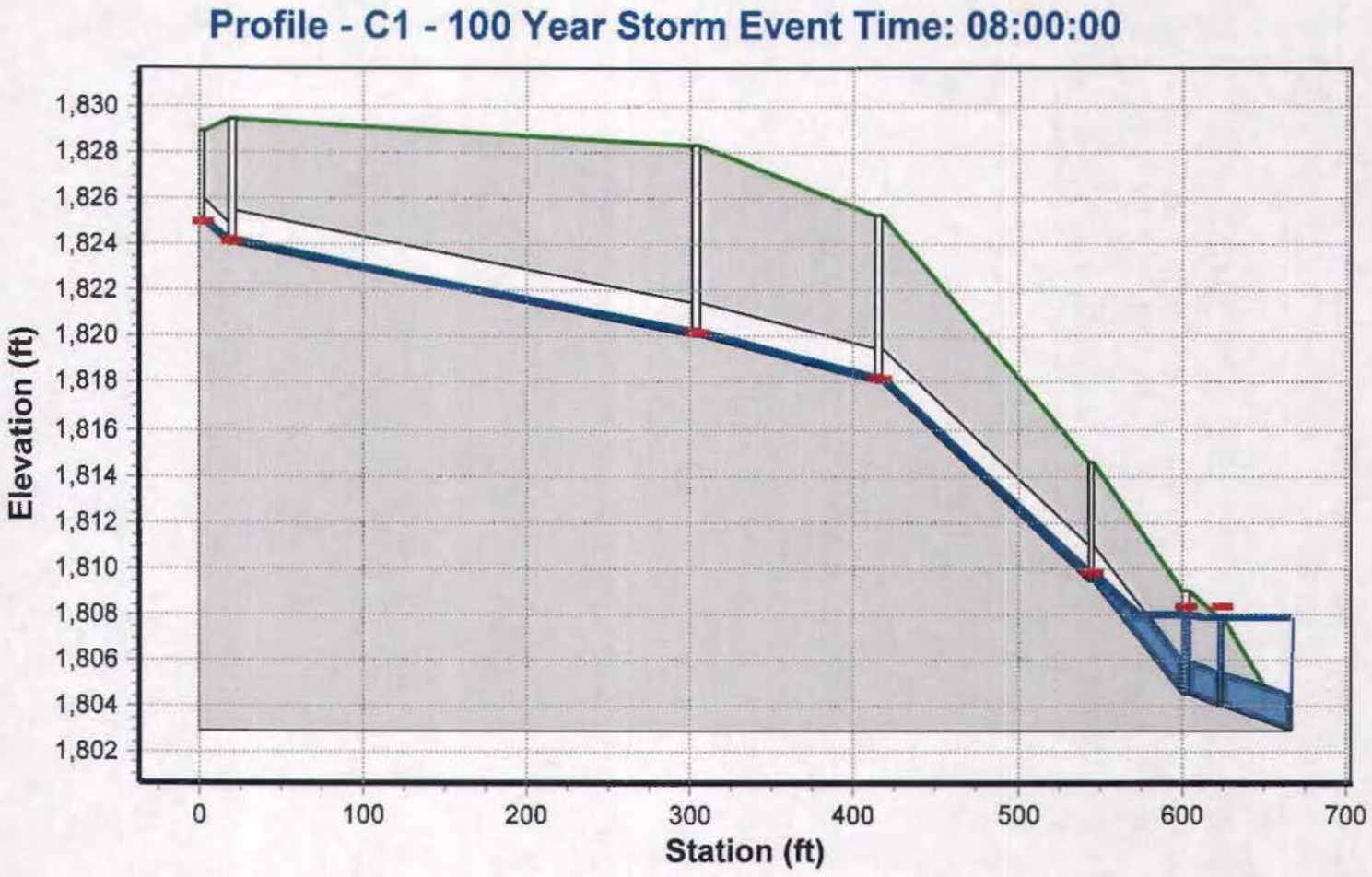
Station (ft)

Profile - F - 100 Year Storm Event Time: 08:03:00

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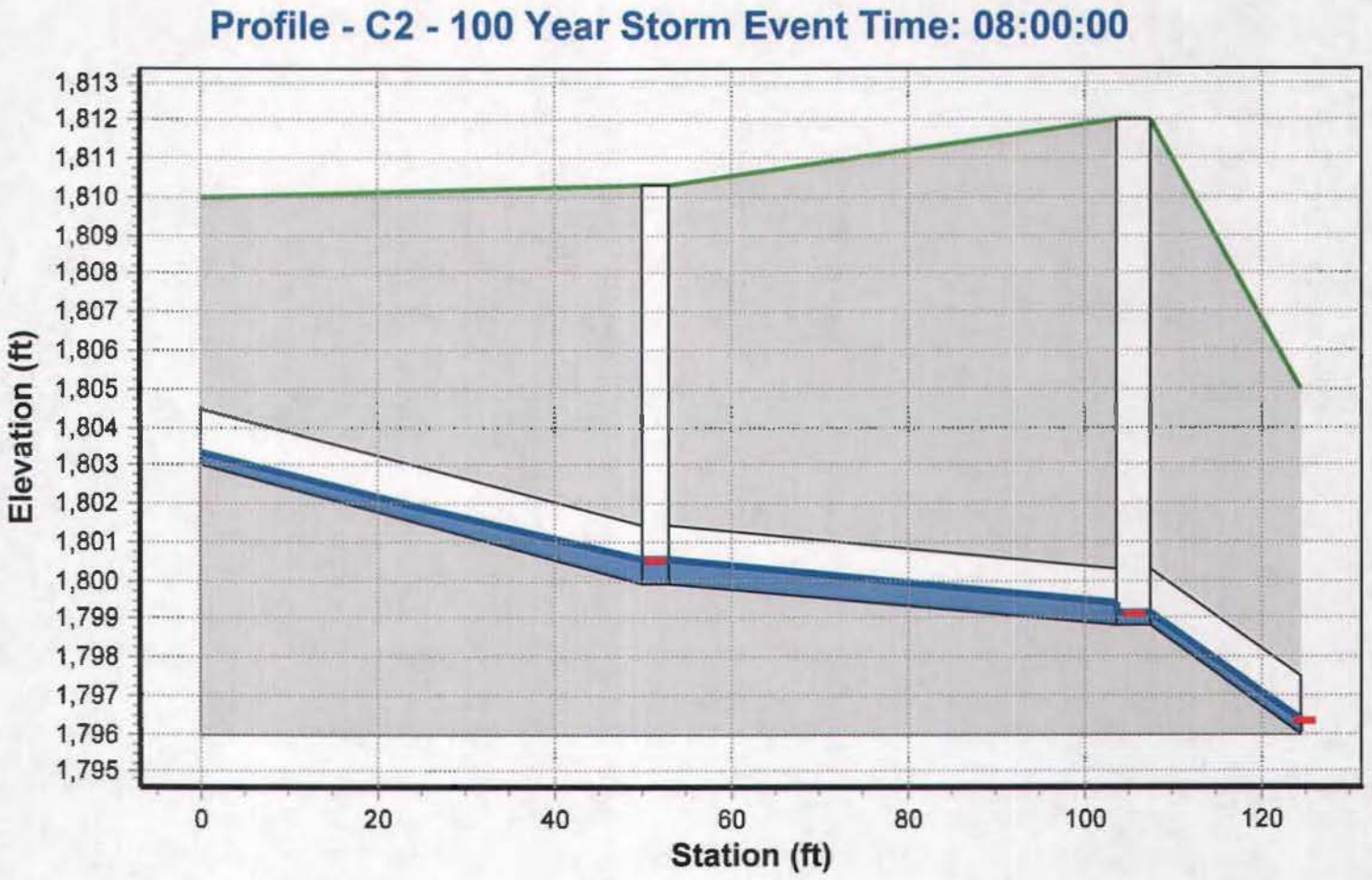
1,826
1,824
1,822
1,820
1,818
1,816
1,814
1,812
1,810
1,808
1,806
1,804
1,802
0
100
200
300
400
500
600
700
Station (ft)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1,812
1,811
1,810
1,809
1,808
1,807
1,806
1,805
1,804
1,803
1,802
1,801
1,800
1,799
1,798
1,797
1,796
1,795
0
20
40
60
80
100
120
Station (ft)

APPENDIX B – Pre Development Hydraulic Analysis

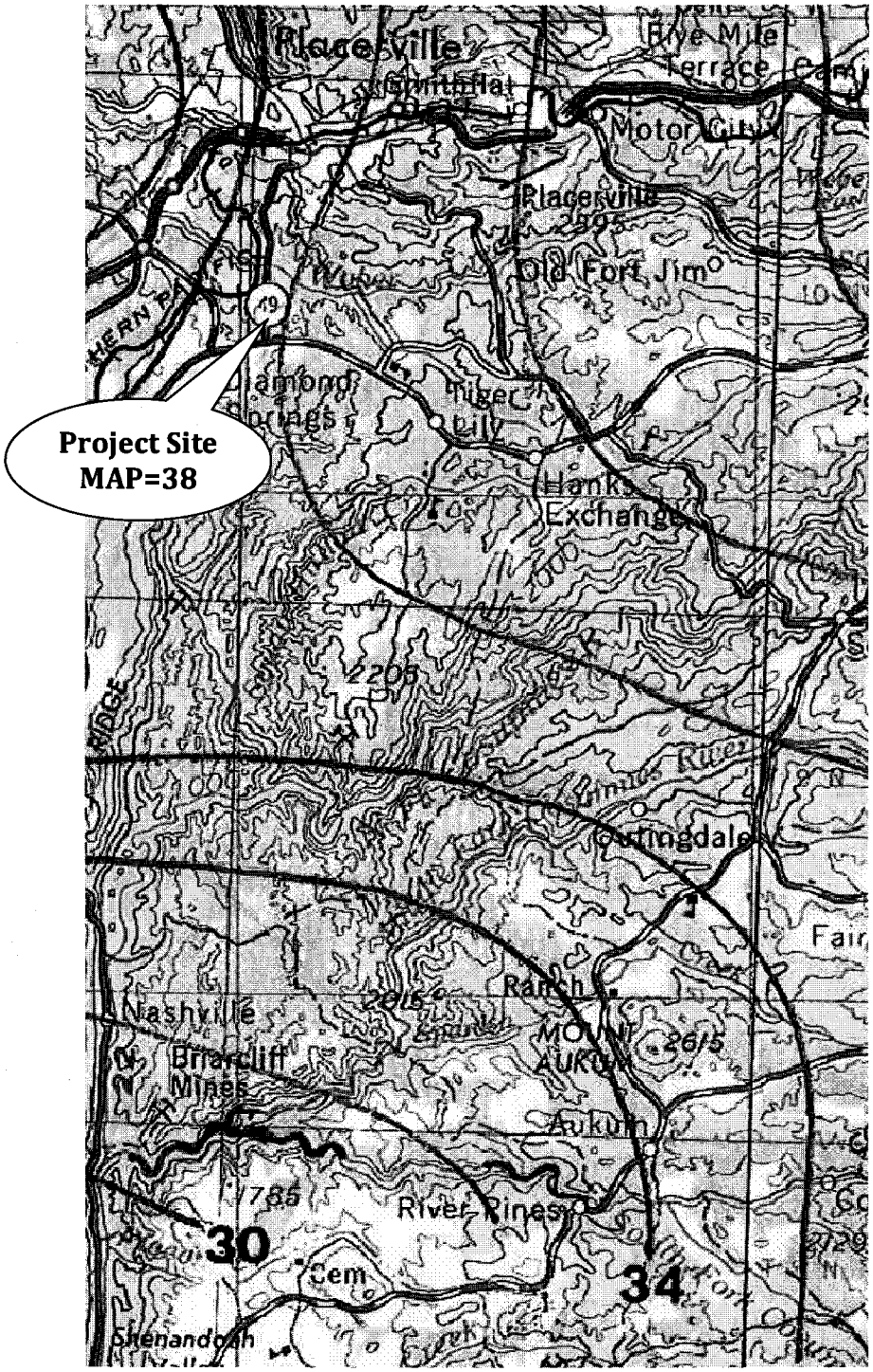
Watershed Properties Table

Watershed areas tributary to existing downstream pipes and channels. Data imported from Bentley CivilStorm v8. See delineated watershed areas in Pre-Development Drainage Shed Map, Appendix B.

Shed Name	SCS Curve Number	Area (Acres)	2-yr 24 hr depth	Tc (min)	100-Year Peak Flow (cfs)	10-Year Peak Flow (cfs)
CS101	74.0	8.39	3.34	14	8.05	4.25
CS102	94.0	5.05	3.34	14	7.94	5.42
CS103	74.0	4.26	3.34	20	3.90	2.05
CS104	74.0	3.25	3.34	8	3.20	1.70
CS105	74.0	22.65	3.34	28	19.37	10.13
CS106	74.0	2.35	3.34	12	2.28	1.21
CS107	74.0	3.84	3.34	11	3.76	1.99
CS108	74.0	0.98	3.34	8	0.97	0.51
CS109	79.0	20.80	3.34	20	22.53	12.83
CS110	98.0	0.07	3.34	5	0.11	0.08

APPENDIX C

Mean Annual Rainfall Map



APPENDIX D - El Dorado Design Rainfall Tables

APPENDIX D – El Dorado Design Rainfall

Table 2-2a Runoff Curve Numbers for Urban Areas

Table 2.4.3 Overland-Flow Roughness Coefficients

El Dorado Design Rainfall Depth

Rainfall Intensity – 10 year

Rainfall Intensity – 100 year

TABLE 2-2a

RUNOFF CURVE NUMBERS FOR URBAN AREAS[1]

Cover Description		Curve Numbers for Hydrologic Soil Group			
Cover Type and Hydrologic Condition	Average Percent Impervious Area[2]	A	B	C	D
Fully developed and hydrologic condition					
Open Space (lawn, parks, golf courses, cemeteries, etc.)[3]					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover >75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including (right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in Table 2-2c					

[1]Average runoff condition, and $I_a = 0.2S$

[2]The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic conditions. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

[3]CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

[4]Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

[5]Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4, based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas

Table 2.4.3

OVERLAND-FLOW ROUGHNESS COEFFICIENTS

(Source: SCS, 1986)

Surface Description (1)	Overland Flow n (2)
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated Soils:	
Residue Cover <20%	0.06
Residue Cover >20%	0.17
Grass:	
Short Grass Prairie	0.15
Dense Grasses	0.24
Bermuda	0.41
Range (natural)	0.13
Woods:	
Light Underbrush	0.40
Dense Underbrush	0.80

EL DORADO DESIGN RAINFALL

Rainfall Depth in Inches for Return Period = 2.33 years

Mean Annual Precipitation	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hrs	3 Hrs	6 Hrs	12 Hrs	24 Hrs
20	0.113	0.162	0.200	0.286	0.410	0.587	0.723	1.035	1.481	2.120
22	0.120	0.172	0.212	0.304	0.435	0.623	0.768	1.099	1.572	2.249
24	0.128	0.183	0.225	0.322	0.461	0.660	0.814	1.165	1.667	2.385
26	0.135	0.193	0.238	0.341	0.488	0.698	0.860	1.231	1.762	2.251
28	0.142	0.203	0.251	0.359	0.514	0.735	0.907	1.298	1.857	2.657
30	0.149	0.214	0.264	0.377	0.540	0.773	0.953	1.364	1.952	2.793
32	0.157	0.224	0.277	0.396	0.566	0.810	1.000	1.430	2.047	2.929
34	0.164	0.235	0.289	0.414	0.593	0.848	1.046	1.497	2.142	3.065
36	0.171	0.245	0.302	0.433	0.619	0.886	1.092	1.563	2.237	3.200
38	0.179	0.256	0.315	0.451	0.645	0.923	1.139	1.629	2.332	3.336
40	0.186	0.266	0.328	0.469	0.671	0.961	1.185	1.696	2.246	3.472
42	0.193	0.276	0.341	0.488	0.698	0.998	1.231	1.762	2.521	3.608
44	0.200	0.287	0.354	0.506	0.724	1.036	1.278	1.282	2.616	3.744
46	0.208	0.297	0.366	0.524	0.750	1.074	1.324	1.895	2.77	3.880
48	0.512	0.308	0.379	0.543	0.777	1.111	1.370	1.961	2.806	4.016
50	0.222	0.318	0.392	0.561	0.803	1.149	1.417	2.027	2.91	4.152
52	0.229	0.328	0.405	0.579	0.829	1.186	1.463	2.094	2.996	4.287
54	0.237	0.339	0.418	0.598	0.855	1.224	1.510	2.160	3.091	4.423
56	0.244	0.349	0.431	0.616	0.882	1.262	1.556	2.226	3.186	4.559
58	0.251	0.360	0.443	0.643	0.908	1.299	1.602	2.293	3.281	4.695
60	0.259	0.370	0.456	0.653	0.934	1.337	1.649	2.359	3.376	4.831
62	0.266	0.380	0.469	0.671	0.960	1.374	1.695	2.425	3.471	4.967
64	0.273	0.391	0.482	0.690	0.987	1.412	1.741	2.492	3.566	5.103
66	0.280	0.401	0.495	0.708	1.013	1.450	1.788	2.558	3.661	5.238
68	0.288	0.412	0.508	0.726	1.039	1.487	1.834	2.625	.3.756	5.374
70	0.295	0.422	0.520	0.745	1.066	1.525	1.880	2.691	3.851	5.510
72	0.302	0.432	0.533	0.762	1.092	1.562	1.927	2.757	3.946	5.646
74	0.309	0.443	0.546	0.781	1.118	1.600	1.973	2.824	4.040	5.782
76	0.317	0.453	0.559	0.800	1.144	1.638	2.020	2.890	4.135	5.918
78	0.324	0.464	0.572	0.818	1.171	1.675	2.066	2.956	4.230	6.054
80	.0331	0.474	0.585	0.836	1.197	1.713	2.112	3.023	4.325	6.189
82	0.339	0.484	0.597	0.855	1.223	1.750	2.159	3.089	4.420	6.325
84	0.346	0.495	0.610	0.873	1.250	1.788	2.205	3.155	4.515	6.461
86	0.353	0.505	0.623	0.892	1.276	1.826	2.251	3.222	4.610	6.597
88	0.360	0.516	0.636	0.910	1.302	1.863	2.298	3.288	4.705	6.733
90	0.368	0.526	0.649	0.928	1.328	1.901	2.344	3.354	4.800	6.869

Source: Design Rainfall Tables for El Dorado County, prepared by Jim Goodridge, July 29, 1989

Rainfall Intensity in Inches per Hour for Return Period = 10 years

Mean Annual Precipitation	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hrs	3 Hrs	6 Hrs	12 Hrs	24 Hrs
20	2.004	1.434	1.179	0.843	0.603	0.432	0.355	0.254	0.182	0.130
22	2.127	1.522	1.251	0.895	0.640	0.458	0.377	0.270	0.193	0.138
24	2.255	1.613	1.326	0.949	0.679	0.486	0.399	0.286	0.204	0.146
26	2.383	1.705	1.402	1.003	0.718	0.514	0.422	0.302	0.216	0.155
28	2.512	1.797	1.478	1.057	0.756	0.541	0.422	0.318	0.228	0.163
30	2.640	1.889	1.553	1.111	0.795	0.569	0.468	0.335	0.239	0.171
32	2.769	1.981	1.629	1.165	0.834	0.597	0.490	0.351	0.251	0.180
34	2.897	2.073	1.704	1.219	0.872	0.624	0.513	0.367	0.263	0.188
36	3.026	2.165	1.780	1.273	0.911	0.652	0.536	0.383	0.274	0.196
38	3.154	2.257	1.855	1.327	0.950	0.680	0.559	0.400	0.286	0.205
40	3.282	2.349	1.931	1.381	0.988	0.707	0.581	0.416	0.298	0.213
42	3.411	2.440	2.006	1.436	1.027	0.735	0.604	0.432	0.309	0.221
44	3.539	2.532	2.082	1.490	1.066	0.763	0.627	0.449	0.321	0.230
46	3.668	2.624	2.157	1.544	1.104	0.790	0.650	0.465	0.333	0.238
48	3.796	2.716	2.233	1.598	1.143	0.818	0.672	0.481	0.344	0.246
50	3.925	2.808	2.309	1.652	1.182	0.846	0.695	0.497	0.356	0.255
52	4.053	2.900	2.384	1.706	1.221	0.873	0.718	0.514	0.368	0.263
54	4.181	2.922	2.460	1.760	1.259	0.901	0.741	0.530	0.379	0.271
56	4.310	3.084	2.535	1.814	1.298	0.929	0.763	0.546	0.391	0.280
58	4.438	3.176	2.611	1.868	1.337	0.956	0.786	0.563	0.402	0.288
60	4.567	3.267	2.686	1.922	1.375	0.984	0.809	0.579	0.414	0.296
62	4.695	3.359	2.762	1.976	1.414	1.012	0.832	0.595	0.426	0.305
64	4.824	3.451	2.837	2.030	1.453	1.039	0.854	0.611	0.437	0.313
66	4.952	3.543	2.913	2.084	1.491	1.067	0.877	0.628	0.449	0.321
68	5.081	3.635	2.989	2.138	1.530	1.095	0.900	0.644	0.461	0.330
70	5.209	3.727	3.064	2.192	1.569	1.122	0.923	0.660	0.472	0.338
72	5.337	3.819	3.140	2.246	1.607	1.150	0.945	0.676	0.484	0.346
74	5.466	3.911	3.215	2.300	1.646	1.178	0.968	0.693	0.496	0.355
76	5.594	4.003	3.291	2.354	1.685	1.205	0.991	0.709	0.507	0.363
78	5.723	4.095	3.366	2.409	1.723	1.233	1.014	0.725	0.519	0.371
80	5.851	4.186	3.442	2.463	1.762	1.261	1.036	0.742	0.531	0.380
82	5.980	4.278	3.517	2.517	1.801	1.288	1.059	0.758	0.542	0.388
84	6.108	4.370	3.593	2.571	1.839	1.316	1.082	0.774	0.554	0.396
86	6.236	4.462	3.668	2.625	1.878	1.344	1.105	0.790	0.566	0.405
88	6.365	4.554	3.744	2.679	1.917	1.371	1.127	0.807	0.577	0.413
90	6.493	4.646	3.820	2.733	1.955	1.399	1.150	0.823	0.589	0.421

7/24/89 Note older versions are superseded
12:08 PM Prepared by Jim Goodridge 916.345.3106

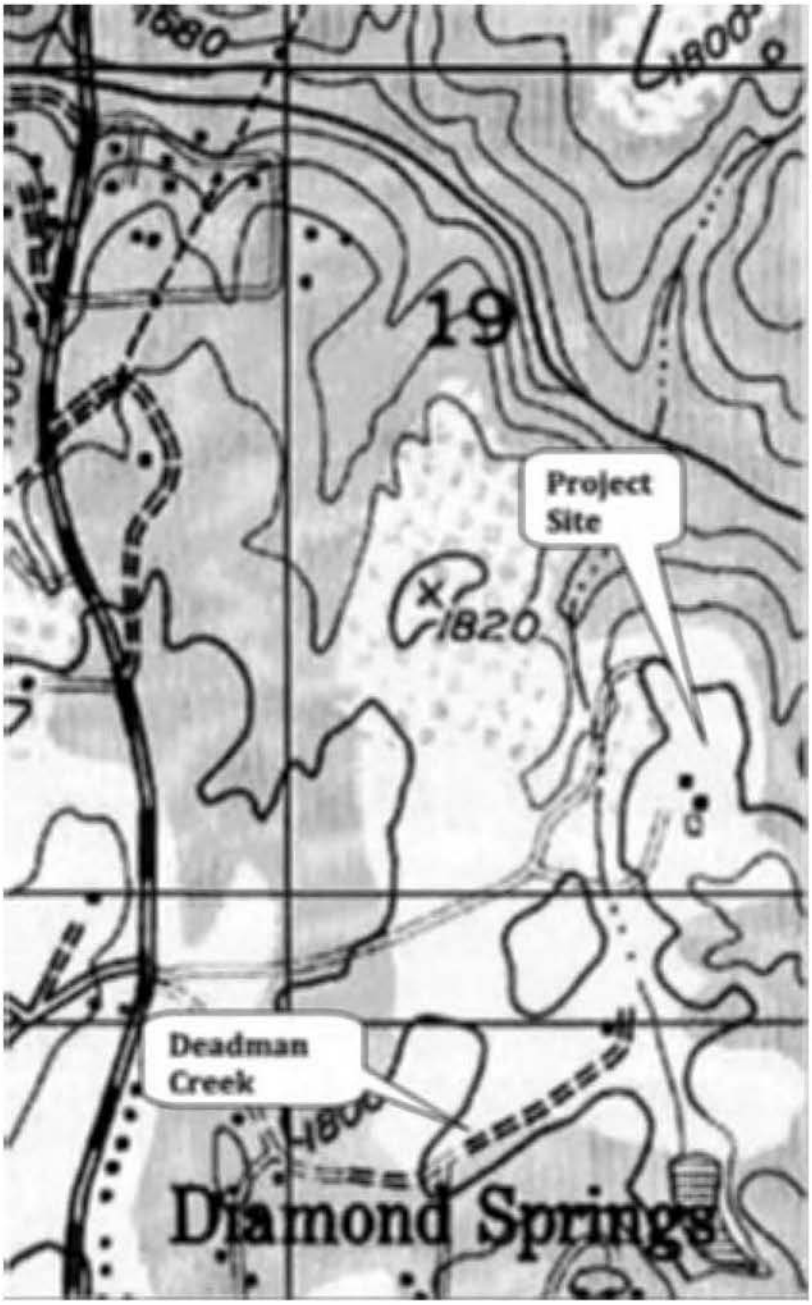
Rainfall Intensity in Inches per Hour for Return Period = 100 years

Mean Annual Precipitation	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hrs	3 Hrs	6 Hrs	12 Hrs	24 Hrs
20	2.840	2.032	1.671	1.195	0.855	0.612	0.503	0.360	0.258	0.184
22	3.014	2.157	1.773	1.269	0.908	0.649	0.534	0.382	0.273	0.196
24	3.196	2.287	1.880	1.345	0.963	0.689	0.566	0.405	0.290	0.207
26	3.378	2.417	1.987	1.422	1.017	0.728	0.598	0.428	0.306	0.219
28	3.561	2.548	2.094	1.499	1.072	0.767	0.631	0.451	0.323	0.231
30	3.743	2.678	2.202	1.575	1.127	0.806	0.663	0.474	0.339	0.243
32	3.925	2.808	2.309	1.652	1.182	0.846	0.695	0.497	0.356	0.255
34	4.107	2.938	2.416	1.728	1.237	0.885	0.727	0.520.	0.372	0.266
36	4.289	3.069	2.523	1.805	1.291	0.924	0.760	0.544	0.389	0.278
38	4.471	3.199	2.630	1.882	1.346	0.963	0.792	0.567	0.405	0.290
40	4.653	3.329	2.737	1.958	1.401	1.002	0.824	0.590	0.422	0.302
42	4.835	3.459	2.844	2.035	1.456	1.042	0.856	0.613	0.438	0.314
44	5.017	3.590	2.951	2.112	1.511	1.081	0.889	0.636	0.455	0.326
46	5.199	3.720	3.058	2.188	1.566	1.120	0.921	0.659	0.471	0.337
48	5.381	3.850	3.164	2.265	1.620	1.159	0.953	0.682	0.488	0.349
50	5.563	3.980	3.272	2.341	1.675	1.199	0.985	0.705	0.504	0.361
52	5.745	4.111	3.380	2.418	1.730	1.238	1.018	0.728	0.521	0.373
51	5.927	4.241	3.487	2.495	1.785	1.277	1.050	0.751	0.537	0.385
56	6.109	4.371	3.594	2.571	1.840	1.316	1.082	0.774	0.554	0.396
58	6.291	4.501	3.701	2.648	1.895	1.356	1.114	0.797	0.571	0.408
60	6.473	4.632	3.808	2.725	1.949	1.395	1.147	0.820	0.587	0.420
62	6.656	4.762	3.915	2.801	2.004	1.434	1.179	0.844	0.604	0.432
64	6.838	4.892	4.022	2.878	2.059	1.473	1.211	0.867	0.620	0.444
66	7.020	5.022	4.129	2.954	2.114	1.512	1.243	0.890	0.637	0.455
68	7.202	5.153	4.236	3.031	2.169	1.552	1.276	0.913	0.653	0.467
70	7.384	5.283	4.343	3.108	2.223	1.591	1.308	0.936	0.670	0.479
72	7.566	5.413	4.450	3.184	2.278	1.630	1.340	0.959	0.686	0.491
74	7.748	5.544	4.558	3.261	2.333	1.669	1.372	0.982	0.703	0.503
76	7.930	5.674	4.665	3.338	2.388	1.709	1.405	1.005	0.719	0.514
78	8.112	5.804	4.772	3.414	2.443	1.748	1.437	1.028	0.736	0.526
80	8.294	5.934	4.879	3.491	2.498	1.787	1.469	1.051	0.752	0.538
82	8.476	6.065	4.986	3.567	2.552	1.826	1.501	1.074	0.769	0.550
84	8.658	6.195	5.093	3.644	2.607	1.865	1.534	1.097	0.785	0.562
86	8.840	6.325	5.200	3.721	2.662	1.905	1.566	1.120	0.802	0.574
88	9.022	6.455	5.307	3.797	2.717	1.944	1.598	1.143	0.818	0.585
90	9.204	6.586	5.414	3.874	2.772	1.983	1.630	1.167	0.835	0.597

7/27/89 Note older versions are superseded
12:08 PM Prepared by Jim Goodridge 916.345.3106

APPENDIX E

Quad Map


1880
1800
19
Project Site
1820
Deadman Creek
1800
Diamond Springs

Soil Survey Map

Map Unit Legend

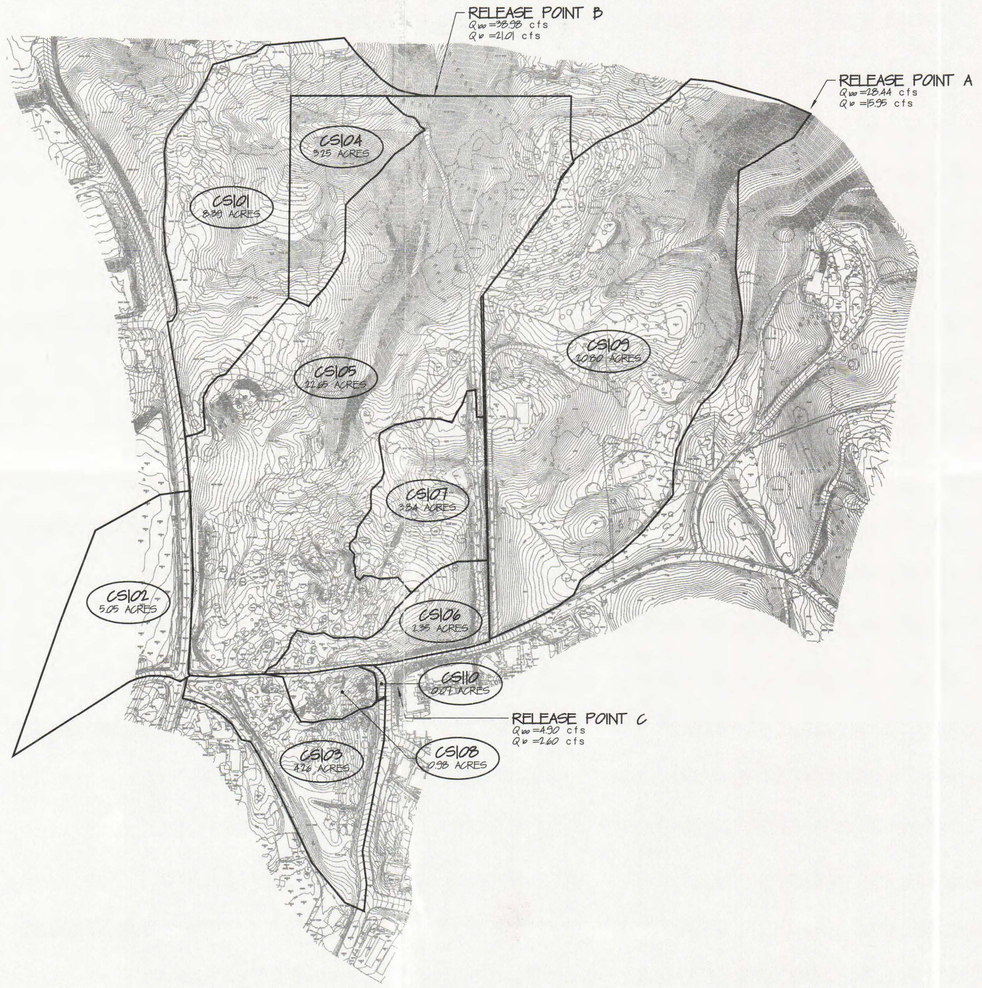
El Dorado Area, California (CA624)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DfC	Diamond Springs very fine sandy loam, 9 to 15 percent slopes	22.0	45.9%
DgE	Diamond Springs very rocky, very fine sandy 3 to 50 percent slopes	5.1	10.6%
PrD	Placer Diggins	20.9	43.5%
Totals for Area of Interest (AOI)		48.1	100.0%

PRE DEVELOPMENT DRAINAGE SHED MAP

PIEDMONT OAK ESTATES

COUNTY OF EL DORADO, STATE OF CALIFORNIA



NORTH

0 200 400 600

SCALE IN FEET

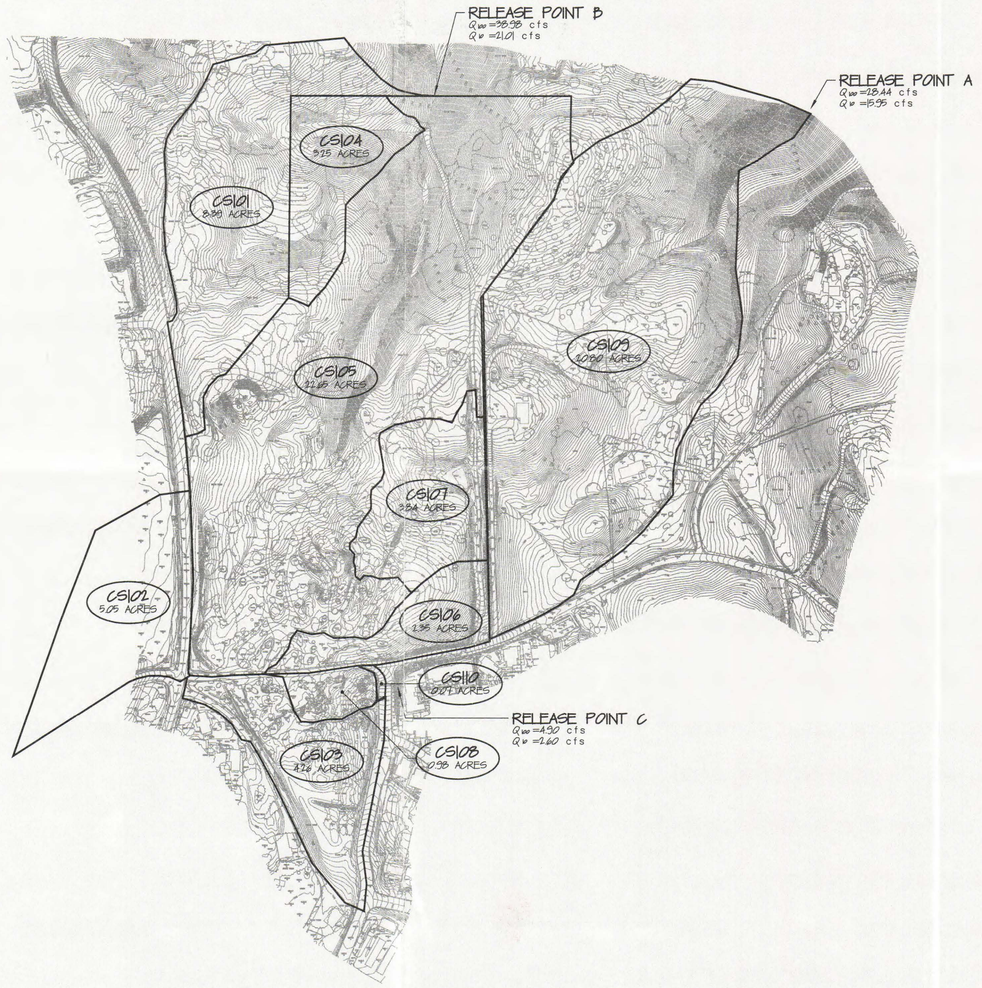
PRE DEVELOPMENT DRAINAGE SHED MAP

APRIL 24, 2009

PRE DEVELOPMENT DRAINAGE SHED MAP

PIEDMONT OAK ESTATES

COUNTY OF EL DORADO, STATE OF CALIFORNIA



NORTH

0 200 400 600

SCALE IN FEET

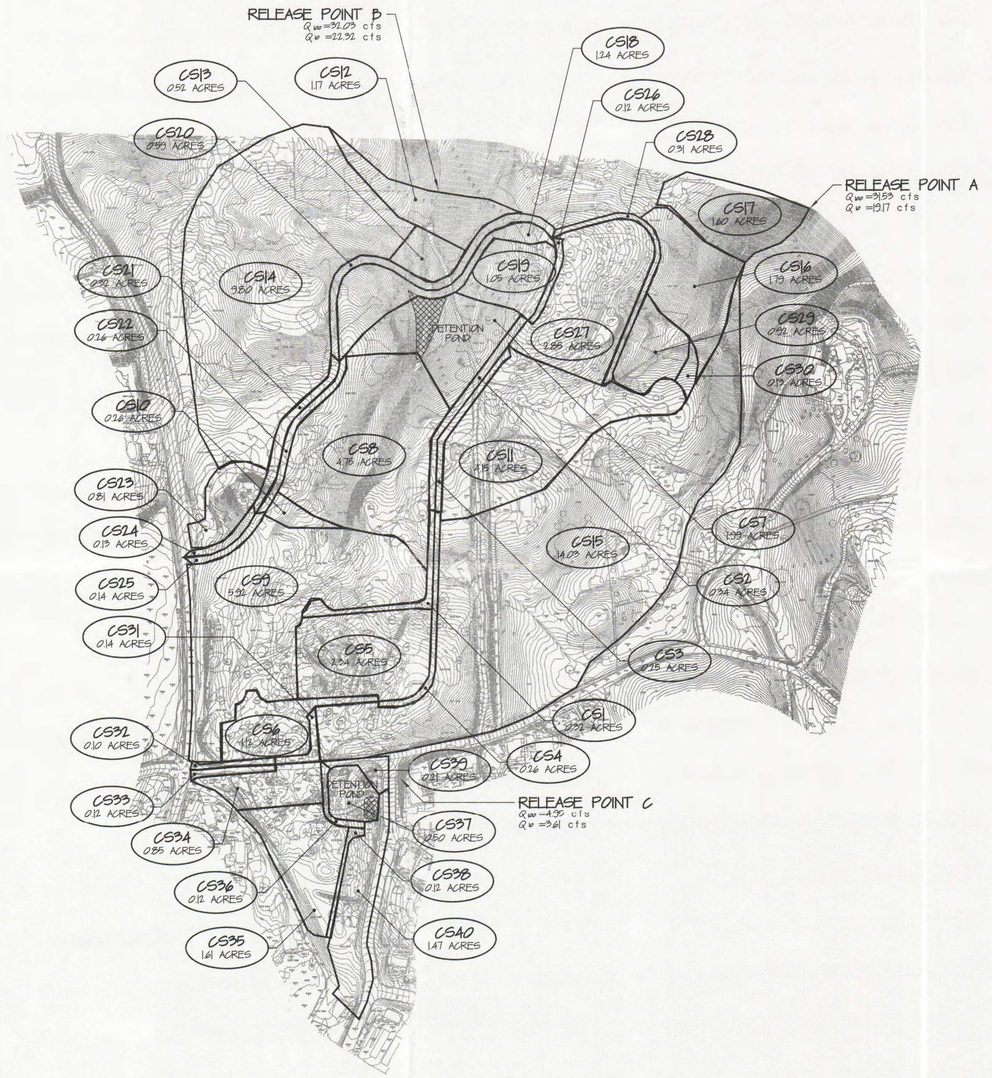
PRE DEVELOPMENT DRAINAGE SHED MAP

APRIL 24, 2009

POST DEVELOPMENT DRAINAGE SHED MAP

PIEDMONT OAK ESTATES

COUNTY OF EL DORADO, STATE OF CALIFORNIA



NORTH

0 200 400 600

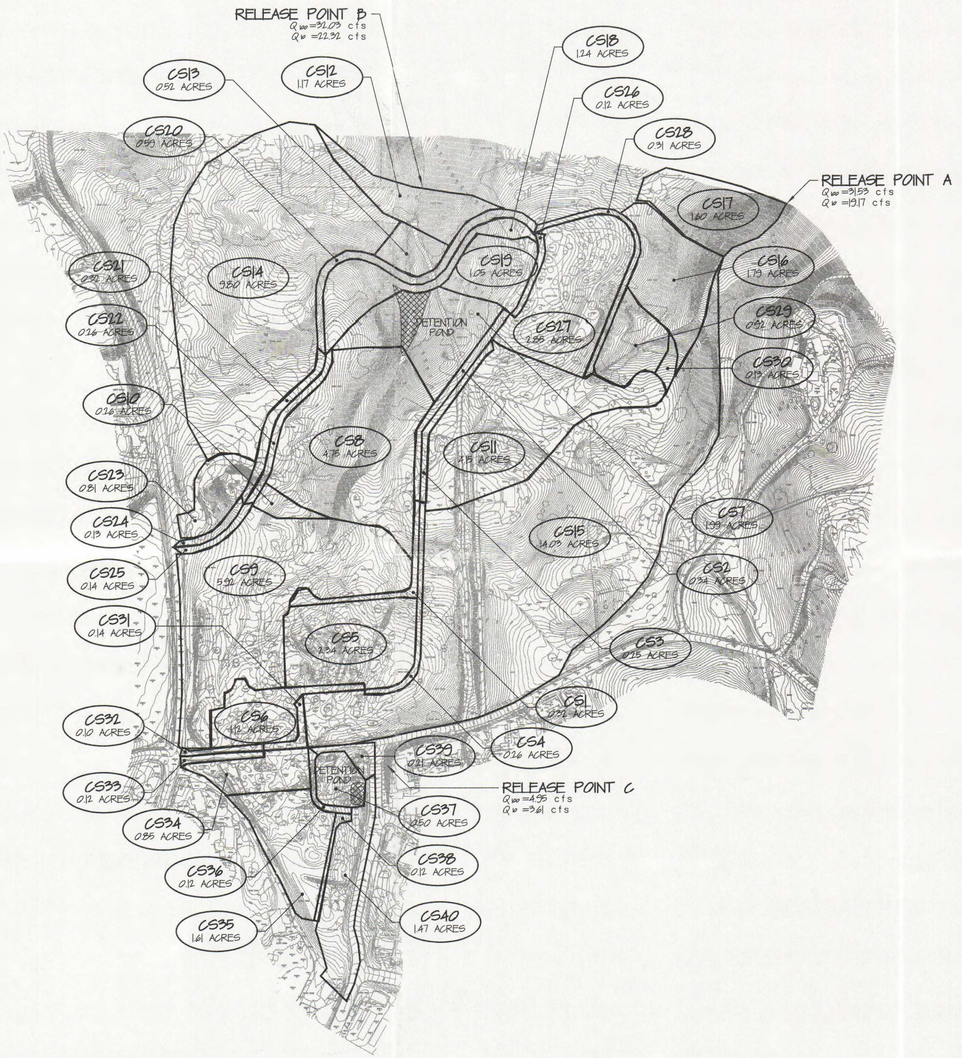
SCALE IN FEET

POST DEVELOPMENT DRAINAGE SHED MAP
APRIL 24, 2009

POST DEVELOPMENT DRAINAGE SHED MAP

PIEDMONT OAK ESTATES

COUNTY OF EL DORADO, STATE OF CALIFORNIA



NORTH

0 200 400 600

SCALE IN FEET

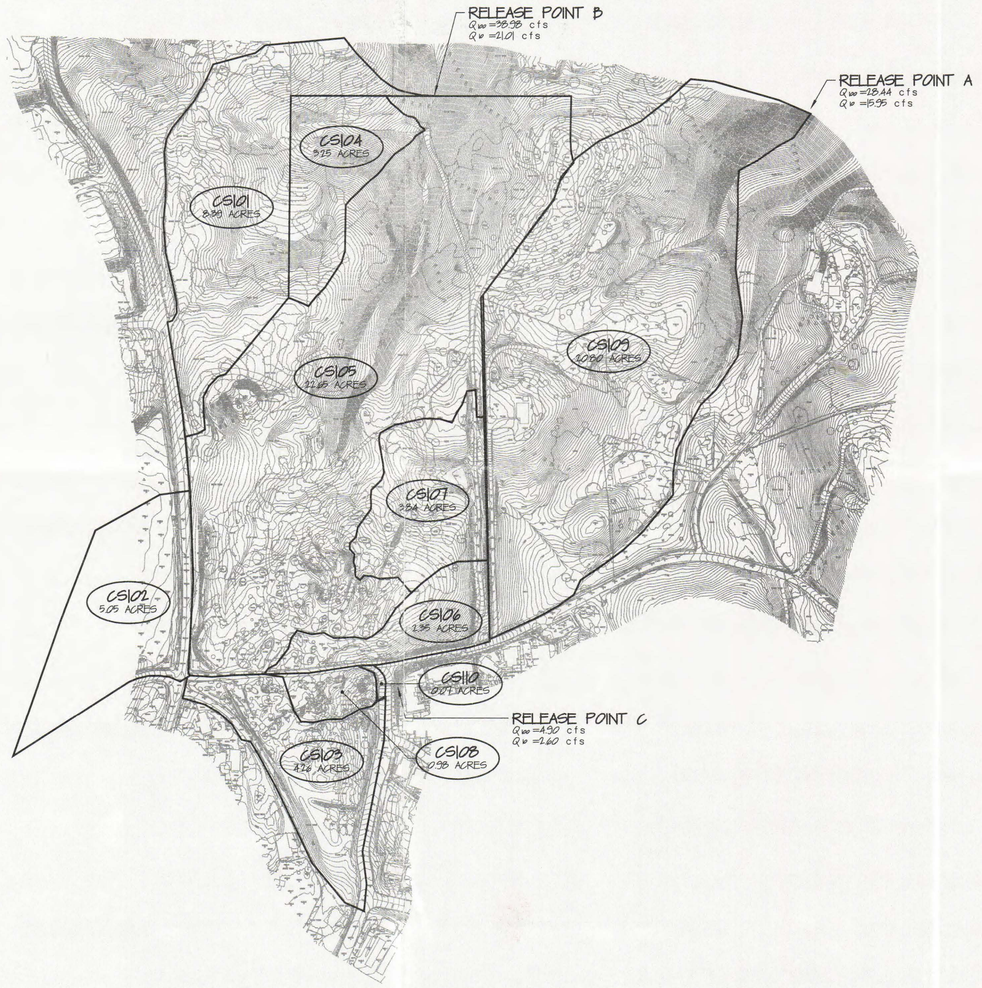
POST DEVELOPMENT DRAINAGE SHED MAP

APRIL 24, 2009

PRE DEVELOPMENT DRAINAGE SHED MAP

PIEDMONT OAK ESTATES

COUNTY OF EL DORADO, STATE OF CALIFORNIA



NORTH

0 200 400 600

SCALE IN FEET

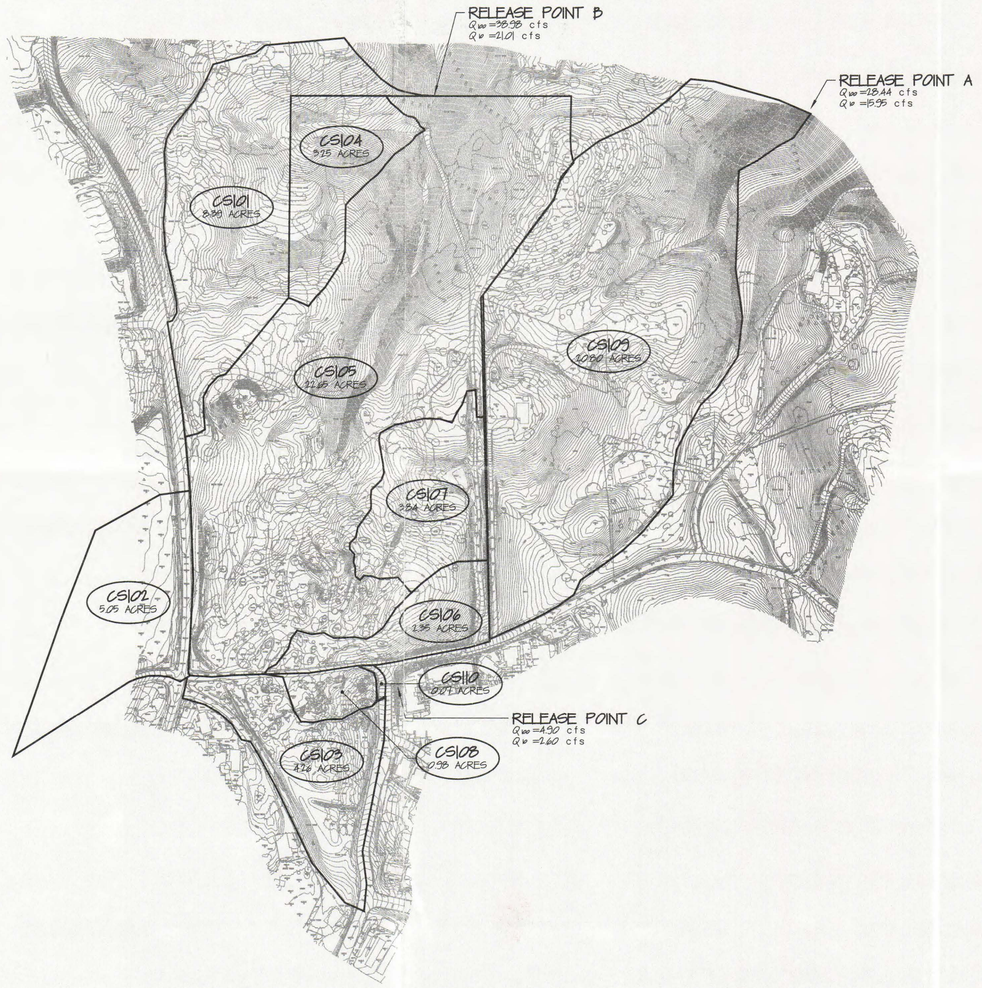
PRE DEVELOPMENT DRAINAGE SHED MAP

APRIL 24, 2009

PRE DEVELOPMENT DRAINAGE SHED MAP

PIEDMONT OAK ESTATES

COUNTY OF EL DORADO, STATE OF CALIFORNIA



NORTH

0 200 400 600

SCALE IN FEET

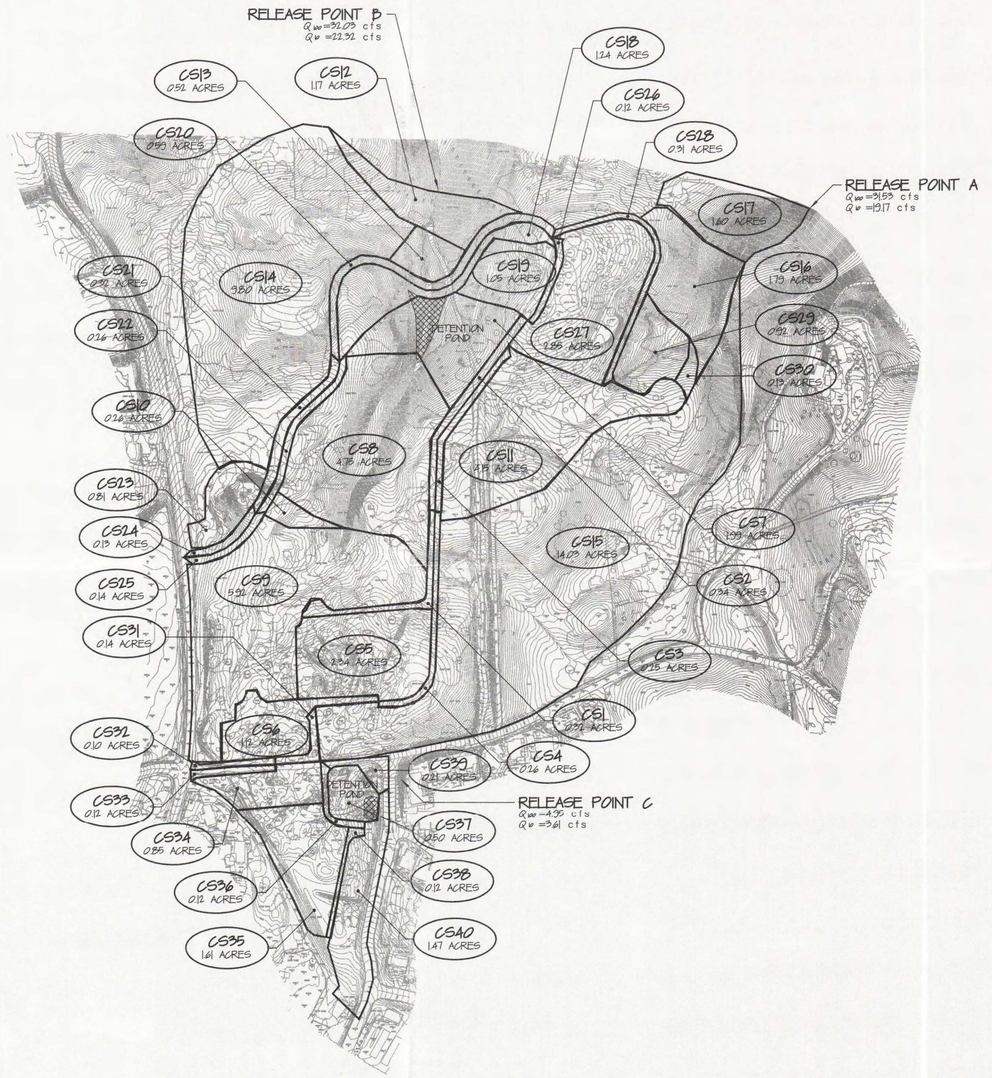
PRE DEVELOPMENT DRAINAGE SHED MAP

APRIL 24, 2009

POST DEVELOPMENT DRAINAGE SHED MAP

PIEDMONT OAK ESTATES

COUNTY OF EL DORADO, STATE OF CALIFORNIA



NORTH

0 200 400 600

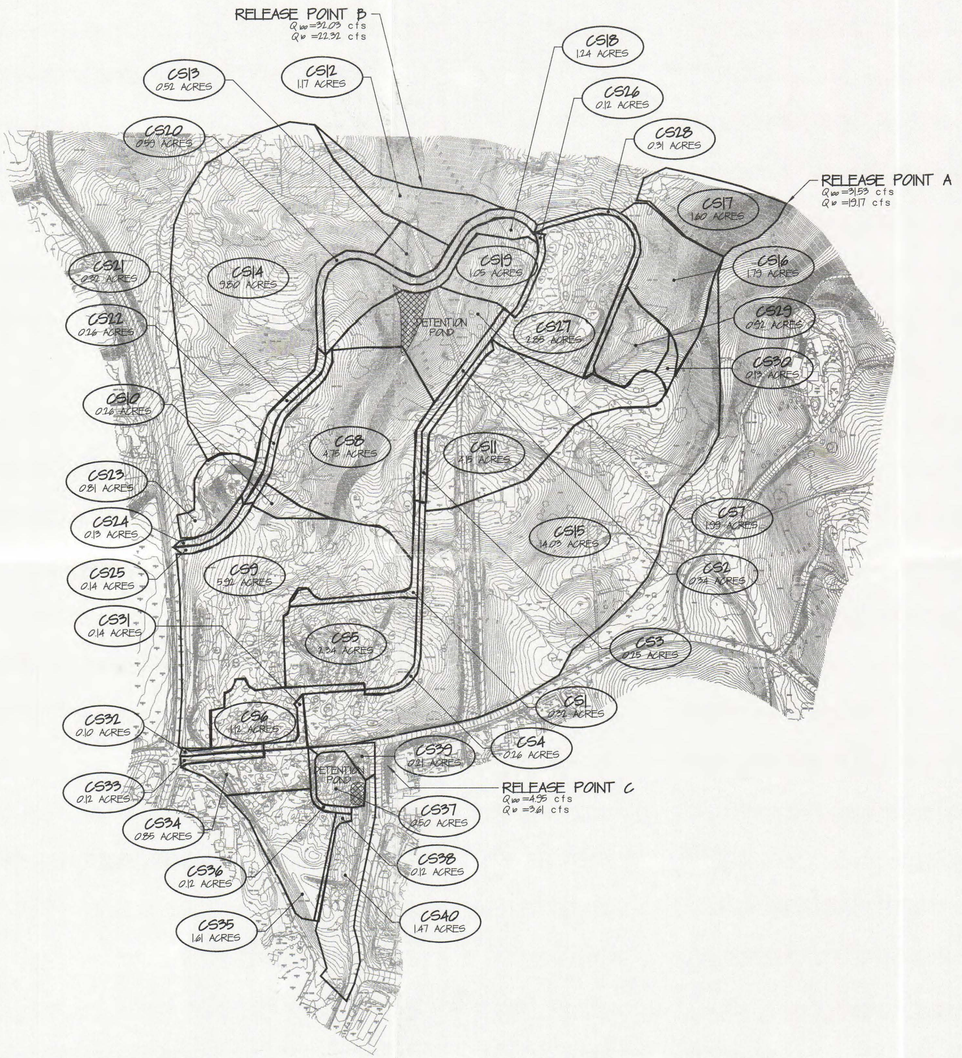
SCALE IN FEET

POST DEVELOPMENT DRAINAGE SHED MAP
APRIL 24, 2009

POST DEVELOPMENT DRAINAGE SHED MAP

PIEDMONT OAK ESTATES

COUNTY OF EL DORADO, STATE OF CALIFORNIA



POST DEVELOPMENT DRAINAGE SHED MAP

APRIL 24, 2009

j.c. brennan & associates
consultants in acoustics
P.O. Box 6748 • Auburn, California 95604
1287 High Street • Auburn, California 95603
p.530.823.0960 • f.530.823.0961 • www.jcbrennanassoc.com

June 21, 2016

Mr. Jim Davies
854 Diablo Road
Danville, CA 94526

Subject: Review of the Piedmont Oak Estates Revised Site Plan - Per 2012 Noise Analysis

Dear Mr. Davies:

j.c. brennan & associates, Inc. conducted a Revised Environmental Noise Analysis for the Piedmont Oak Estates Project on March 6, 2013 (*Revised Environmental Noise Assessment , Piedmont Oaks, El Dorado County California, Prepared for: Mr. Jim Davies, Prepared by: j.c. brennan & associates, Inc., March 6, 2013*). The conclusions and recommendations for the March 2013 analysis are as follows:

A summary of the conclusions are as follows:

1) *The project will not be exposed to roadway traffic noise levels which exceeds the exterior and interior noise level criteria of 60 dBA Ldn and 45 dBA Ldn, respectively;*

2) *The project will not be exposed to noise levels from nearby light industrial and commercial uses which will exceed the noise level standards;*

3) *The project will not result in a significant increase in roadway traffic noise levels;*

4) *The proposed commercial uses on the project site may result in noise levels which exceed the El Dorado County stationary noise level criteria.*

The following mitigation measures are recommended:

1) *When site plans and specific uses are proposed on Lots A and B, the applicants shall provide a noise analysis to ensure compliance with the El Dorado County noise level criteria. The noise analyses shall evaluate any potential loading dock operations, truck circulation, parking lot activity and HVAC noise levels. If additional noise sources are identified, they must also be reviewed.*

ATTACHMENT 13

On June 16, 2016, you forwarded a revised site plan for the Piedmont Oak Estates dated March 2016 (See attached site plan). The revised site plan reflects the following, as compared to the site plan analyzed in March 2013:

- At the recommendation of the Planning Commissioners, you have moved the cluster lot configuration away from the northern boundary;
- Removal of 7 residential cluster lots;
- Replaced with 1 residential lot of 1/4 acre;
- Removed 1 commercial lot and replaced with 6 residential cluster lots;
- Addition of 3 residential cluster lots to the main group of cluster lots;
- Total of 107 residential lots and 1 commercial lot of 10,000 square feet;
- A net reduction of 10,000 square feet of commercial.

Based upon the 2013 noise analysis, the revised site plan does not reflect any additional noise impacts. Consistent with the previous report, when site plans and specific uses are proposed any commercial uses will require additional analyses of noise impacts to ensure compliance with the El Dorado County noise level criteria. The noise analyses shall evaluate any potential loading dock operations, truck circulation, parking lot activity and HVAC noise levels. If additional noise sources are identified, they must also be reviewed.

If you or the El Dorado County planning staff have questions, please contact me at 530-823-0960, or jbrennan@jcbrennanassoc.com.

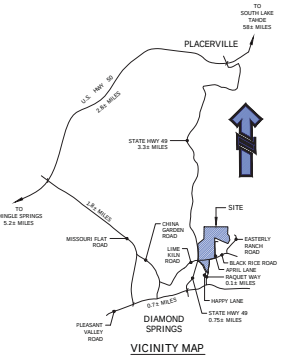
Respectfully submitted,
j.c. brennan & associates, Inc.

Jim Brennan
President
Member: Institute of Noise Control Engineering
File: 2012-164 Revised Site Plan Review

TENTATIVE MAP & DEVELOPMENT PLAN

PIEDMONT OAK ESTATES

COUNTY OF EL DORADO, STATE OF CALIFORNIA



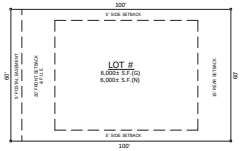
VICINITY MAP

NOT TO SCALE

TYPICAL LOT DATA					
LOT	LOT SIZE	STORIES	LIVING SPACE	BUILDING COVERAGE	IMPERVIOUS SURFACE
A1	2,256 SF	2	1,668 SF	998 SF/44%	1,356 SF/60%
A2	2,256 SF	2	1,668 SF	996 SF/44%	1,356 SF/60%
B1	2,394 SF	2	1,618 SF	1,089 SF/45%	1,730 SF/72%
B2	2,394 SF	2	1,618 SF	1,089 SF/45%	1,704 SF/71%
C	2,112 SF	2	1,500 SF	912 SF/61%	1,272 SF/60%
R	1,788 SF	-	-	-	1,788 SF/100%
TOTAL	13,200 SF	-	-	5,082 SF/39%	9,206 SF/70%

DETAIL
TYPICAL CUSTOM LOTS

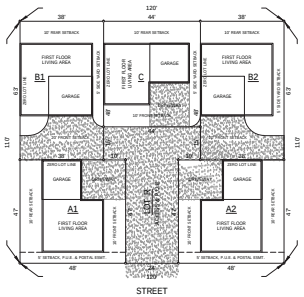
SCALE: 1"=20'

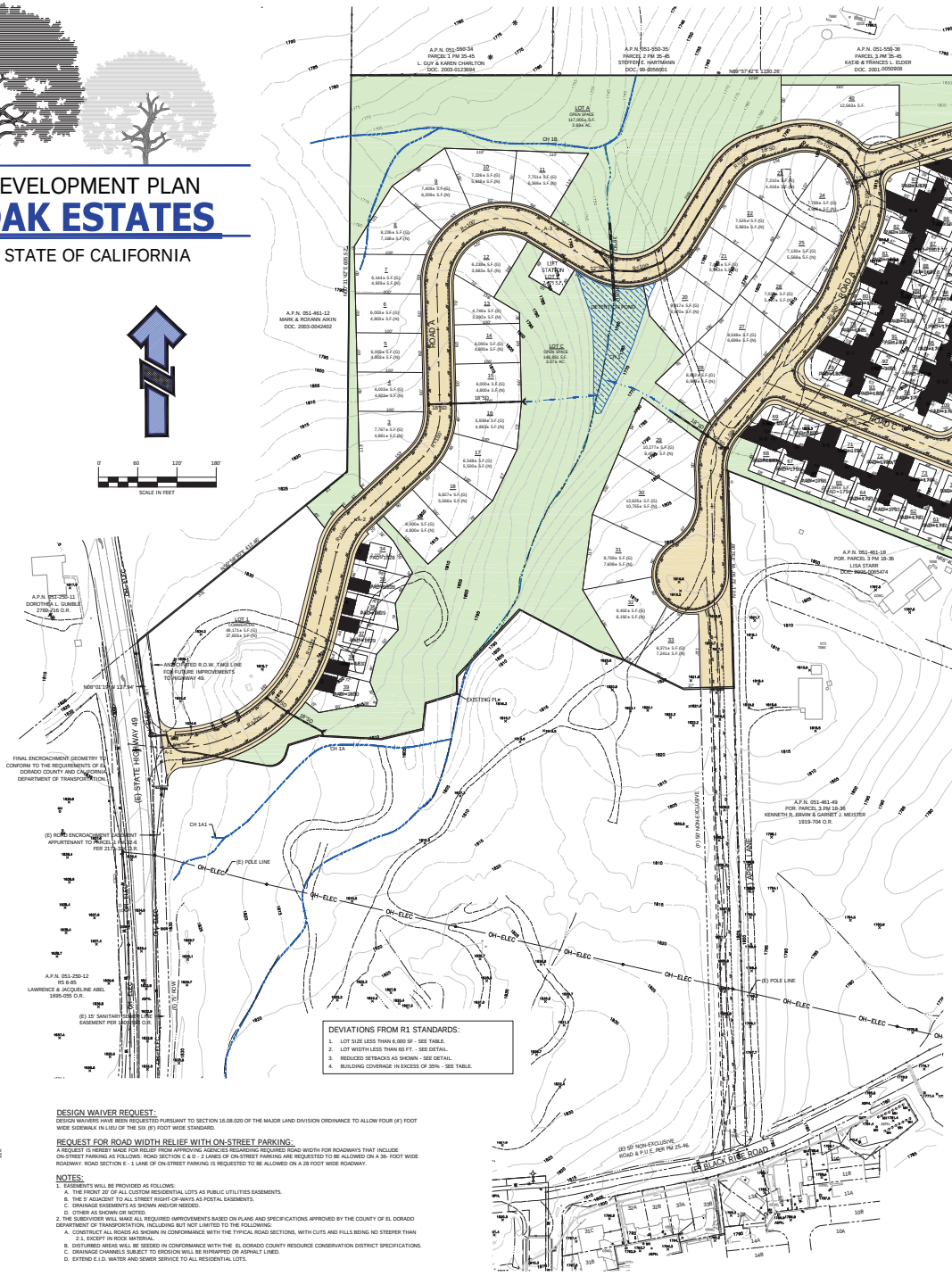


DETAIL
TYPICAL CLUSTERED RESIDENCES

SCALE: 1"=20'

THE RESIDENTIAL STRUCTURE SHOWN IS CONCEPTUAL ONLY.





DEVIATIONS FROM R1 STANDARDS:

1. LOT SIZE LESS THAN 6,000 SF - SEE TABLE.
2. LOT WIDTH LESS THAN 60 FT. - SEE DETAIL.
3. REDUCED SETBACKS AS SHOWN - SEE DETAIL.
4. BUILDING COVERAGE IN EXCESS OF 35% - SEE TABLE.

DESIGN WAIVER REQUEST:

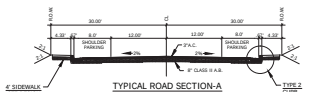
DESIGN WAIVERS HAVE BEEN REQUESTED PURSUANT TO SECTION 16.08.020 OF THE MAJOR LAND DIVISION ORDINANCE TO ALLOW FOUR (4) FOOT WIDE SIDEWALK IN LIEU OF THE SIX (6) FOOT WIDE STANDARD.

REQUEST FOR ROAD WIDTH RELIEF WITH ON-STREET PARKING:

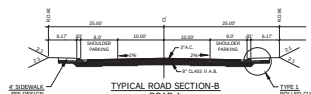
A REQUEST IS HEREBY MADE FOR RELIEF FROM APPROPRIATE AGENCIES REGARDING REQUIRED ROAD WIDTH FOR ROADWAYS THAT INCLUDE ON-STREET PARKING AS FOLLOWS: ROAD SECTION C & D - 2 LANES OF ON-STREET PARKING ARE REQUESTED TO BE ALLOWED ON A 36- FOOT WIDE ROADWAY. ROAD SECTION E - 1 LANE OF ON-STREET PARKING IS REQUESTED TO BE ALLOWED ON A 28 FOOT WIDE ROADWAY.

NOTES:

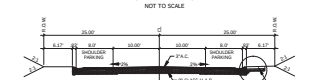
1. EASEMENTS WILL BE PROVIDED AS FOLLOWS:
   A. THE FRONT 20' OF ALL CUSTOM RESIDENTIAL LOTS AS PUBLIC UTILITIES EASEMENTS.
   B. THE 5' ADJACENT TO ALL STREET RIGHT-OF-WAYS AS POSTAL EASEMENTS.
   C. DRAINAGE EASEMENTS AS SHOWN AND/OR NEEDED.
   D. OTHER AS SHOWN OR NOTED.
2. THE SUBDIVIDER WILL MAKE ALL REQUIRED IMPROVEMENTS BASED ON PLANS AND SPECIFICATIONS APPROVED BY THE COUNTY OF EL DORADO DEPARTMENT OF TRANSPORTATION, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   A. CONSTRUCT ALL ROADS AS SHOWN IN CONFORMANCE WITH THE TYPICAL ROAD SECTIONS, WITH CUTS AND FILLS BEING NO STEEPER THAN 2:1, EXCEPT IN ROCK MATERIAL.
   B. DISTURBED AREAS WILL BE SEEDED IN CONFORMANCE WITH THE EL DORADO COUNTY RESOURCE CONSERVATION DISTRICT SPECIFICATIONS.
   C. DRAINAGE CHANNELS SUBJECT TO EROSION WILL BE RIPRAPPED OR ASPHALT LINED.
   D. EXTEND E.I.D. WATER AND SEWER SERVICE TO ALL RESIDENTIAL LOTS.



TYPICAL ROAD SECTION-A
ROAD A
FROM POINT A-1 TO POINT A-2
(CO. STD. PLAN 101A)
NOT TO SCALE



TYPICAL ROAD SECTION-B
ROAD A
FROM POINT A-2 TO POINT A-3
AND FROM POINT A-4 TO END
(CO. STD. PLAN 101B)
NOT TO SCALE



TYPICAL ROAD SECTION-C
ROAD A
FROM POINT A-3 TO POINT A-4
(CO. STD. PLAN 101B)
NOT TO SCALE

TYPICAL ROAD SECTION-D
ROADS B & C
(CO. STD. PLAN 101B)
NOT TO SCALE

OWNERS OF RECORD:
JIM DAVIES AND TERRI CHANG
CONTACT: JIM DAVIES
854 DIABLO ROAD
DANVILLE, CA 94526
TEL: 925-820-9444 FAX: 925-820-7917

NAME OF APPLICANT:
JIM DAVIES AND TERRI CHANG
CONTACT: JIM DAVIES
854 DIABLO ROAD
DANVILLE, CA 94526
TEL: 925-820-9444 FAX: 925-820-7917

MAP ORIGINALLY PREPARED BY:
BTCONSULTING, INC.
CONTACT: PETER THORNE
PO BOX 304
SHINGLE SPRINGS, CA 95682
TEL: 530-672-2316 FAX: 530-405-4722
E-MAIL: pthorne@gobtc.net

MAP REVISED MARCH 2016 BY:
LEBECK YOUNG ENGINEERING, INC.
CONTACT: BARBARA "BOBBIE" LEBECK
3430 ROBIN LANE #2
CAMERON PARK, CA 95682
TEL: 530-677-4080
E-MAIL: bobbie@lebeckyoung.com

NOTE: MARCH 2016 REVISIONS ADDRESS LOTTING ONLY, NO CHANGES TO UTILITIES OR GRADING & DRAINAGE.

SCALE:
1"=60'

CONTOUR INTERVAL:
FIVE FEET (5')

SOURCE OF TOPOGRAPHY:
AERIAL SURVEY

SECTION, TOWNSHIP & RANGE:
SECTIONS 19 & 30, T.10 N., R.11 E., M.D.M. (BEING PORTIONS OF PM 25-46, PM 32-6, PM 36-119 AND RS 20-113)

ASSESSOR'S PARCEL NUMBERS:
051-550-40, 47, 48 & 51

PRESENT/PROPOSED ZONING:
051-550-40: R1/R1-PD
051-550-47: R1-PE-CPD/R1-PD, C-PD
051-550-48: R1/R1-PD
051-550-51: R1/R1-PD

TOTAL AREA:
25.89± ACRES

TOTAL NUMBER OF PARCELS:
43 CUSTOM RESIDENTIAL LOTS
64 CLUSTERED RESIDENTIAL LOTS
1 COMMERCIAL LOTS
5 OPEN SPACE LOTS
12 ACCESS LOTS
1 ROAD LOT
1 LIFT STATION LOT
127 TOTAL

MINIMUM PARCEL AREA:
2,000 S.F.

WATER SUPPLY:
EL DORADO IRRIGATION DISTRICT

SEWAGE DISPOSAL:
EL DORADO IRRIGATION DISTRICT

PROPOSED STRUCTURAL FIRE PROTECTION:
DIAMOND SPRINGS/EL DORADO F.P.D.

DATE:
APRIL 24, 2009
REVISED: SEPTEMBER 7, 2012
REVISED: FEBRUARY 2013
REVISED: MARCH 2016

PLANNING COMMISSION:

APPROVAL/DENIAL DATE:

BOARD OF SUPERVISORS:

APPROVAL/DENIAL DATE:

LEGEND:

P.U.E. PUBLIC UTILITIES EASEMENT

CHANNEL NUMBER (SEE REPORT BY SYCAMORE ENVIRONMENTAL CONSULTANTS)

DETENTION POND

OPEN SPACE

PAVED AREAS

LEBECK ▪ YOUNG ENGINEERING, INC.
3430 ROBIN LANE, BLDG. #2
CAMERON PARK, CA 95682
Ph. (530) 677-4080 Fax. (530) 677-4080

TENTATIVE MAP & DEVELOPMENT PLAN
MARCH 2016

Revised Environmental Noise Assessment

Piedmont Oaks

El Dorado County, California

Job# 2012-164

Prepared For:

Mr. Jim Davies

854 Diablo Road
Danville, CA 94526

Prepared By:

j.c. brennan & associates, Inc.

Jim Brennan
President
Member, Institute of Noise Control Engineering

March 6, 2013

llj.c. brennan & associates
IV\./VCn nmltan ts in tlCnusticJ

INTRODUCTION

The proposed Piedmont Oak Estates project is generally located east of Highway 49 and north Black Rice Lane in the unincorporated area of El Dorado County, known as Diamond Springs, California. The proposed project is a mixed use development with single family large and "patio" lot residential use, and two large commercial lots. Figure 1 shows the project site and an aerial of the project location. Figure 2 shows the project site plan.

Potential noise impacts upon the site include commercial and light industrial uses to the west, and across Highway 49 from the project site, and traffic on Highway 49. The project could result in increased traffic noise along the local roadway system, and some noise from potential commercial uses on the project site.

ACOUSTIC TERMINOLOGY

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

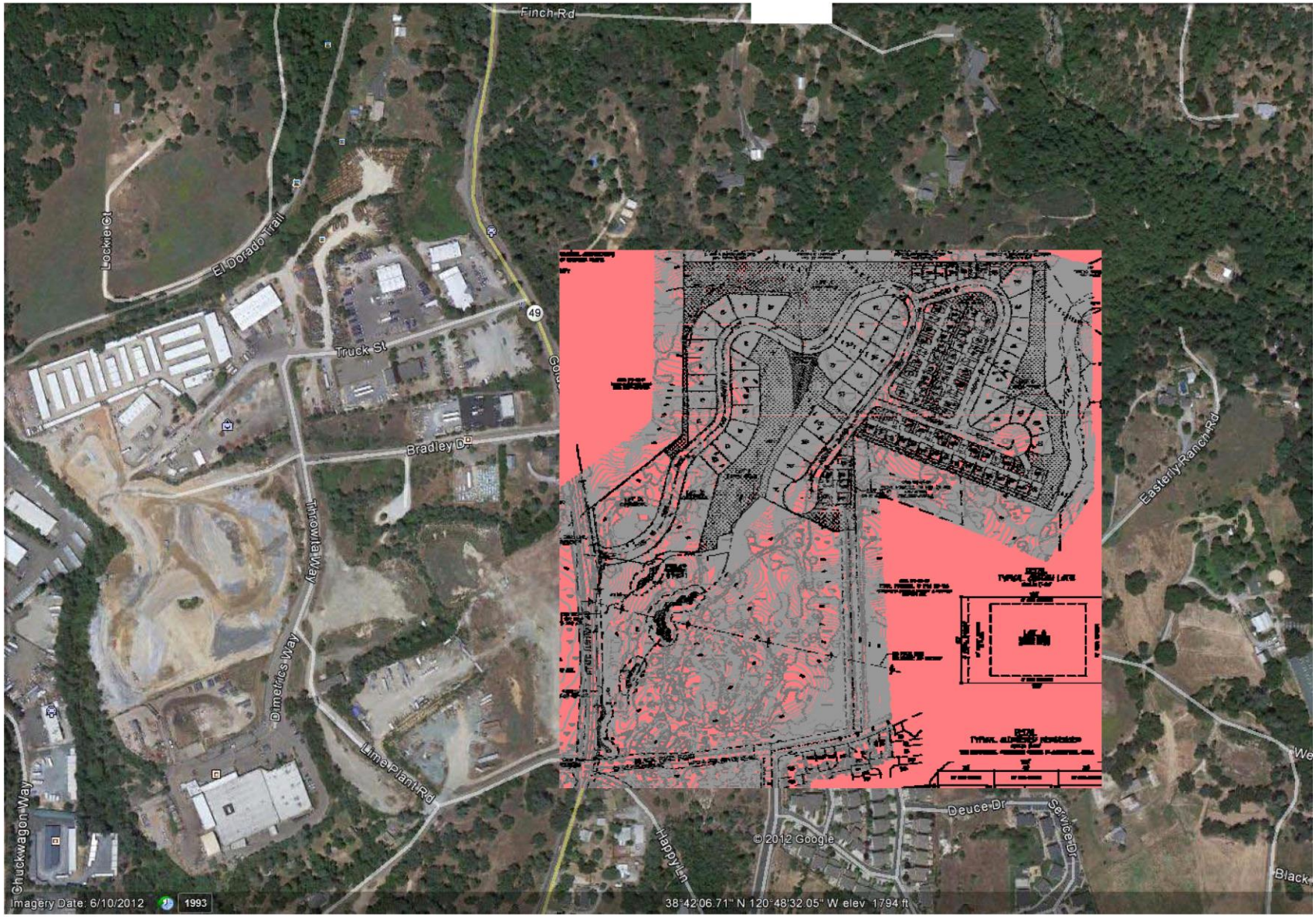
Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise can be highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

Figure 1

Project Site Location and Layout



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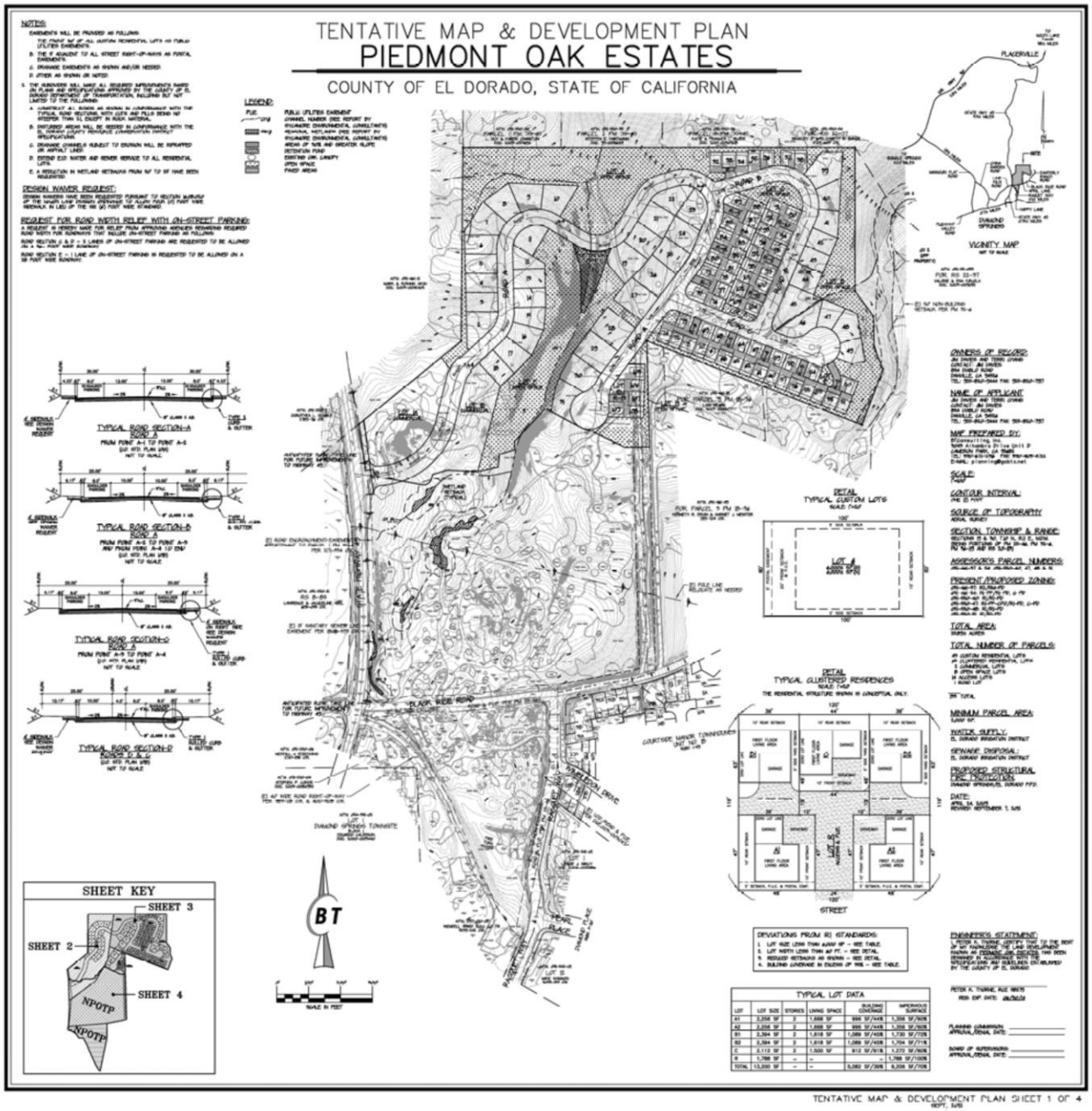
llj.c. brennan & associates
/VV"\./consultants in acoustics

Figure 2

Piedmont Oak Estates

Site Plan



j.c. brennan & associates
consultants in acoustics

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. Appendix A provides a summary of acoustical terms used in this report.

Table 1 Typical Noise Levels		
Common Outdoor Activities	**Noise Level (dBA)**	**Common Indoor Activities**
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing
Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. October 1998.		

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and

dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.
With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

CRITERIA FOR ACCEPTABLE NOISE EXPOSURE

Transportation Noise - (Highway 49)

The El Dorado County General Plan Noise Element establishes exterior and interior noise level standards for a variety of land uses affected by transportation noise sources. The El Dorado County Noise Element noise standards which would be applicable to this project are provided in Table 2. The criteria in Table 2 are applied at the outdoor activity area and interior spaces of residential land uses.

Table 2
El Dorado County General Plan Noise Element Standards Applicable at Residential Land Uses for Transportation Noise Sources

Land Use	Outdoor Activity Areas	Interior Spaces
Residential	60 dB Ldn[1]	45 dB Ldn

[1]For residential uses with front yards facing the identified noise source, an exterior noise level criterion of 65 dB Ldn shall be applied at the building façade, in addition to a 60 dB Ldn criterion at the outdoor activity area.

Source: Table 6-1 of the El Dorado County General Plan.

Table 6-1 of the El Dorado County Noise Element establishes an exterior noise level criterion of 60 dB Ldn at the outdoor activity area of residential land uses impacted by transportation noise sources. Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn may be allowed provided that available exterior noise level reduction measures have been implemented. In addition, an interior noise level criterion of 45 dB Ldn is applied to all residential land uses.

Non-Transportation Noise - *(Project Generated Noise)*

The El Dorado County General Plan Noise Element also contains goals and standards for non-transportation noise affecting existing noise-sensitive receptors.

Goal 6.5: ACCEPTABLE NOISE LEVELS

Ensure that County residents are not subjected to noise beyond acceptable levels.

Objective 6.5.1 PROTECTION OF NOISE-SENSITIVE DEVELOPMENT

Protect existing noise-sensitive developments (e.g. hospitals, schools, churches and residential) from new uses that would generate noise levels incompatible with those uses and, conversely, discourage noise-sensitive uses from locating near sources of high noise levels.

Policy 6.5.1.7

Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 6-2 for noise-sensitive uses.

Policy 6.5.1.13

When determining the significance of impacts and appropriate mitigation to reduce those impacts for new development projects, including ministerial development, the following criteria shall be taken into consideration:

A. In areas in which ambient noise levels are in accordance with the standards in Table 6-2, increases in ambient noise levels caused by new nontransportation noise sources that exceed 5 dBA shall be considered significant; and

B. In areas in which ambient noise levels are not in accordance with the standards in Table 6-2, increases in ambient noise levels caused by new nontransportation noise sources that exceed 3 dBA shall be considered significant.

Table 3
Noise Level Performance Protection Standards For Noise Sensitive Land Uses Affected by Non-Transportation Noise Sources

Noise Level Descriptor	Daytime 7 a.m. - 7 p.m.		Evening 7 p.m. - 10 p.m.		Night 10 p.m. - 7 a.m.	
	Community	Rural	Community	Rural	Community	Rural
Hourly L_{eq}, dB	55	50	50	45	45	40
Lmax, dB	70	60	60	55	55	50

Each of the noise levels specified above shall be lowered by five dB for simple noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

County can impose noise level standards which are up to 5 dB less than those specified above based upon determination of existing low ambient noise levels in the vicinity of the project site.

In Community areas the exterior noise level standard shall be applied to the property line of the receiving property. In Rural areas the exterior noise level shall be applied at a point 100 feet away from the residence.

Source: Table 6-2 of the El Dorado County General Plan.

The noise standards in Table 3 are divided into daytime hours (7 am to 7 pm), evening hours (7 pm to 10 pm), and nighttime hours (10 pm to 7 am).

EXISTING NOISE ENVIRONMENT

Existing Traffic Noise:

j.c. brennan & associates, Inc., utilizes the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) for the prediction of traffic noise levels. The model is based upon the CALVENO noise emission factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

On October 12, 2012, j.c. brennan & associates, Inc. conducted short-term noise level measurements and concurrent counts of traffic on Highway 49 on the project site. The purpose of the short-term traffic noise level measurements is to determine the accuracy of the FHWA model in describing the existing traffic noise environment on the project site, while accounting for shielding from existing intervening topography, actual travel speeds, and roadway grade. Noise measurement results were compared to the FHWA model results by entering the observed traffic volume, speed, and distance as inputs to the FHWA model.

Instrumentation used for the measurements was a Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter which was calibrated in the field before use with an LDL CA200 acoustical calibrator. The sound level meter was programmed to collect all noise level

data using the A-weighting filter and slow response. The equipment meets ANSI standards for Type 1 noise measurement equipment. The results of the traffic noise calibration process, which was conducted on the project site, is shown in Table 4. Based upon Table 4, the FHWA Model considerably over-predicted the traffic noise levels at the project site by 4 dBA. The reason was that the roadway grade is considerably below the project site, and the roadway embankment shields roadway traffic. A -3 dBA adjustment will be made to the predicted future traffic noise levels.

Table 4
Comparison of FHWA Model to Measured Traffic Noise Levels
Piedmont Oaks - El Dorado County

Vehicles/Hour.				Speed (mph)	Dist. (Feet)	Measured L_{eq}, dBA	Modeled L_{eq}, dBA*
Site	Autos	Med. Trk.	Hvy.Trk.				
Highway 49							
1	237	12	4	45	100	59.5	63.7
* Acoustically "soft" site assumed							

A complete listing of FHWA Model inputs and results are shown in Appendix B.

j.c. brennan & associates, Inc. utilized the calibrated FHWA traffic noise prediction model and existing traffic volumes contained in the project applicant's traffic study to predict existing traffic noise levels at various locations on the project site, and along the primary roadways. Truck percentages on Highway 49 were obtained from Caltrans. The predicted traffic noise levels and distances to traffic noise contours are shown in Table 5. A complete listing of the FHWA Model inputs and results are provided in Appendix B.

Table 5
Predicted Existing Traffic Noise Levels
Piedmont Oaks – El Dorado County, California

Location	Distance	Predicted Noise Level, Ldn	Distance to Noise Contours[1]		
			70 dB Ldn	65 dB Ldn	60 dB Ldn
Highway 49					
N. of Pleasant Valley @ Project Residential	400'	54 dBA	37 feet	79 feet	272 feet
N. of Pleasant Valley Project Commercial	100'	63 dBA	37 feet	79 feet	272 feet
West of Pleasant Valley	100'	61 dBA	26 feet	56 feet	121 feet
Pleasant Valley					
East of Highway 49	100'	58 dBA	16 feet	35 feet	75 feet
Missouri Flat Road					
W. of Future Diamond Springs Parkway	100'	62 dBA	29 feet	63 feet	135 feet
Diamond Springs Parkway					
Not Applicable	---	NA	NA	NA	NA

[1]Distances are measured from the roadway centerline. Contour distances are generalized and do not account for shielding from intervening buildings.
Source: j.c. brennan & associates, Inc., Caltrans, AECom Traffic Study.

Existing Industrial and Commercial Noise:

Existing commercial and light industrial uses to the west, and across Highway 49 include a materials recovery facility (MRF) and transfer station, auto body repair facility, mini storage facility, and a small sand and gravel operation. Each of these operations occur during the daytime hours. During the site visit, traffic noise at the residential portion of the project site was the dominant noise source, and noise from the commercial and light industrial uses were not contributing the exiting noise environment.

FUTURE NOISE ENVIRONMENT

Once again the FHWA traffic noise prediction model was used to predict Future (2025) traffic on the project site and on adjacent roadways. The project applicant's traffic study was used as direct inputs to the traffic noise prediction model. Appendix B provides the complete listing of the FHWA Model inputs. Table 6 provides the results of the analysis.

Table 6
Predicted Future (2025) Traffic Noise Levels
Piedmont Oaks – El Dorado County, California

Location	Predicted Ldn		Distance to Noise Contours[1]		
	No Project	W/Project	70 dB Ldn	65 dB Ldn	60 dB Ldn
Highway 49					
N. of Pleasant Valley @ Project Residential	55 dBA	55 dBA	41 feet	87 feet	188 feet
N. of Pleasant Valley Project Commercial	64 dBA*	64 dBA*	41 feet	87 feet	188 feet
West of Pleasant Valley	60 dBA*	60 dBA*	22 feet	47 feet	101 feet
Pleasant Valley					
East of Highway 49	60 dBA*	60 dBA*	22 feet	48 feet	103 feet
Missouri Flat Road					
W. of Future Diamond Springs Parkway	64 dBA*	65 dBA*	45 feet	96 feet	207 feet
Diamond Springs Parkway					
Not Applicable	63 dBA*	64 dBA*	38 feet	81 feet	175 feet

[1]Distances are measured from the roadway centerline. Contour distances are based upon 2025 With Project Scenario.
* Indicates the predicted noise level at 100 feet from the roadway centerline.
Source: j.c. brennan & associates, Inc., Caltrans, AECom Traffic Study.

Based upon the Table 6 data, the residential portion of the project site will comply with the exterior noise level standard of 60 dBA Ldn. The project will not contribute to a significant increase in traffic noise levels along Highway 49, Pleasant Valley Road, Missouri Flat Road and Diamond Springs Parkway.

Based upon a typical exterior to interior noise level reduction of 25 dBA, the interior noise levels at the residential portion of the project site will comply with the 45 dBA interior noise level criterion.

PROJECT NOISE GENERATION AND POTENTIAL NOISE IMPACTS

Noise impacts due to the proposed project were evaluated relative to the applicable El Dorado County noise standards. Noise generated by project-related activities was quantified through the application of accepted noise modeling techniques. Since no specific uses are proposed for the Commercially designated areas of the site, specific mitigation measures cannot be prescribed at this point.

Loading Dock Operations

Loading dock operations typically generate noise levels of approximately 63 dB Leq and 76 dB Lmax at a distance of 50 feet from the loading dock. The primary noise source associated with loading dock areas is typically heavy trucks stopping (air brakes), backing into the loading areas as necessary, and pulling out of the loading docks (revving engines) and fork lifts. The nearest proposed residential uses on the project site are Lots 2 and 18, which are directly adjacent to the commercial Lots A and B. Assuming a typical setback, the predicted noise levels would exceed the daytime noise level criteria of 55 dBA Leq and 70 dBA Lmax. Therefore, noise reduction measures could be warranted. A typical 8-foot tall wall will reduce overall noise levels by approximately 5 to 6 dBA. Therefore, a combination of a 100 foot setback from a loading dock, and an 8-foot tall property line barrier would reduce noise levels to within the daytime noise level criteria.

Parking Lot Circulation Noise Generation

Parking lots can be a source of noise. A typical SEL due to automobile arrivals and departures, including car doors slamming and people conversing is approximately 71 dB, with a maximum level of 63 dB Lmax, at a distance of 50 feet. Assuming a parking lot which has 100 spaces, and they are all utilized in one hour, the parking lot Leq noise level can be determined using the following formula:

$$\text{Peak Hour Leq} = 71 + 10 * \log(100) - 35.6, \text{dB}$$

71 is the mean sound exposure levels (SEL) for an automobile arrival or departure, and 10 * log(100) is 10 times the logarithm of the number of automobile and departures per hour, and 35.6 is 10 times the logarithm of the number seconds in an hour.

Based upon the calculation above, the predicted noise level due to parking lot activities is 55 dB Leq at a reference distance of 50 feet. the maximum noise level would be 63 dBA Lmax. Therefore, a typical parking lot of 100 spaces could comply with the daytime noise level standards.

Mechanical Equipment Noise

Generally, commercial uses include packaged roof-top HVAC units. A roof-top HVAC unit will provide approximately one ton of cooling per 250 sf. of space. Therefore, the cooling load for

2,000 square feet would be eight tons of cooling. Noise levels for the roof-top HVAC units were calculated based upon typical manufacturer data for packaged HVAC units.

Manufacturer data states that the Air-Conditioning and Refrigeration Institute (ARI) sound power rating for two four ton units would likely be 88 dBA for a modern HVAC unit. The hourly average noise level for the HVAC these units is predicted to be 48 dBA Leq at a distance of 100 feet.

Assuming a 3 foot tall building parapet, noise levels would be predicted to be reduced by 5.0 dBA.

CONCLUSION

A summary of the conclusions are as follows:

1) The project will not be exposed to roadway traffic noise levels which exceeds the exterior and interior noise level criteria of 60 dBA Ldn and 45 dBA Ldn, respectively;

2) The project will not be exposed to noise levels from nearby light industrial and commercial uses which will exceed the noise level standards;

3) The project will not result in a significant increase in roadway traffic noise levels;

4) The proposed commercial uses on the project site may result in noise levels which exceed the El Dorado County stationary noise level criteria.

The following mitigation measures are recommended:

1) When site plans and specific uses are proposed on Lots A and B, the applicants shall provide a noise analysis to ensure compliance with the El Dorado County noise level criteria. The noise analyses shall evaluate any potential loading dock operations, truck circulation, parking lot activity and HVAC noise levels. If additional noise sources are identified, they must also be reviewed.

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the AMaximum@ level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Calibration Worksheet

Project Information:	Job Number:	2012-164
	Project Name:	Piedmont Oaks
	Roadway Tested:	Hwy 49
	Test Location:	_____
	Test Date:	October 12, 2012
Weather Conditions:	Temperature (Fahrenheit):	60
	Relative Humidity:	Dry
	Wind Speed and Direction:	5-10 from West
	Cloud Cover:	ptly cloudy
Sound Level Meter:	Sound Level Meter:	LDL Model 820
	Calibrator:	LDL Model CA200
	Meter Calibrated:	Immediately before and after test
	Meter Settings:	A-weighted, slow response
Microphone:	Microphone Location:	On Project Site
	Distance to Centerline (feet):	100
	Microphone Height:	5 feet above ground
	Intervening Ground (Hard or Soft):	**Soft**
	Elevation Relative to Road (feet):	10
Roadway Condition:	Pavement Type	Asphalt
	Pavement Condition:	Good
	Number of Lanes:	2
	Posted Maximum Speed (mph):	45
Test Parameters:	Test Time:	12:00 PM
	Test Duration (minutes):	15
	Observed Number Automobiles:	237
	Observed Number Medium Trucks:	12
	Observed Number Heavy Trucks:	4
	Observed Average Speed (mph):	45
Model Calibration:	Measured Average Level (L_{eq}):	59.5
	Level Predicted by FHWA Model:	63.7
	Difference:	***4.2 dB***

Conclusions:

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Appendix B

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2012-164
Description: Existing Piedmont Oaks
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Highway 49	Project Site Residential	15,860	85		15	7	3	45	400	-3
2	Highway 49	Project Site Commercial	15,860	85		15	7	3	45	100	-3
3	Highway 49	West of Pleasant Valley	11,210	85		15	7	3	25	100	
4	Pleasant Valley	East of Highway 49	10,870	85		15	3	1	25	100	
5	Missouri Flat	W. of Future Diamons Springs Pky	14,500	85		15	3	1	35	100	
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Appendix B

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2012-164
Description: Existing Piedmont Oaks
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Highway 49	Project Site Residential	51.1	48.3	49.1	54
2	Highway 49	Project Site Commercial	60.2	57.3	58.1	63
3	Highway 49	West of Pleasant Valley	54.3	54.8	58.8	61
4	Pleasant Valley	East of Highway 49	54.4	51.0	53.9	58
5	Missouri Flat	W. of Future Diamons Springs Pky	59.9	54.5	55.0	62

Appendix B

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2012-164
Description: Existing Piedmont Oaks
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Distances to Traffic Noise Contours 75	70	65	60	55
1	Highway 49	Project Site Residential	17	37	79	171	367
2	Highway 49	Project Site Commercial	17	37	79	171	367
3	Highway 49	West of Pleasant Valley	12	26	56	121	260
4	Pleasant Valley	East of Highway 49	7	16	35	75	161
5	Missouri Flat	W. of Future Diamons Springs Pky	14	29	63	135	292

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Appendix B

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2012-164
Description: Future No Project Piedmont Oaks
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Highway 49	Project Site Residential	17,741	85		15	7	3	45	400	-3
2	Highway 49	Project Site Commercial	17,741	85		15	7	3	45	100	-3
3	Highway 49	West of Pleasant Valley	8,366	85		15	7	3	25	100	
4	Pleasant Valley	East of Highway 49	16,958	85		15	3	1	25	100	
5	Missouri Flat	W. of Future Diamons Springs Pky	25,122	85		15	3	1	35	100	
6	Pleasant Valley Pkwy	W. of Highway 49	19,072	85		15	3	1	35	100	
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2012-164
Description: Future No Project Piedmont Oaks
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Highway 49	Project Site Residential	51.6	48.8	49.6	55
2	Highway 49	Project Site Commercial	60.6	57.8	58.6	64
3	Highway 49	West of Pleasant Valley	53.0	53.6	57.5	60
4	Pleasant Valley	East of Highway 49	56.4	52.9	55.8	60
5	Missouri Flat	W. of Future Diamons Springs Pky	62.3	56.9	57.4	64
6	Pleasant Valley Pkwy	W. of Highway 49	61.1	55.7	56.2	63

Appendix B

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2012-164
Description: Future No Project Piedmont Oaks
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Distances to Traffic Noise Contours 75	70	65	60	55
1	Highway 49	Project Site Residential	18	40	85	184	396
2	Highway 49	Project Site Commercial	18	40	85	184	396
3	Highway 49	West of Pleasant Valley	10	21	46	99	214
4	Pleasant Valley	East of Highway 49	10	22	47	101	217
5	Missouri Flat	W. of Future Diamons Springs Pky	20	42	91	195	421
6	Pleasant Valley Pkwy	W. of Highway 49	16	35	75	163	350

Appendix B

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2012-164
Description: Future with Project Piedmont Oaks
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Highway 49	Project Site Residential	18,390	85		15	7	3	45	400	-3
2	Highway 49	Project Site Commercial	18,390	85		15	7	3	45	100	-3
3	Highway 49	West of Pleasant Valley	8,540	85		15	7	3	25	100	
4	Pleasant Valley	East of Highway 49	17,570	85		15	3	1	25	100	
5	Missouri Flat	W. of Future Diamons Springs Pky	27,350	85		15	3	1	35	100	
6	Pleasant Valley Pkwy	W. of Highway 49	21,300	85		15	3	1	35	100	
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2012-164
Description: Future with Project Piedmont Oaks
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Highway 49	Project Site Residential	51.8	48.9	49.7	55
2	Highway 49	Project Site Commercial	60.8	58.0	58.8	64
3	Highway 49	West of Pleasant Valley	53.1	53.6	57.6	60
4	Pleasant Valley	East of Highway 49	56.5	53.1	56.0	60
5	Missouri Flat	W. of Future Diamons Springs Pky	62.7	57.3	57.7	65
6	Pleasant Valley Pkwy	W. of Highway 49	61.6	56.2	56.6	64

Appendix B

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2012-164
Description: Future with Project Piedmont Oaks
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Distances to Traffic Noise Contours 75	70	65	60	55
1	Highway 49	Project Site Residential	19	41	87	188	405
2	Highway 49	Project Site Commercial	19	41	87	188	405
3	Highway 49	West of Pleasant Valley	10	22	47	101	217
4	Pleasant Valley	East of Highway 49	10	22	48	103	222
5	Missouri Flat	W. of Future Diamons Springs Pky	21	45	96	207	446
6	Pleasant Valley Pkwy	W. of Highway 49	18	38	81	175	377

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Piedmont Oak Estates
Subdivision
APN:
051-550-40, 47- 48 & 51

Wildland Fire Safe Plan

Prepared for:

Jim Davies

Prepared by:

CDS Fire Prevention Planning
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#898
4645 Meadowlark Way
Placerville, CA 95667

December 6, 2012

ATTACHMENT 14

Z12-0010 / PD12-0002

TM12-1510

Piedmont Oak Estates

Approved by:

Rob Coombs, Fire Chief
Fire Marshal
Diamond Springs/El Dorado
Fire Protection District

1-22-13
Date

Darin McFarlin, Fire Captain
Fire Prevention
California Department of
Forestry and Fire Protection

1-22-13
Date

Prepared by:

William F. Draper
RPF #898

1-22-13
Date

CONTENTS

I. PURPOSE AND SCOPE

Communities are increasingly concerned about wildfire safety. Drought years coupled with flammable vegetation and annual periods of severe fire weather insure the potential for periodic wildfires.

The purpose of this plan is to assess the wildfire hazards and risks of the Piedmont Oak Estates, to identify measures to reduce these hazards and risks and protect the native vegetation. There are light to moderate fuel hazards and gentle topography associated with this proposed project both on and adjacent to the project.

The possibility of large fires occurring when the subdivision is complete will be greatly reduced. However, small wildfires in the open space areas and on the larger lots may occur due to the increase in public uses.

Incorporation of the fire hazard reduction measures into the design and maintenance of the future parcels will reduce the size and intensity of wildfires and help prevent catastrophic fire losses. State and County regulations provide the basic guidelines and requirements for fire safe mitigation measures and defensible space around dwellings. This plan builds on these basic rules and provides additional fire hazard reduction measures customized to the topography and vegetation of the development with special emphases on the interface of homes and wildland fuels.

The scope of the Piedmont Oak Estates Wildland Fire Safe Plan recognizes the extraordinary natural features of the area and designs wildfire safety measures which are meant to compliment and become part of the community design. The Plan contains measures for providing and maintaining defensible space around future homes and open space. Plan implementation measures must be maintained in order to assure adequate wildfire protection.

Homeowners who live in and adjacent to the wildfire environment must take primary responsibility along with the fire services for ensuring their homes have sufficient low ignitability and surrounding fuel reduction treatment. The fire services should become a community partner providing homeowners with technical assistance as well as fire response. For this to succeed it must be shared and implemented equally by homeowners and the fire services.

II. FIRE PLAN LIMITATIONS

The Wildland Fire Safe Plan for Piedmont Oak Estates does not guarantee that wildfire will not threaten, damage or destroy natural resources, homes or endanger residents. However, the full implementation of the mitigation measures will greatly reduce the exposure of homes to potential loss from wildfire and provide defensible space for firefighters and residents as well as protect the native vegetation. Specific items are listed for homeowner's attention to aid in home wildfire safety.

III. PIEDMONT OAK ESTATES WILDLAND FIRE SAFE PLAN

1. PROJECT DESCRIPTION

Piedmont Oak Estates is located east of Highway 49 and north of Black Rice Road. April Lane borders a portion of the subdivision along the east side.. A new road, Road "A", providing access to the new lots is to be constructed approximately .1 mile north of Black Rice Road and intersect Hwy 49 just south of Bradley Drive. Private property borders the project on the north, east and south. Black Rice Road, the existing road, is 18' wide of travel surface with shoulders and the necessary drainage ditches. A secondary road, Road "D", providing access from Road "A" to Black Rice Road will be built providing two way access. This road will be approximately .2 miles long. Road "D" is being proposed as a DOT 101C road (20'plus shoulders). It shall be posted with "No Parking". All roads shall have rolled curbs on one or both sides to allow for better vehicle passage. With open space to the north and south of Black Rice Road, Racquet Way should be connected to provide additional emergency access. This access is needed since the distance from Black Rice Road and Road "A" is less than ¼ mile and therefore not consistent with The Land Design Manual (LSDM). Racquet Way is currently barricaded at Black Rice Road. Interior roads "B" and "C" will connect to "A". No new road will be a dead end road over 800' without second access. Posting of the Emergency Access road is being proposed instead of a locked gate at the end of road "A". Locked gates on access roads are not acceptable to the fire agencies since this would constitute a long dead end road which would violate the County Fire Safe Regulations. The roads will be constructed to El Dorado County Department of Transportation (DOT), Fire Safe and LDMS standards. A design waiver is being proposed by the developer to allow on street parking on one side of 28' roads and parking on both sides of 36' wide roads.

- Road "A" 36' Parking on both sides, rolled curbs and fire hydrant turnouts.
- Road "B" 28' Parking on one side, rolled curb on the opposite side and posted "No Parking" with fire hydrant turnouts.
- Road "C" 28' Parking on one side, rolled curb on the opposite side and posted "No Parking" with fire hydrants turnouts.
- Road "D" 20' Posted "No Parking" rolled curb on both sides and fire hydrant turnouts.
- All driveways/alleys for the clustered units shall be posted "No Parking".

Turnouts at each fire hydrant and clustered parking at the high density housing area should be required. The turnout will conform to fire department and DOT standards. The project shall be served by El Dorado Irrigation District (EID). All fire hydrant locations and spacing shall be determined by Diamond Springs Fire and the Residential Fire Code. There is not any road work anticipated to Black Rice Road beyond the normal encroachment and clearing of a fuel hazard reduction zone. Any private gate shall meet the requirements for Diamond Springs Fire. A fuel hazard reduction zone along the entire length of the roads in and adjacent to the project and around the perimeter of the project will be needed. The project is proposing to split parcels APN: 051-550-40, 47, 48 and 51 totaling 25.89 acres into 43 custom lots, 65 clustered lots, 2 commercial lots, and 8 open space lots. All the lots shall have water provided by EID.

The clustered units will have a common alley between rows of units extending the entire block with driveways serving a 5 unit cluster (normally). Each unit has designated parking. No parking will be allowed in the alleys or driveways serving the clusters.

A tank farm of central propane tanks will serve the cluster units in this development as well as the small custom lots. Due to the setback requirements for propane tanks, the tank farm concept is the only practical way to distribute propane to all the lots with houses. Propane tanks require 10' setback from the property line and 10' from any structure. They also must have a 10' setback from any ignition source such as the electric meter. The commercial lots will have individual tanks. The

preferred system would have underground tanks inside an enclosed area for the tank farm. This area would be landscaped and maintained. Each residence would have its own gas meter.

A Lighting and Landscape District (LLD) shall be formed for the purpose of maintaining the fuel hazard reduction zones along the new roads and open spaces, interior road maintenance, landscaped areas, and signage. Annual maintenance is essential for keeping fire safe conditions viable.

The Diamond Springs/El Dorado Fire Protection District provides all fire and emergency medical services to this project. The California Department of Forestry and Fire Protection (CAL FIRE) has wildland fire responsibility in this state responsibility area (SRA).

2. PROJECT VEGETATION (FUELS)

For wildfire planning purposes the vegetation is classified as follows:

(a) ground fuels- annual grasses, manzanita, toyon, blackberries and buckeye with downed limbs (Brush)

(b) overstory- ponderosa pine, gray pine, liveoak with scattered black oaks.

In general, the property gently slopes to the east and west with most slopes less than 10%. Lots 11 to 17 have steeper east facing slopes up to approximately 25%. There is a seasonal drainage running through Open Space Lot F with steep slopes. Fire hazard reduction of the fuels will be extremely important around the house sites and surrounding areas. Ladder fuels in all open spaces need to be eliminated. Sprouting will bring back the problem of ladder fuels. Sprout treatment and pruning of the overstory trees will be needed to reduce the fire hazard. Limbing of trees is important to reduce their susceptibility from a ground fire. Tree spacing on the slopes is a critical component to attaining the required fire safe clearances. A separation of the brush fuels and trees are essential for creating the defensible space around the residence and along the perimeter. CDF guidelines for the 100 foot clearance requirements are attached.

3. PROBLEM STATEMENTS

A. The brush fuels on the slopes will ignite and have a rapid rate of spread.

Fire in the grass and brush fuels on the slopes is the most serious wildfire problem for this project.

B. Risk of fire starts will increase with development.

The greatest risk from fire ignition will be along roads and on large lots as human activity increases in these areas.

C. Provisions must be made to maintain all fuel treatments.

The wildfire protection values of fuel reduction are rapidly lost if not maintained. Continued review of potential ladder fuels to maintain a fire safe environment is very important. Annual maintenance by June 1 of each year is necessary.

D. Typical home design and siting often does not recognize adequate wildfire mitigation measures.

A review of many wildfires has conclusively shown that most home losses occur when: (1) there is inadequate clearing of flammable vegetation around a house, (2) roofs are not fire

resistant, (3) homes are sited in hazardous locations, (4) firebrand ignition points and heat traps are not adequately protected and (5) there is a lack of water for suppression.

4. GOALS

A. Modify the continuity of high hazard vegetation fuels.
B. Reduce the size and intensity of wildfires.
C. Ensure defensible space is provided around all structures.
D. Design fuel treatments to minimize tree removal.
E. Ensure fuel treatment measures are maintained.
F. Identify fire safe structural features.
G. Help homeowners protect their homes from wildfire.

5. WILDFIRE MITIGATION MEASURES

Wildfire mitigation measures are designed to accomplish the Goals by providing and maintaining defensible space and treating high hazard fuel areas. Fire hazard severity is reduced through these mitigation measures. The Wildland Fire Safe Plan places emphasis on defensible space around structures and project perimeter.

Fuel hazard reduction zones (FHRZ) of at least 20 feet in width shall be installed around the perimeter of the project and a 10 foot fuel hazard reduction zone along both sides of the roads. All open space perimeters shall have a 20' FHRZ adjacent to backyards. Sidewalks and planted landscaping may be a part of the FHRZ. The propane tank farm shall have a 20' FHRZ around its perimeter and the interior shall be kept free of high weeds and brush. Low fuel ground cover would be a good alternative to bare ground. Any tree canopy over the roads and driveways will have 15' of vertical clearance over the roadways.

All residences shall be required to have NFPA 13D fire sprinkler systems. The project is located in a Moderate Fire Hazard Severity Zone. Implementation of Wildland-Urban Interface Fire Areas Building Standards will be required for the construction of new residences. These standards address roofing, venting, eave enclosure, windows, exterior doors, siding, and decking.

Clearance along the road and around structures is very important and necessary. Fire Safe specifications state that all trees in the fuel treatment zones shall be thinned so the crowns are not touching. Branches on remaining trees shall be pruned up 10 feet as measured on the uphill side of the tree. Brush shall be removed. Grasses shall be kept mowed to a 2 inch stubble annually by June 1. Any tree crown canopy over the driveways shall be pruned at least 15 feet up from the driveway surface.

This zone is in addition to the clearances required by state law. The State required Fire Safe clearances (PRC 4291) shall be implemented around all structures (See CDF Guideline). Clearances may be required at the time of construction by the County.

More restrictive standards may be applied by approving El Dorado County Authorities. Approval of this plan does not by itself guarantee approval of this project.

Mitigation Measures:

- Driveways shall be 12 feet wide. Driveways shall comply with the DOT weight standards.
    a. Responsibility- homeowner

- All private driveway gates on custom lots shall be inset on the driveway at least 30 feet from the road. Gate opening shall be 2 feet wider than the driveway. Knox lock assess shall be provided to the fire department.
    a. Responsibility- homeowner

- All homes shall have Class A listed roof covering.
    a. Responsibility- homeowner

- Decks that are cantilevered over the natural slope shall be enclosed.
    a. Responsibility- homeowner (See Appendix C for guidelines)

- The houses shall be constructed with exterior wall sheathing that shall be rated noncombustible.
    a. Responsibility-developer

- Windows and glass doors on the sides of the structure shall have tempered glass and fire resistant frames.
    a. Responsibility-builder

- Rafter tails shall be enclosed with noncombustible material on the sides of the structure.
    a. Responsibility-builder

- Gutters and downspouts shall be noncombustible.
    a. Responsibility-builder

- Attic and floor vents shall be covered with ¼ inch, or less, noncombustible mesh and horizontal to the ground.
    a. Responsibility-builder

6. OTHER FIRE SAFE REQUIREMENTS

A. New roadways, turnouts, alleys, and driveway shall be constructed only after consulting with Diamond Springs Fire, DOT and consulting El Dorado County Design Standard for specifications (See Attachment). A design waiver may be requested.

B. Each new property owner prior to construction shall be required to contact El Dorado County Planning Services/Building Department to have the residential fire sprinklers plans approved. All fire sprinkler systems shall be designed and installed by a licensed contractor.

C. Any new road and turnout shall be built to DOT standards. Driveways can only serve one parcel except in the clustered units.

D. 20' fuel hazard reduction zone along the perimeter of the project, both sides of the open spaces, around the tank farm and 10' on both sides of the roads shall be installed and annually maintained by June 1 to the Fire Safe specifications. Tree canopy over the road and driveways shall be cleared up 15'.

E. The developer shall file with DOT to get the roads named and have the names posted at the intersections.

F. A Lighting and Landscape District (LLD) shall be formed for the specific purpose of maintaining the fuel hazard reduction zones along the roads, perimeter, open space and tank farm annually by June 1 in addition to other specific needs of the Fire District.

G. Roads shall be posted "No Parking" on both sides of the road unless a design waiver is approved. Posting on one side as determined in the design waiver.

H. If the parking design waiver is granted, turnouts at each fire hydrant location on roads "A", "B", "C", and "D" shall be installed and meet fire department specifications.

I. Rolled curbs shall be used on all roads as specified to allow for safe vehicle passage on roads narrower than fire code requirements.

J. A Notice of Restriction shall be filed with the final parcel map which stipulates that a Wildland Fire Safe Plan has been prepared and wildfire mitigation measures must be implemented.

K. The project shall meet all the Public Resource Codes 4290 as amended (the 1991 SRA Fire Safe Regulations- Article 2 Access, Article 3 Signing, Article 4 Water, Article 5 Fuels), County and Fire Department ordinances.

L. The home/property owners are responsible for any future fire safe or building code changes adopted by the State or local authority.

M. Only fire rated composite deck material, wood or non-combustibles shall be allowed for decks.

V. Appendix

APPENDIX A

PIEDMONT OAK ESTEATES

FUEL TREATMENT SPECIFICATIONS
For
OAK WOODLAND
Within The Designated Fuel Treatment Areas

1. Leave all live trees where possible.

2. Remove all dead trees.

3. Remove all brush.

4. Prune all live trees of dead branches and green branches 10 feet from the ground as measured on the uphill side of the tree, except no more than 1/3 of the live crown is removed. All slash created by pruning must be disposed of by chipping or hauling off site.

5. Annually by June 1, reduce the grass or weeds to a 2 inch stubble by mowing, chemical treatment, disking or a combination of treatments.

6. Conifers within 30 feet of a house shall be removed. Those pines in the open space shall be isolated with no brush understory within the dripline of the tree.

APPENDIX B

PIEDMONT OAK ESTATES

ENCLOSED DECK GUIDELINES

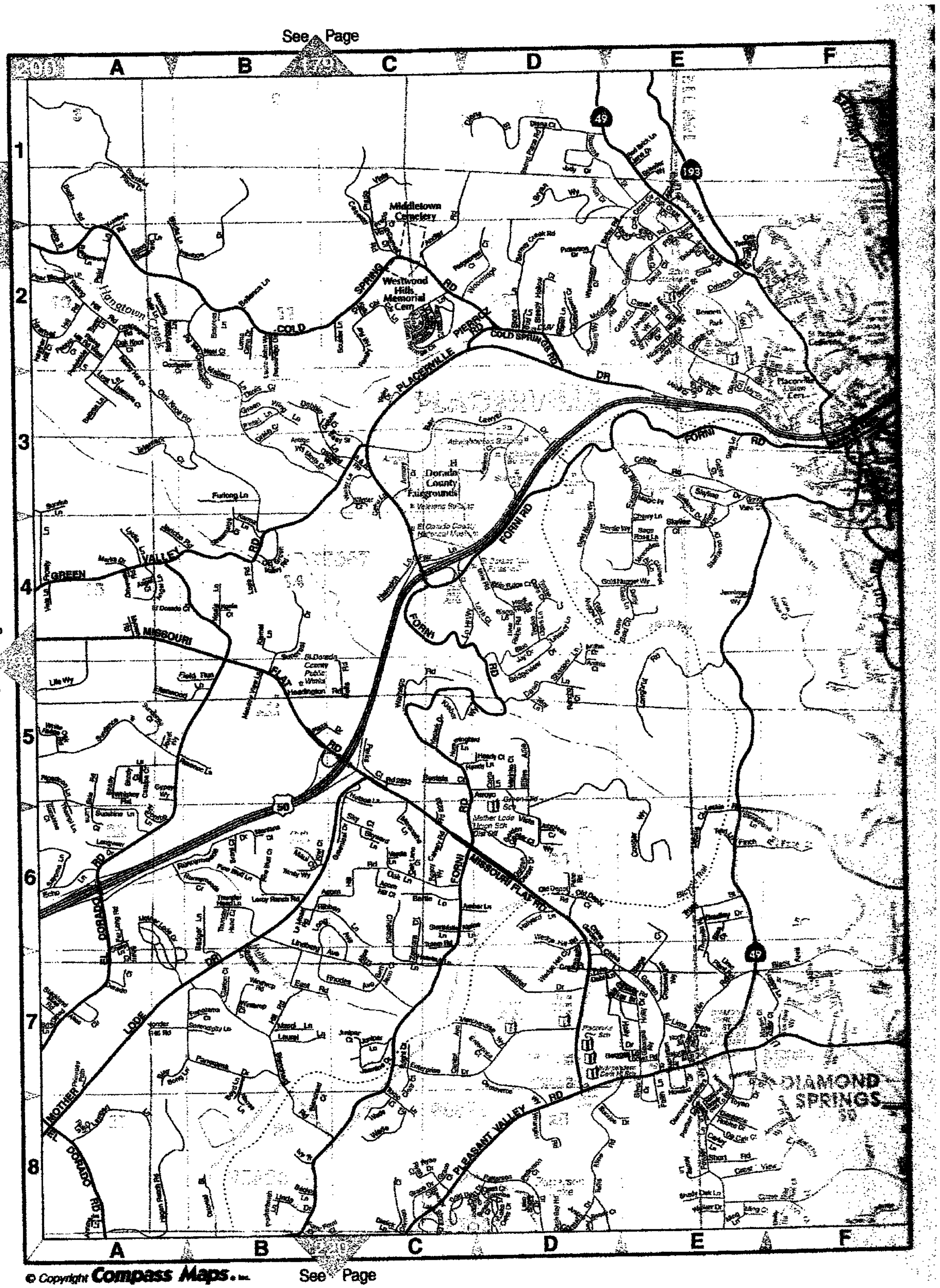
The purpose of enclosing the underside of decks that are cantilevered out over the natural slope is to help prevent heat traps and fire brands from a wildfire igniting the deck or fuels under the deck.

1. Does not apply to decks that are constructed using fire resistant materials such as concrete, steel, stucco etc.

2. Any deck shall not include non fire rated composite deck material.

3. This applies to decks one story or less above natural slopes.

4. Combustible material must not be stored under the deck.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Middletown Cemetery
Westwood Hills Memorial Cem
COLD SPRING RD
PLACERVILLE DR
FORNI RD
El Dorado County Fairgrounds
GREEN VALLEY
MISSOURI FLAT RD
PLEASANT VALLEY RD
EL DORADO RD
MOTHER LODE DR
DIAMOND SPRINGS
See Page
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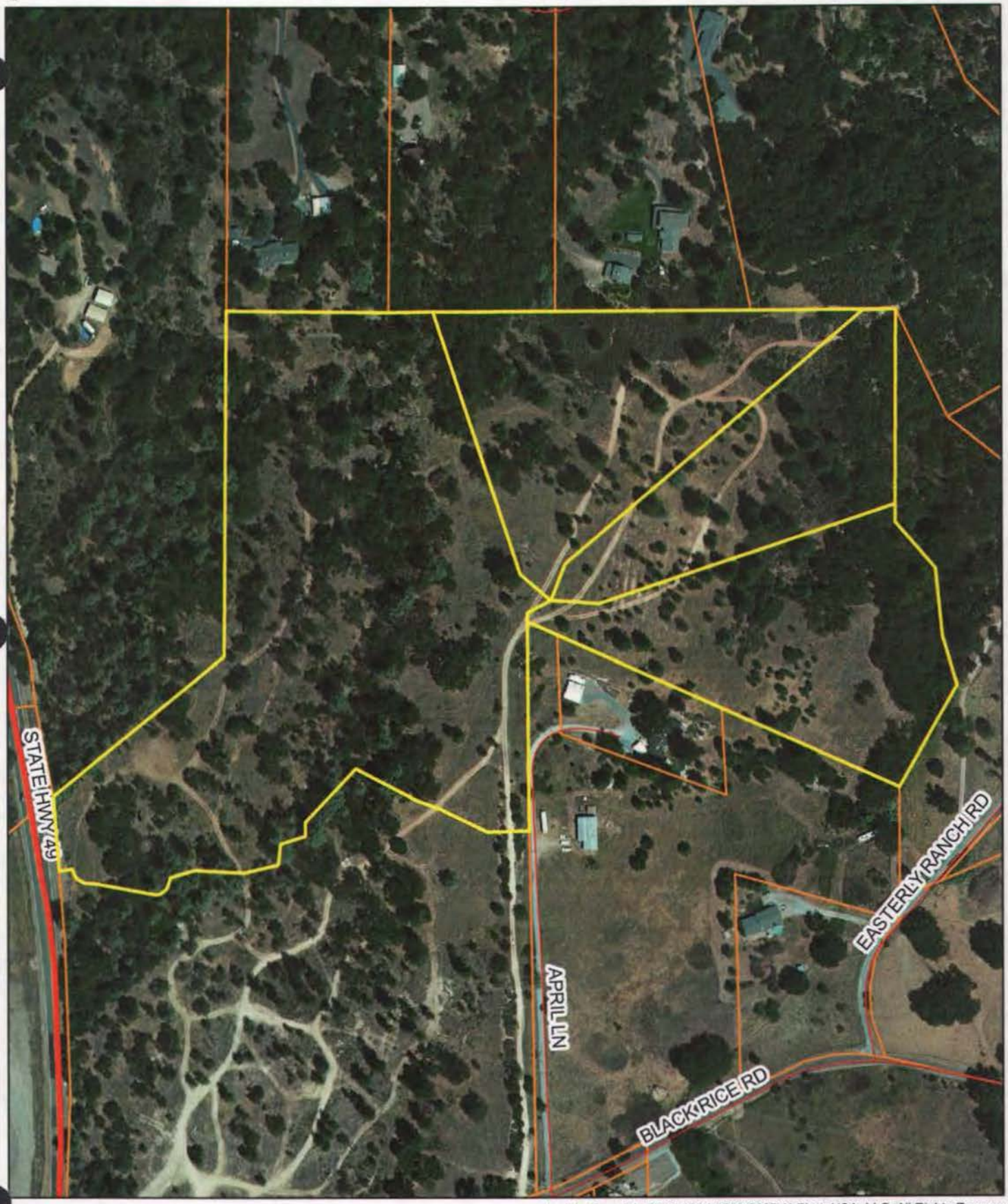
Apn's: 05155040, 05155047, 05155048, 05155051



Disclaimer: This depiction was compiled from unverified public and private sources and is illustrative only. No representation is made as to accuracy of this information. Parcel boundaries are particularly unreliable. Users make use of this depiction at their own risk.

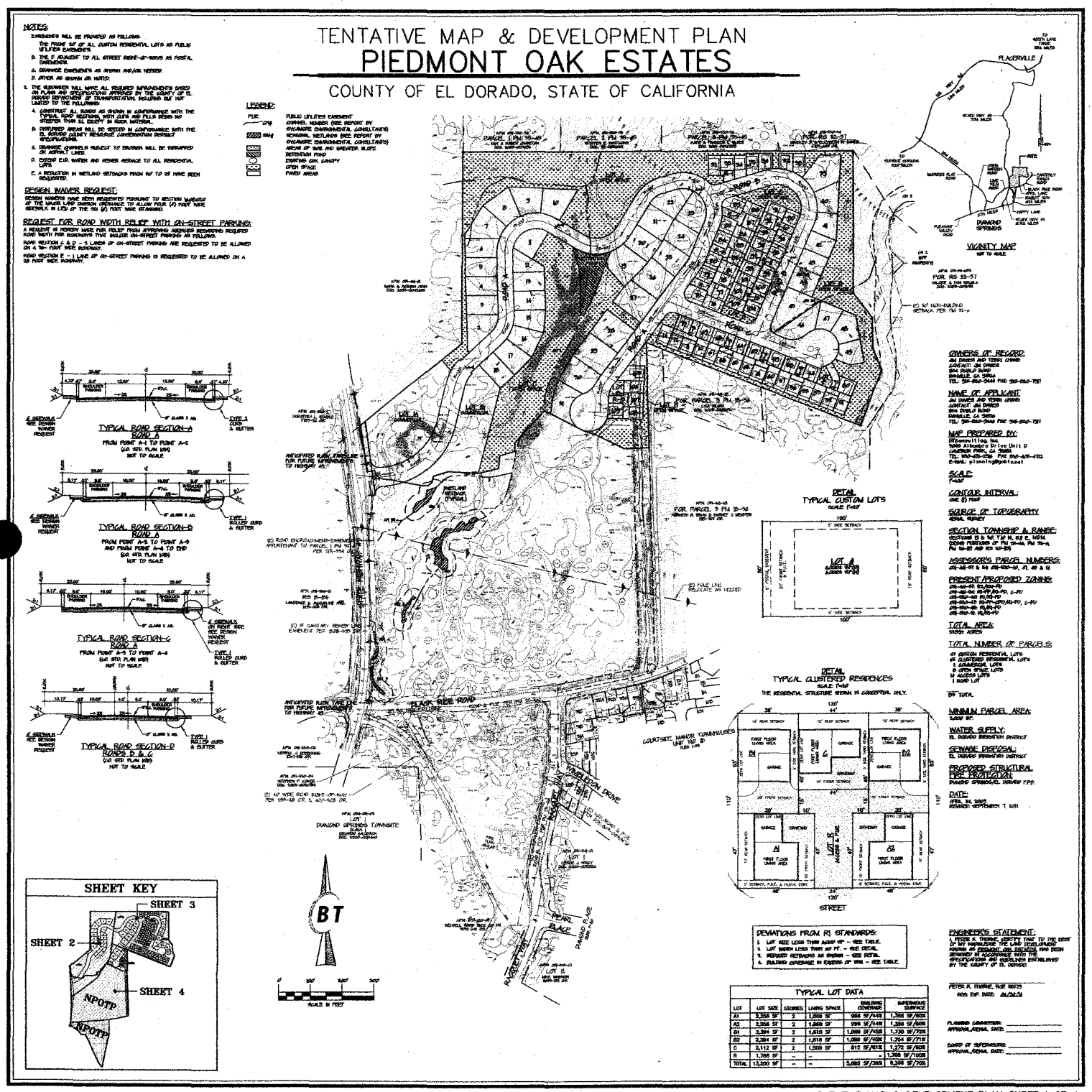
Printed on 1/4/2013 from El Dorado County Surveyor's Office

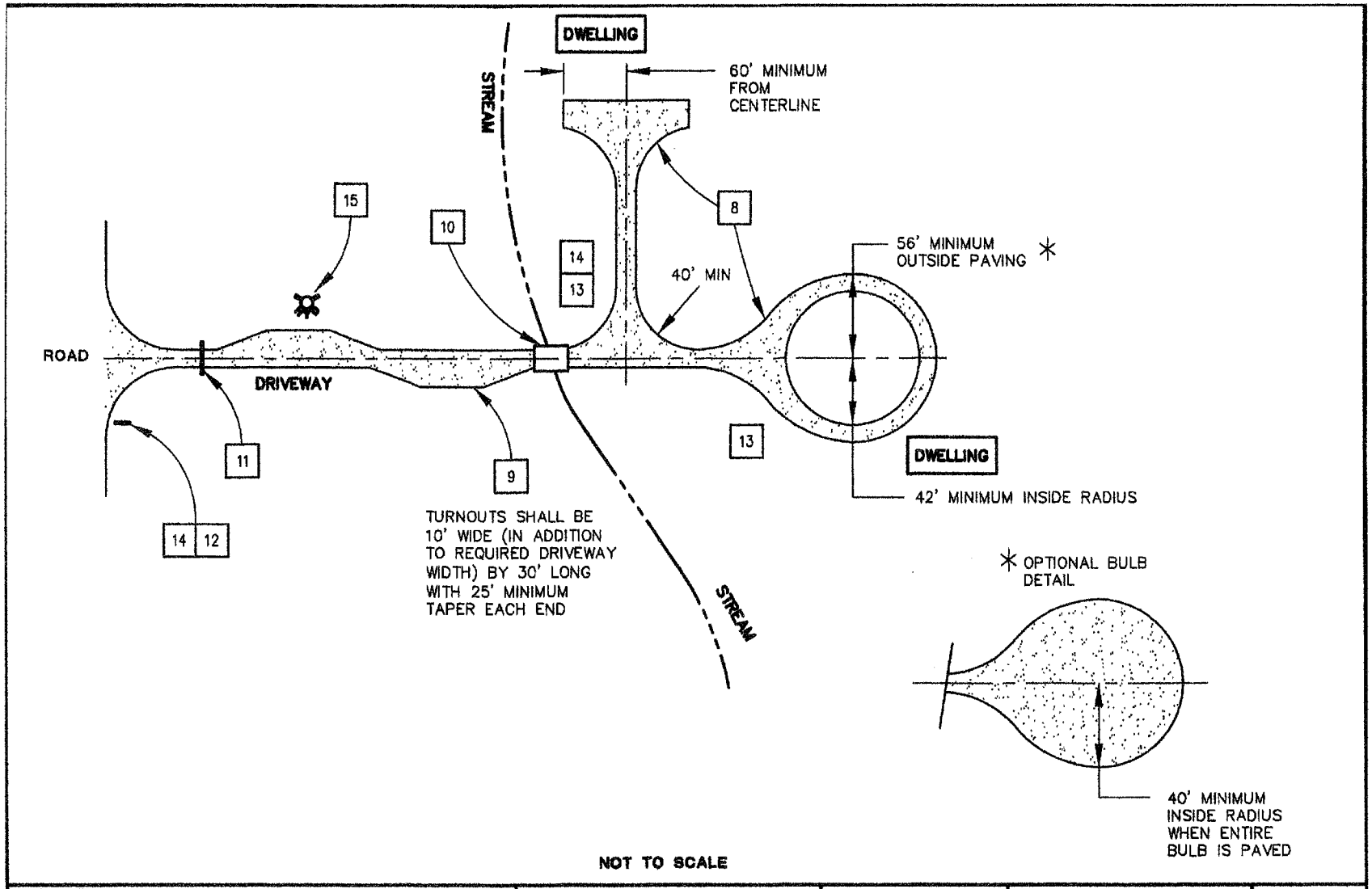
N W E S

0 175 350 525
Feet

Map projected in State Plane Coordinate System (NAD 1983 California Zone 2, feet)

TENTATIVE MAP & DEVELOPMENT PLAN
PIEDMONT OAK ESTATES
COUNTY OF EL DORADO, STATE OF CALIFORNIA





APPROVED BY:

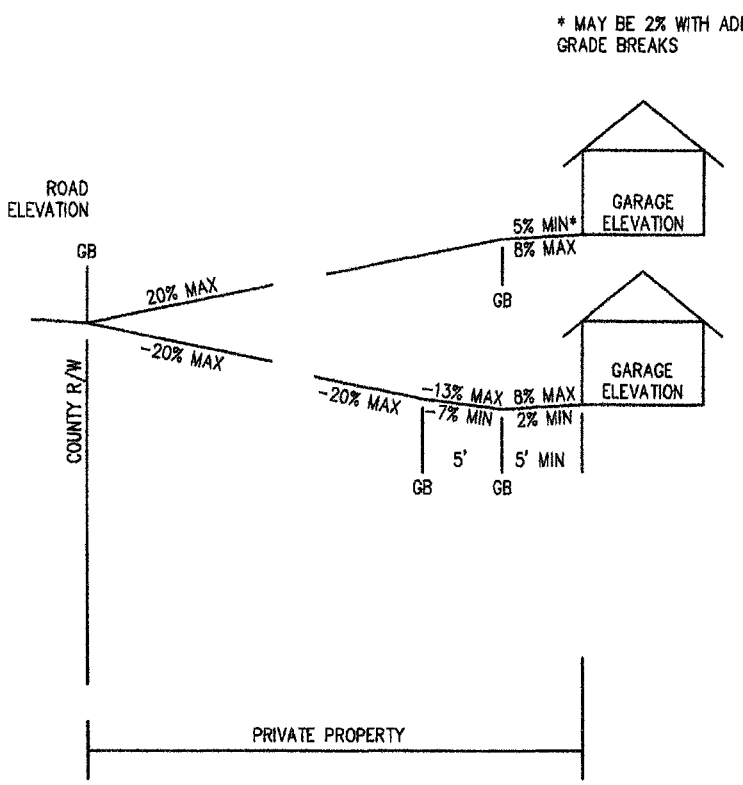
JAMES W. WARE, P.E. NO. C61036 DATE:
INTERIM DIRECTOR, EL DORADO COUNTY DEPARTMENT OF TRANSPORTATION

BOARD OF SUPERVISOR'S RESOLUTION NO. _____

EL DORADO COUNTY
DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS

RURAL RESIDENTIAL DRIVEWAY

STD. PLAN
RS-68
SHT 1 OF 2



DRIVEWAY GRADES STANDARDS

NOT TO SCALE

NOTES:

1. MAXIMUM 15% GRADE BREAK BETWEEN DRIVEWAY SECTIONS (I.E. AREAS IN DRIVEWAY WHERE GRADE CHANGES). ADDITIONAL GRADE BREAKS ARE ALLOWED.
2. DRIVEWAY CONNECTING TO A COUNTY MAINTAINED ROAD REQUIRES A COUNTY ISSUED ENCROACHMENT PERMIT. SEE APPLICABLE ENCROACHMENT STANDARD PLAN
3. EACH DRIVEWAY SHALL SERVE NO MORE THAN TWO BUILDINGS WITH NO MORE THAN THREE DWELLING UNITS ON A SINGLE PARCEL, AND ANY NUMBER OF ACCESSORY BUILDINGS.
4. GRADE NOT TO EXCEED 16%. (DRIVEWAY GRADE MAY BE UP TO 20%, WHEN PAVED), 12' WIDE MINIMUM. CENTERLINE RADIUS ON CURVES IS 50' MINIMUM. VERTICAL CLEARANCE OF 15' MINIMUM.
5. DRIVEWAY SURFACE MUST BE ALL-WEATHER AND SUPPORT 75,000 POUNDS. MINIMUM SURFACING ON 90% COMPACTED SOIL IS 6" AGGREGATE BASE. ALTERNATE SURFACING DESIGNS MAY BE PERMITTED FROM A CIVIL ENGINEER CERTIFYING THE DRIVEWAY WILL SUPPORT A 75,000 POUND LOAD AND BE ALL-WEATHER.
6. DRIVEWAYS AT OR ABOVE 3,000 FT ELEVATION: SHALL INCLUDE PARKING AREAS AS SET FORTH IN THE COUNTY'S ZONING CODE.
7. IF IN THE TAHOE BASIN, DRIVEWAY MUST MEET TRPA REQUIREMENTS, AND THE REQUIREMENTS OF THIS STANDARD PLAN WHERE THEY DO NOT CONFLICT.
8. TURN AROUNDS SHALL BE HAMMERHEAD, "T" OR PEAR SHAPED BULB. TURNAROUND WILL BE NO MORE THAN 50' FROM BUILDINGS WHEN DRIVEWAY EXCEEDS 300' IN LENGTH.
9. DRIVEWAYS EXCEEDING 150' IN LENGTH, BUT LESS THAN 800' IN LENGTH, SHALL PROVIDE A TURNOUT NEAR THE MIDPOINT OF THE DRIVEWAY. WHERE THE DRIVEWAY EXCEEDS 800', TURNOUTS SHALL BE PROVIDED NO MORE THAN 400' APART. TURNOUTS SHALL BE SURFACED SAME AS THE DRIVEWAY.
10. BRIDGES AND CULVERTS SHALL BE DESIGNED BY A CIVIL ENGINEER AND SHALL SUPPORT A MINIMUM LOAD OF 75,000 POUNDS. SIGNS SHALL BE POSTED ON BRIDGE WHICH INDICATE THE WEIGHT LIMIT, WIDTH AND HEIGHT RESTRICTIONS. SINGLE LANE BRIDGES REQUIRE TURNOUTS ON EACH SIDE OF THE BRIDGE.
11. GATES SHALL OPEN TO PROVIDE A CLEAR OPENING, AT LEAST 2 FEET WIDER THAN THE DRIVEWAY AND NOT LESS THAN 14 FEET WIDE. GATE TO BE LOCATED 30' MINIMUM FROM THE ROAD, AND OPEN AWAY FROM THE ROAD.
12. ADDRESSES TO BE 4" HIGH WITH 3/8" STROKE WIDTH LETTERS OR NUMBERS, REFLECTORIZED WITH CONTRASTING BACKGROUND AND VISIBLE FROM BOTH DIRECTIONS. MULTIPLE ADDRESSES SHALL BE ON A SINGLE POST.
13. ALL INTERSECTIONS SERVING DWELLING UNITS SHALL HAVE ADDRESS SIGNS THAT CLEARLY IDENTIFY THE LOCATION OF EACH DWELLING UNIT.
14. ADDRESS SIGNS MUST BE CLEARLY VISIBLE ABOVE SNOW HEIGHT. CONTACT THE APPLICABLE FIRE PROTECTION DISTRICT FOR SPECIFIC HEIGHT REQUIREMENTS.
15. FIRE APPARATUS SPACE SHALL BE LOCATED NEXT TO FIRE HYDRANTS, STANDPIPES OR WATER SUPPLY APERTURES.
16. VARIATIONS TO THIS STANDARD MAY ONLY BE APPROVED BY THE FIRE PROTECTION DISTRICT HAVING JURISDICTION.

APPROVED BY:

JAMES W. WARE, P.E. NO. C61036 DATE:
INTERIM DIRECTOR, EL DORADO COUNTY DEPARTMENT OF TRANSPORTATION

BOARD OF SUPERVISOR'S RESOLUTION NO. _____

EL DORADO COUNTY
DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS

RURAL RESIDENTIAL DRIVEWAY

STD. PLAN
RS-68
SHT 2 OF 2

CAL FIRE GUIDELINE

100' DEFENSIBLE SPACE

Make Your Home FIRE SAFE

Why 100 Feet?

Following these simple steps can dramatically increase the chance of your home surviving a wildfire!

A Defensible Space of 100 feet around your home is required by law.[1] The goal is to protect your home while providing a safe area for firefighters.

1 Zone: Clean and Green

– Clearing an area of 30 feet immediately surrounding your home is critical. This area requires the greatest reduction in flammable vegetation.

2 Reduced Fuel Zone

– The fuel reduction zone in the remaining 70 feet (or to property line) will depend on the steepness of your property and the vegetation.

Spacing between plants improves the chance of stopping a wildfire before it destroys your home. You have two options in this area:

1. Create horizontal and vertical spacing between plants. The amount of space will depend on how steep the slope is and the size of the plants.
2. Large trees do not have to be cut and removed as long as all of the plants beneath them are removed. This eliminates a vertical "fire ladder."

When clearing vegetation, use care when operating equipment such as lawnmowers. One small spark may start a fire; a string trimmer is much safer.

Remove all build – up of needles and leaves from your roof and gutters. Keep tree limbs trimmed at least 10 feet from any chimneys and remove dead limbs that hang over your home or garage. The law also requires a screen over your chimney outlet of not more than ½ inch mesh.

1. These regulations affect most of the grass, brush, and timber-covered private lands in the State. Some fire department jurisdictions may have additional requirements. Some activities may require permits for tree removal. Also, some activities may require special procedures for, 1) threatened and endangered species, 2) avoiding erosion, and 3) protection of water quality. Check with local officials if in doubt. Current regulations allow an insurance company to require additional clearance. The area to be treated does not extend beyond your property. The State Board of Forestry and Fire Protection has approved Guidelines to assist you in complying with the new law. Contact your local CDF office for more details.

State of California
Department of Forestry and Fire Protection

NOTICE OF
FIRE HAZARD INSPECTION

A representative from CAL FIRE has inspected your property for fire hazards. You are hereby notified to correct the violation(s) indicated below.
Failure to correct these violations may result in a citation and fine.

Occupant:	Physical Address:	Phone #:

Occupant Not Home: 1st Attempt: ___/___/___	Occupant Not Home: 2nd Attempt: ___/___/___	Refused Inspection: ___/___/___	For Questions, Contact Inspector at: (___) ___-____	Battalion #:

Roof Construction Combustible/Non-Combustible	Exterior Siding Combustible/Non-Combustible	Window Panes Single Pane/Double Pane	Eaves Enclosed/Unenclosed	Decks or Porches Masonry/Composite/Wood	Location of Structure Flat Ground/Slope/Ridge Top

Checked boxes indicate violations.

Corrected		
☐	2	3	**Defensible Space Zone (within 30 feet of all structures or to property line):**
☐	2	3	A. Remove leaves, needles or other vegetation on roofs, gutters, decks, porches and stairways etc. PRC §4291(a)(6)
☐	2	3	B. Remove all dead trees, shrubs or other plants adjacent to or overhanging buildings. PRC §4291(a)(5)
☐	2	3	C. Remove all dead or dying branches and stems from trees, shrubs or other plants adjacent to or overhanging buildings. PRC §4291(a)(5)
☐	2	3	D. Remove all branches within 10 feet of any stovepipe or chimney outlet. PRC §4291(a)(4)
☐	2	3	E. Remove all dead or dying grass, leaves, needles or other vegetation. PRC §4291(a)(1)
☐	2	3	F. Remove or isolate live flammable ground cover and shrubs (i.e. Bear Clover, Mountain Misery, Juniper etc.). PRC §4291(a)(1)
			Reduced Fuel Zone (within 30 - 100 feet of all structures or to property line):
☐	2	3	G. Mow dead or dying grass to a maximum of 4 inches in height. Trimmings may remain on the ground. PRC §4291(a)(1)
☐	2	3	H. Live flammable ground cover less than 18 inches in height (i.e. Mountain Misery, Bear Clover etc.) may remain, but overhanging and adjacent trees must be pruned up to 15 feet. PRC §4291(a)(1)
☐	2	3	I. Reduce fuels in accordance with the Continuous Tree Canopy Standard (see back). PRC §4291(a)(1)
☐	2	3	J. Reduce fuels in accordance with the Horizontal Spacing Standard (see back). PRC §4291(a)(1)
			Defensible and Reduced Fuel Zone (within 100 feet of all structures or to property line):
☐	2	3	K. Logs or stumps embedded in the soil must be removed or isolated from structures and other vegetation. PRC §4291(a)(1)
☐	2	3	L. Remove all dead or dying brush, trees and branches within 15 feet of the ground. PRC §4291(a)(1)
			Other Requirements:
☐	2	3	M. Clear dead, dying or flammable vegetation within 10 feet around and above propane tanks. CFC §3807.3
☐	2	3	N. Address numbers shall be displayed in contrasting colors (4" Min. Size) and readable from the street or access road. CFC §505.1

Recommendations.

Other Recommendations:

☐ Cover all chimney or stovepipe openings with a metal screen having openings no larger than 1/2 inch.
☐ Clear 10 feet around and 15 feet above fuels (i.e. Woodpiles, lumber, scrap etc.). Move woodpiles as far as possible from structures.
☐ Remove flammable materials stored under decks and similar overhangs of structures.
☐ Clear vegetation 10 feet from sides and 15 feet above all driveways and turnaround areas.

Comments:

Additional Information on Back

Complete only if occupant contacted

1. Inspector:_____ Date:___/___/___ A re-inspection will occur on/after: ___/___/___
2. Inspector:_____ Date:___/___/___ A re-inspection will occur on/after: ___/___/___
3. Inspector:_____ Date:___/___/___

AFH 02/09 (White-Inspector Copy; 1st to Occupant, Pink-2nd to Occupant, Gold-2nd to Occupant)

Continuous Tree Canopy Standard

To achieve defensible space while keeping a larger stand of trees with a continuous tree canopy, adhere to the guidelines below:

- Prune lower branches of trees to a height of 6 to 15 feet from the top of the vegetation below or 1/3 to 1/2 the tree height for trees under 30 feet, whichever is less.
- Remove all ground fuels greater than four inches in height. Single specimens of trees or other vegetation may be kept if they are well spaced, well pruned and create an overall condition that avoids the spread of fire to other vegetation or to structures.

Horizontal Spacing Standard

- Ideally, grass should not exceed four inches in height. In situations where these fuels are isolated from other fuels or where necessary to stabilize soil, grasses may reach a height of 18 inches.
- Clearance between shrubs should be 4 to 40 feet depending on the slope of the land and size and type of vegetation. Check the chart below for an estimation of clearance distance. Any questions regarding requirements for a specific property should be addressed to your local fire official.

Minimum Horizontal Spacing Guidelines		
Slope	Shrubs, Ground Covers & Other Ornamental Plants Space required between clumps of ground cover, plants, bushes, shrubs, seedlings or sapling trees, etc.	Trees Space required between tree canopies
Flat or gentle slope (0% to 20%)	2 times the height of the plant	10 feet
Moderate slope (20% to 40%)	4 times the height of the plant	20 feet
Steep slope (greater than 40%)	6 times the height of the plant	30 feet

PRC §4291(a) A person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material, shall at all times do all of the following:

(1) Maintain defensible space no greater than 100 feet from each side of the structure, but not beyond the property line unless allowed by state law, local ordinance, or regulation and as provided in paragraph (2). The amount of fuel modification necessary shall take into account the flammability of the structure as affected by building material, building standards, location, and type of vegetation. Fuels shall be maintained in a condition so that a wildfire burning under average weather conditions would be unlikely to ignite the structure. This paragraph does not apply to single specimens of trees or other vegetation that are well-pruned and maintained so as to effectively manage fuels and not form a means of rapidly transmitting fire from other nearby vegetation to a structure or from a structure to other nearby vegetation. The intensity of fuels management may vary within the 100-foot perimeter of the structure, the most intense being within the first 30 feet around the structure. Consistent with fuels management objectives, steps should be taken to minimize erosion.

(2) A greater distance than that required under paragraph (1) may be required by state law, local ordinance, rule, or regulation. Clearance beyond the property line may only be required if the state law, local ordinance, rule, or regulation includes findings that such a clearing is necessary to significantly reduce the risk of transmission of flame or heat sufficient to ignite the structure, and there is no other feasible mitigation measure possible to reduce the risk of ignition or spread of wildfire to the structure. Clearance on adjacent property shall only be conducted following written consent by the adjacent landowner.

(3) An insurance company that insures an occupied dwelling or occupied structure may require a greater distance than that required under paragraph (1) if a fire expert, designated by the director, provides findings that such a clearing is necessary to significantly reduce the risk of transmission of flame or heat sufficient to ignite the structure, and there is no other feasible mitigation measure possible to reduce the risk of ignition or spread of wildfire to the structure. The greater distance may not be beyond the property line unless allowed by state law, local ordinance, rule, or regulation.

(4) Remove that portion of any tree that extends within 10 feet of the outlet of a chimney or stovepipe.

(5) Maintain any tree, shrub, or other plant adjacent to or overhanging a building free of dead or dying wood.

(6) Maintain the roof of a structure free of leaves, needles, or other vegetative materials.

For additional information on how to comply with defensible space clearance requirements, please visit:
WWW.FIRE.CA.GOV

Rommel Pabalinas <rommel.pabalinas@edcgov.us>

Piedmont Oaks Estates

2 messages

Katie Jackson <katie.jackson@edcgov.us> Mon, May 8, 2017 at 10:50 AM
To: Rommel Pabalinas <rommel.pabalinas@edcgov.us>
Cc: Natalie Porter <natalie.porter@edcgov.us>, Dave Spiegelberg <dave.spiegelberg@edcgov.us>

Hi Mel,

As requested, I recalculated the trip generation of the Piedmont Oaks project assuming 75 SFDU's and 20 ksf of general office. The new trip generation summary is as follows:

Daily - 1,192 daily trips
AM Peak hour - 115 total trips, 62 inbound trips and 52 outbound trips
PM Peak hour - 182 total trips, 68 inbound trips and 114 outbound trips

With these revised trip generation numbers, the proposed project would send approximately 16 AM peak hour trips and 25 PM peak hour trips through the Pleasant Valley Rd/Racquet Way intersection.

Katie

Katie Jackson, P.E., T.E.
Transportation Engineer

County of El Dorado
Community Development Agency
Long Range Planning
2850 Fairlane Court
Placerville, CA 95667
D: (530) 621-6624 / F: (530) 642-0508
katie.jackson@edcgov.us

Monday-Thursday

Rommel Pabalinas <rommel.pabalinas@edcgov.us> Mon, May 8, 2017 at 11:36 AM
To: Katie Jackson <katie.jackson@edcgov.us>

Thanks.

[Quoted text hidden]

--
==========
Rommel (Mel) Pabalinas, Senior Planner
El Dorado County Community Development Agency-
Development Services Division-Planning Services
Planning Division
2850 Fairlane Court
Placerville, CA 95667
Main Line 530-621-5355
Direct line 530-621-5363
Fax 530-642-0508

TRAFFIC IMPACT ANALYSIS

FOR

PIEDMONT OAK ESTATES

El Dorado County CA

Prepared For:

JIM DAVIES
854 Diablo Road
Danville, CA 94526

Prepared By:

KDAnderson & Associates, Inc.
3853 Taylor Road, Suite G
Loomis, California 95650
(916) 660-1555

December 19, 2014

5360-01

0 Piedmont Oak Estates TIA.rpt

TRAFFIC IMPACT ANALYSIS FOR
PIEDMONT OAK ESTATES
El Dorado County CA

TABLE OF CONTENTS

TRAFFIC IMPACT ANALYSIS FOR
PIEDMONT OAK ESTATES
El Dorado County CA

EXECUTIVE SUMMARY

- **Project Description.** The Piedmont Oak Estates project consists of 104 single family residential units and 20,000 square feet of business professional uses. The project is located along the east side of Diamond Road (State Route 49) in El Dorado County. Public access will be provided along Diamond Road and will be the east leg of the future Diamond Springs Parkway / Diamond Road intersection. The project is expected to generate approximately 1,475 new daily trips, with 135 new trips occurring during the a.m. peak hour and 210 new trips generated during the p.m. the p.m. peak hour.

- **Existing Setting.** The study areas addressed traffic conditions at sixteen existing intersections on Missouri Flat Road, Pleasant Valley Road and Diamond Road. Traffic volume data was obtained from the traffic study prepared for the *Diamond Springs / El Dorado Area Mobility and Livable Community Plan (DSEDAMLCP)* and from new counts made in April 2014 and July 2014.

  Level of Service calculations were made using the analysis tools employed for the *DSEDAMLCP (i.e., Synchro-Simtraffic).* All study intersections operate at a Levels of Service that satisfies the County's Minimum Level of Service threshold. None of the un-signalized study intersections carry traffic volumes that meet peak hour signal warrants. No improvement recommendations were identified for existing conditions.

- **Existing Plus Project Impacts.** The operation of the proposed project will increase the volume of traffic on the study area circulation system. However all study intersections will continue to satisfy the County's minimum Level of Service standard and mitigation measures are not required. The following mitigations are made:

  - The project shall contribute its fair share to the cost of regional circulation improvements via the existing countywide traffic impact mitigation (TIM) fee program.
  - Sidewalk should be installed along the curb returns along the east side of Diamond Road as part of Piedmont Oaks development to provide contiguous access between the project site and the Diamond Dorado Center.

  Diamond Road / Project Access intersection: A left turn lane with standard Caltrans transitions on each approach and departure should be constructed along Diamond Road for left turn access into the project site. The left turn lane should be constructed back to back with the left turn lane at Bradley Drive. The left turn lane for the project should be 100' with the left turn lane at Bradley Drive 120' long.

- **Year 2019 Background Conditions.** Year 2019 conditions were identified based on interpolation between current traffic volumes and Year 2035 traffic volume forecasts made for the *DSEDAMLCP*. Two approved / pending projects were added to these traffic volumes. These projects included *The Crossing* and *Willow Creek Retail Center*. The Crossing is located north of the Missouri Flat Road / US 50 interchange while Willow Creek is located in the northwest quadrant of the Missouri Flat Road / Forni Road intersection. One intersection, Missouri Flat Road at China Garden Road will decline below the County's minimum Level of Service standard. Although the County General Plan allows LOS F conditions along Missouri Flat Road between Mother Lode Drive and China Garden Road this does not apply to the intersections. The intersection meets the peak hour traffic signal warrant and signalization of this intersection will improve the operation in the a.m. peak hour to LOS B (18.4 seconds delay).

- **2019 Plus Project Conditions.** The trips generated by the proposed project were superimposed onto the Year 2019 background conditions, and resulting peak hour Levels of Service were calculated. Three intersections will operate below the County's minimum Level of Service standard.

  Missouri Flat Road / China Garden Road intersection: Under project conditions the intersection will continue to operate at LOS F conditions on the eastbound driveway and westbound approach. The project should pay their fair share of signalizing the intersection identified in the 2019 Conditions section. The fair share is project traffic divided by the difference in future and existing volumes. With Diamond Springs Parkway (DSP) being constructed in the future, traffic will shift to DSP, resulting in a net decrease in traffic by 2035 at the Missouri Flat Road / China Garden Road intersection. The fair share methodology was determined using the total volumes at the Missouri Flat Road / DSP intersection as all traffic at this intersection would travel through the Missouri Flat Road / China Garden Road if DSP were not constructed. Using this method the project is responsible for 6.41% of the project cost. With signalization the intersection will operate at LOS B (18.7 seconds) in the a.m. peak hour and LOS C (30.2 seconds) in the p.m. peak hour.

  Pleasant Valley Road / Forni Road intersection: This intersection will operate with the southbound Forni Road approach operating at LOS F in the AM peak hour. The volume portion of the peak hour signal warrant is met in both AM and PM peak hours. A traffic signal is not recommended at this time due to proximity of this intersection to the Pleasant Valley Road / SR-49 South intersection. This intersection is under Caltrans jurisdiction. As noted in the *Diamond Dorado Traffic Impact Analysis* prepared by Farhad & Associates in 2010 Caltrans indicated that a traffic signal should not be installed at this location until the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / SR-49 South intersection is realigned to constitute one intersection. Another possible solution may include a roundabout with the realignment of Pleasant Valley Road with SR 49 and Forni Road. No mitigation is recommended as part of this project.

Pleasant Valley Road / Racquet Way intersection: This intersection will operate with the southbound approach at LOS F in the AM peak hour. Installation of a traffic signal will improve the intersection operation to LOS C (31.4 seconds per vehicle). The project should pay their fair share of the improvement as the intersection will decline to LOS F in the 2035 No Project Condition. Using the Caltrans fair share methodology the project should pay 5.4% of the improvement.

- **Year 2035 Background Conditions.** Year 2035 traffic forecasts were based on the *DSEDAMLCP* traffic volumes and were expanded to account for traffic along the Diamond Springs Parkway Corridor and Diamond Road (SR 49). Traffic volumes not contained in the *DSEDAMLCP* were developed based upon the growth rates identified between Existing and 2035 *DSEDAMLCP* time periods, the *Diamond Springs Parkway EIR Circulation Element and the Diamond Dorado Retail Center EIR Traffic Impact Analysis*. Year 2019 conditions were identified based on interpolation between current traffic volumes and Year 2035 traffic volume forecasts made for the *DSEDAMLCP*.

  Roadways in 2035 are projected to remain with their current lane configurations. The Diamond Springs Parkway, north of China Garden Road will connect Missouri Flat Road to Diamond Road (SR 49) and is projected to be completed by 2035. This roadway will include two through lanes in each direction with turn lanes at key intersections. Missouri Flat Road will become the west and south legs of the Missouri Flat Road / China Garden Road intersection. Missouri Flat Road south of China Garden Road will continue to include one through lane in each direction.

  The Diamond Springs Parkway / Diamond Road intersection will include two left turn lanes and a through lane along the northbound approach, a through lane and a right turn lane along the southbound approach and a left lane and a right lane along the eastbound approach. The intersection will be signalized and was analyzed with the signal in 2035 conditions. As part of this project the Bradley Drive intersection will be modified to right-in, right-out access only. Additionally, the Diamond Road / Lime Kiln Road – Black Rice Lane will be modified to allow right-in, right-out and left-in movements only.

  An intermediate intersection at Throwita Way will be constructed. This intersection will include a left turn lane, two through lanes and a right turn lane for eastbound traffic, a left turn lane, a through lane and a through-right lane for westbound traffic, a single lane for south bound traffic and a right lane and a through-left lane for northbound traffic. The intersection will be signalized and was analyzed as part of the 2035 conditions.

  Four intersections will operate below the County's minimum Level of Service standard.

  Missouri Flat Road / US 50 Eastbound and Westbound Ramp intersections: The westbound US 50 ramp intersections will operate at LOS F conditions in 2035. A single point urban interchange (SPUI) should be considered that will combine the eastbound and westbound ramp intersections into a single intersection along Missouri Flat Road. The

SPUI would consist of two through lanes and two left turn lanes at the intersection with two left lanes and two right turn lane along the eastbound and westbound off-ramps. Implementation of this new interchange will result in LOS D (37.5 seconds per vehicle) operation at the new intersection. The County is currently undertaking the Missouri Flat Area Master Circulation and Funding Plan (MC&FP) Phase II analysis which will provide a mechanism for the County to fund improvements to the U.S. Highway 50/Missouri Flat Road Interchange and adjacent arterials and collector roads.

Pleasant Valley Road/ SR 49 intersection: This intersection will operate at LOS F conditions in the AM peak hour (58.7 seconds per vehicle) and the PM peak hour (70.0 seconds per vehicle). As noted in the *Diamond Dorado Traffic Impact Analysis* prepared by Farhad & Associates in 2010 Caltrans indicated that a traffic signal should not be installed at this location until the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / SR-49 South intersection is realigned to constitute one intersection. Another possible solution may include a roundabout with the realignment of Pleasant Valley Road with SR 49 and Forni Road.

Pleasant Valley Road/ Forni Road intersection: This intersection will operate with the southbound Forni Road approach operating at LOS F in the AM peak hour. The volume portion of the peak hour signal warrant is met in the AM and PM peak hour. A traffic signal is not recommended at this time due to proximity of this intersection to the Pleasant Valley Road / SR-49 South intersection. This intersection is under Caltrans jurisdiction. As noted in the *Diamond Dorado Traffic Impact Analysis* prepared by Farhad & Associates in 2010 Caltrans indicated that a traffic signal should not be installed at this location until the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / SR-49 South intersection is realigned to constitute one intersection. Another possible solution may include a roundabout with the realignment of Pleasant Valley Road with SR 49 and Forni Road.

Pleasant Valley Road/ Racquet Way intersection: The southbound approach of this intersection will operate at LOS F conditions in the AM peak hour (55.8 seconds per vehicle). The intersection meets the traffic volume section of the peak hour signal warrant in the AM peak hour and both delay and volume sections of the warrant in the PM peak hour. Signalization of this intersection will improve the operation to an LOS B condition (19.7 seconds per vehicle) in the AM peak hour.

- **2035 Plus Project Conditions.** The trips generated by the proposed project were superimposed onto the Year 2035 background conditions, and resulting peak hour Levels of Service were calculated. Five intersections will operate below the County's minimum Level of Service standard.

  Missouri Flat Road / US 50 Eastbound and Westbound Ramp intersections: The westbound US 50 ramp intersections will both operate at LOS F conditions in 2035. A single point urban interchange (SPUI) should be considered that will combine both ramp intersections into a single intersection along Missouri Flat Road. The SPUI would

consist of two through lanes and two left turn lanes at the intersection with two left lanes and two right turn lane along the eastbound and westbound off-ramps. Implementation of this new interchange will result in LOS D (38.6 seconds per vehicle) operation at the new intersection.

The County is currently undertaking the Missouri Flat Area Master Circulation and Funding Plan (MC&FP) Phase II analysis which will provide a mechanism for the County to fund improvements to the U.S. Highway 50/Missouri Flat Road Interchange and adjacent arterials and collector roads. Since there is no funding mechanism in place the project should pay their fair share of the improvements.

The project should pay their fair share of the improvement as the intersection will decline to LOS F in the 2035 No Project Condition. Using the Caltrans fair share methodology the project should pay 3.2% of the improvement.

Missouri Flat Road / China Garden Road intersection: Under project conditions the intersection will continue to operate at LOS F conditions on the eastbound driveway and westbound approach. The intersection was identified for signalization in the 2019 scenario. With signalization the intersection will operate at LOS A (9.7 seconds) in the PM peak hour.

Pleasant Valley Road/ SR 49 intersection: This intersection will operate at LOS F conditions in the AM peak hour (55.5 seconds per vehicle) and the PM peak hour (68.7 seconds per vehicle). As noted in the *Diamond Dorado Traffic Impact Analysis* prepared by Farhad & Associates in 2010 Caltrans indicated that a traffic signal should not be installed at this location until the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / SR-49 South intersection is realigned to constitute one intersection. Another possible solution may include a roundabout with the realignment of Pleasant Valley Road with SR 49 and Forni Road. Since there is no defined project at this time there are no mitigations required for the project.

Pleasant Valley Road/ Forni Road intersection: This intersection will operate with the southbound Forni Road approach operating at LOS F in the AM peak hour. The volume portion of the peak hour signal warrant is met in both AM and PM peak hours. A traffic signal is not recommended at this time due to proximity of this intersection to the Pleasant Valley Road / SR-49 South intersection. This intersection is under Caltrans jurisdiction. As noted in the *Diamond Dorado Traffic Impact Analysis* prepared by Farhad & Associates in 2010 Caltrans has indicated that a traffic signal should not be installed at this location until the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / SR-49 South intersection is realigned to constitute one intersection. Another possible solution may include a roundabout with the realignment of Pleasant Valley Road with SR 49 and Forni Road. Since there is no defined project at this time there are no mitigations required for the project.

TRAFFIC IMPACT ANALYSIS FOR
PIEDMONT OAK ESTATES
El Dorado County CA

INTRODUCTION

Study Purpose and Objectives

This study evaluates the traffic impacts associated with the construction of the Piedmont Oak Estates project. The Piedmont Oak Estates project includes construction of 104 single family residential units and 20,000 square feet (sf) of business professional offices. The project is located east of Diamond Road (State Route 49) and north of Black Rice Lane in El Dorado County.

A previous study was completed in 2012 for the site. The scope of this traffic analysis was based on the previous study and was reviewed with the El Dorado County Department of Transportation (DOT) for concurrence of scope parameters. Based on direction from DOT this study addresses the following scenarios:

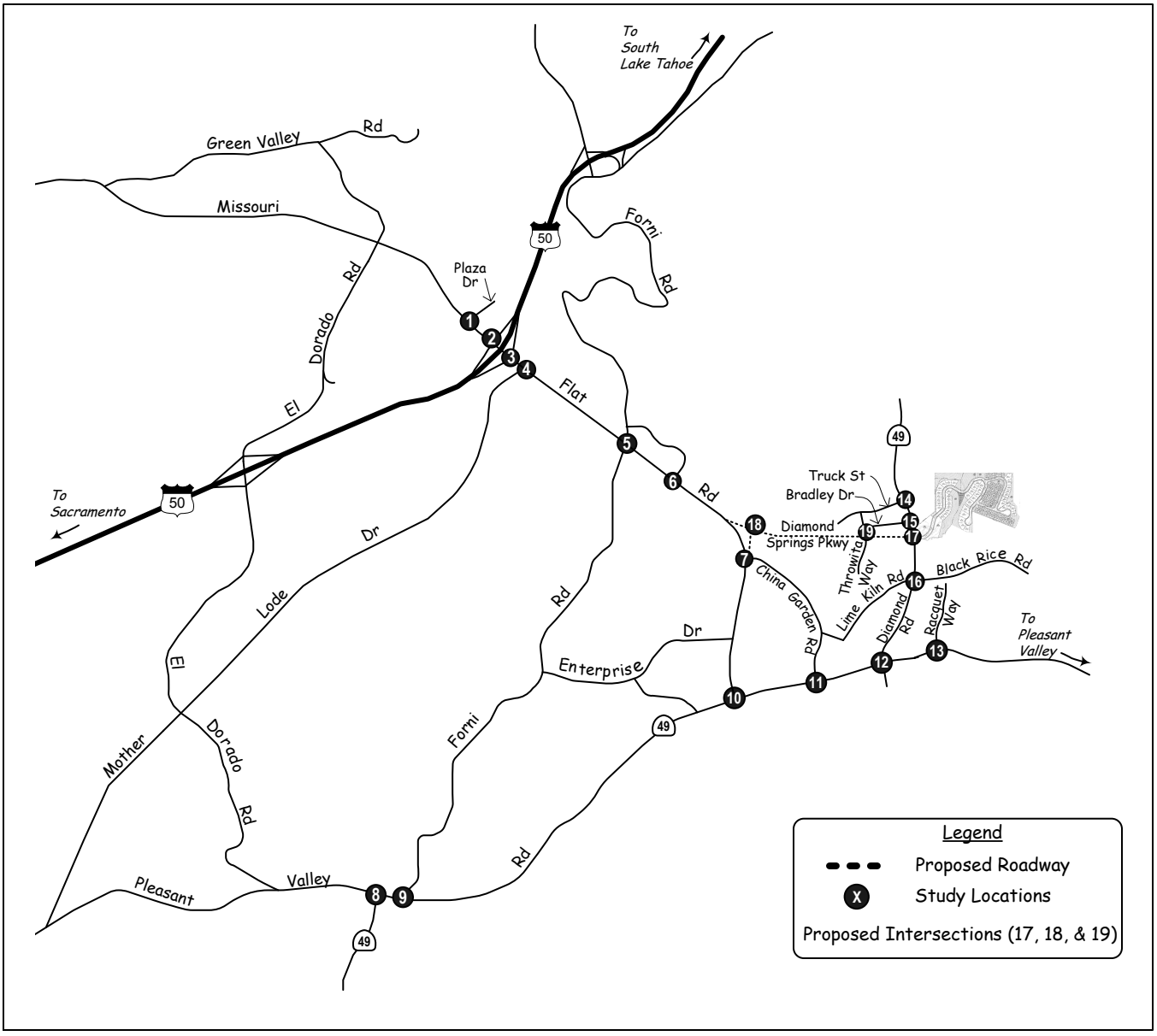
1. Existing (2014) Traffic Conditions
2. Existing (2014) Plus Project Conditions
3. 2019 Traffic Conditions
4. 2019 Plus Project Conditions
5. 2035 Traffic Conditions
6. 2035 Plus Project Conditions

The objective of this study is to identify those roads and street intersections that may be impacted by development of this project based on El Dorado County significance criteria.

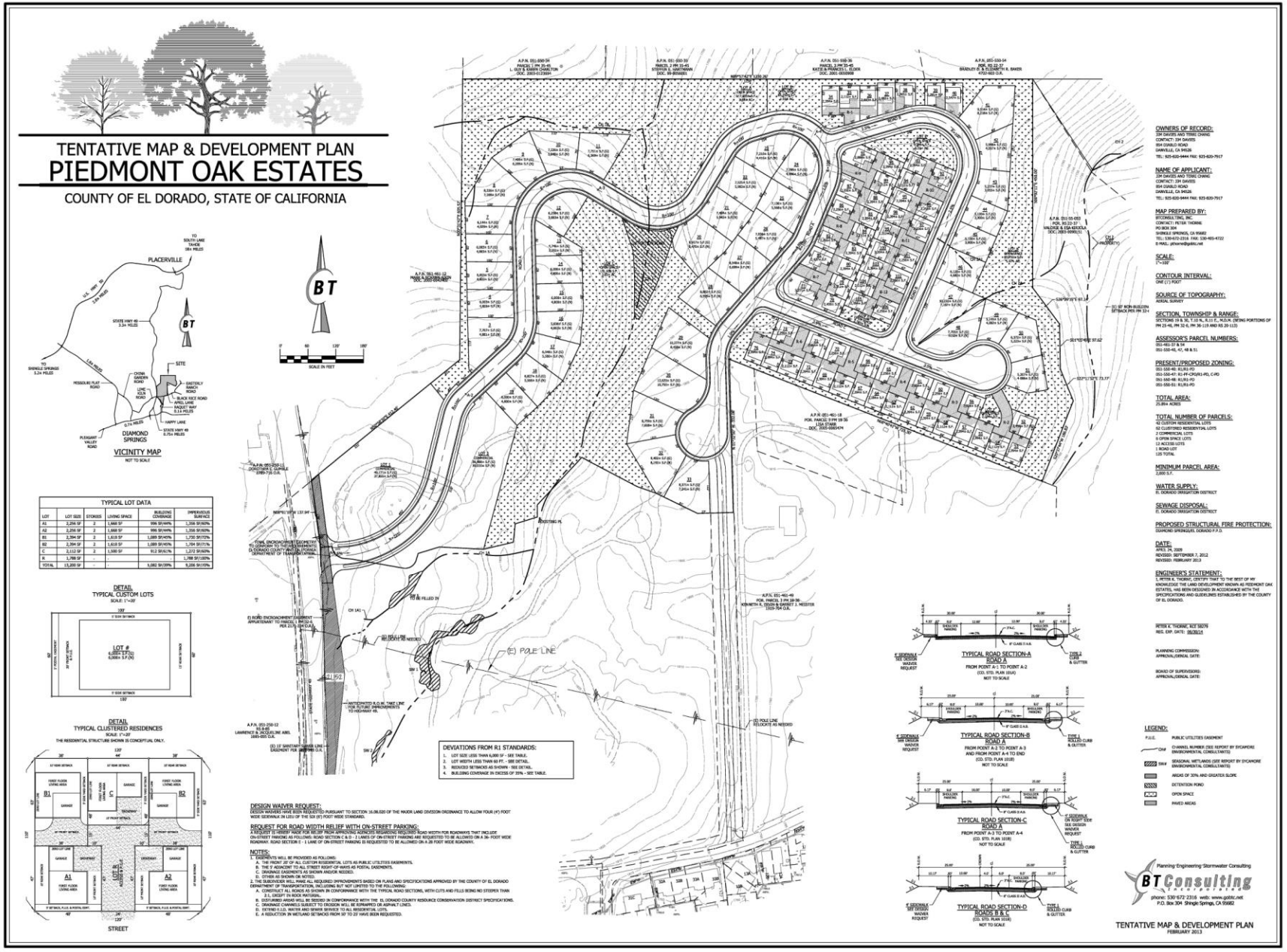
Project Description

The proposed project includes 104 residential lots and 20,000 sf of professional office building space. The project is located east of Diamond Road (SR 49) and north of Black Rice Lane and is shown in Figure 1. Full access will be provided at a new intersection about 750' north of Lime Kiln Road-Black Rice Lane. This intersection will also serve as the eastern terminus to the future Diamond Springs Parkway. Figure 2 illustrates the proposed site plan and the proposed new intersection along Diamond Road.

The project is located within Traffic Analysis Zone (TAZ) 365 and is currently zoned R1 and R1-PF-CPO, One Family Residential and Professional Office Commercial districts. The zoning will be modified for the project to R1-PD and C-PD. These include One Family Residential and Commercial zoning in Planned Developments.



VICINITY MAP / STUDY LOCATIONS


TENTATIVE MAP & DEVELOPMENT PLAN
PIEDMONT OAK ESTATES
COUNTY OF EL DORADO, STATE OF CALIFORNIA
VICINITY MAP
TYPICAL LOT DATA
DETAIL
TYPICAL CUSTOM LOTS
DETAIL
TYPICAL CLUSTERED RESIDENCES
DESIGN WAIVER REQUEST:
REQUEST FOR ROAD WIDTH RELIEF WITH ON-STREET PARKING:
NOTES:
DEVIATIONS FROM R1 STANDARDS:
OWNERS OF RECORD:
NAME OF APPLICANT:
MAP PREPARED BY:
SCALE:
CONTOUR INTERVAL:
SOURCE OF TOPOGRAPHY:
SECTION, TOWNSHIP & RANGE:
ASSESSOR'S PARCEL NUMBERS:
PRESENT/PROPOSED ZONING:
TOTAL AREA:
TOTAL NUMBER OF PARCELS:
MINIMUM PARCEL AREA:
WATER SUPPLY:
SEWAGE DISPOSAL:
PROPOSED STRUCTURAL FIRE PROTECTION:
DATE:
ENGINEER'S STATEMENT:
TYPICAL ROAD SECTION-A
ROAD A
TYPICAL ROAD SECTION-B
ROAD A
TYPICAL ROAD SECTION-C
ROAD A
TYPICAL ROAD SECTION-D
ROADS B & E
LEGEND:
BT Consulting
TENTATIVE MAP & DEVELOPMENT PLAN
FEBRUARY 2013

SITE PLAN

EXISTING SETTING

Study Area

This study addresses traffic conditions at sixteen (16) existing intersections along Missouri Flat Road, Pleasant Valley Drive and Diamond Road. Three additional intersections along Diamond Springs Parkway were evaluated under future buildout conditions. The limits of the study area were based on the previous traffic study for the Piedmont Oak Estates Traffic Impact Analysis prepared by AECOM in 2012 and reviewed with El Dorado County DOT and DOT's traffic engineering consultant (Kittelson & Associates [KAI]). The text that follows describes the roadway facilities included in this analysis.

The quality of traffic flow is typically governed by the operation of major intersections and the daily volume of traffic along the roadways. The physical characteristics of the study intersections are described in the text which follows.

Study Area Intersections

The **Missouri Flat Road / Plaza Drive** intersection is located roughly 900 feet south of the project and is the most northerly intersection on a coordinated system of traffic signals at the US 50 intersection. Recent improvements have widened the intersection. Two through lanes are provided in each direction on Missouri Flat Road. The northbound approach includes dual left turn lanes and a separate right turn lane. The Plaza Drive approaches are each two lanes and operate with split phases. The eastbound approach is configured with a lane permitting all movements and a separate right turn lane. The westbound approach is similar but has a separate left turn lane.

The **Missouri Flat Road / Westbound US 50 ramps** intersection is controlled by a coordinated traffic signal. The Missouri Flat Road approaches feature dual northbound left turn lanes and a separate southbound right turn lane. The four lane exit from US 50 is configured with a dual left turn lane and dual right turn lanes.

The **Missouri Flat Road / Eastbound US 50 ramps** intersection is controlled by a coordinated traffic signal. The Missouri Flat Road approaches feature dual southbound left turn lanes and a separate northbound right turn lane. The three lane exit from US 50 is configured with a separate left turn lane and right turn lanes, as well as a combined left, thru and right turn lane.

The **Missouri Flat Road / Mother Lode Drive** intersection is signalized and located roughly 250 feet from the Eastbound US 50 ramps intersection. The Missouri Flat Road approaches have separate left turn and right turn lanes. The eastbound Mother Lode Drive approach has three lanes configured as dual left turns and a separate right turn lane.

The **Missouri Flat Road / Forni Road** intersection is also signalized and located roughly ½ mile south of the Mother Lode Drive intersection. The Missouri Flat Road approaches each include separate left turn and right turn lanes. The Forni Road approaches have separate left turn,

through and right turn lanes, and a second left turn lane has been provided on the eastbound approach.

The **Missouri Flat Road / Golden Center Drive** intersection is located about 1,100 feet south of Forni Road. This signalized intersection includes separate left turn lanes on the Missouri Flat Road approaches and a separate right turn lane on the southbound approach. The Golden Center Drive approaches are single lanes which operate with permitted phasing.

The **Missouri Flat Road / China Garden Road** intersection is located about 2,100 feet south of Golden Center Drive. This unsignalized intersection includes single lanes along Missouri Flat Road with a separate left turn lane on the southbound approach. A CLTL is present on the northbound approach of Missouri Flat Road and north of the southbound left turn lane. The China Garden Road approach consists of a single lane which is stop controlled.

The **Missouri Flat Road / (SR 49) Pleasant Valley Road** intersection is located at the southern end of Missouri Flat Road roughly two miles from the project site. This tee intersection is controlled by an actuated traffic signal. The Pleasant Valley Road approaches have single through lanes in each direction, with dual eastbound left turn lanes and a separate westbound right turn lane. The two lane southbound approach on Missouri Flat Road is configured as separate left turn and right turn lanes, and the right turn "overlaps" the eastbound left turn phase.

The **Pleasant Valley Road (SR 49) / SR-49 South** intersection is located about 2½ miles southwest of the project site. This tee intersection is all-way stop controlled. Eastbound Pleasant Valley Road and northbound SR 49 have single lane approaches while westbound Pleasant Valley Road includes a left turn lane and a through lane.

The **Pleasant Valley Road (SR 49) / Forni Road South** intersection is located about 500' east of the SR-49 South intersection. This tee intersection is stop controlled along Forni Road which intersects Pleasant Valley Road at about a 30° skew to the northeast. All roadway approaches are single lane.

The **Pleasant Valley Road (SR 49) / China Garden Road** intersection is located about ½ mile southwest of the project site. This tee intersection is stop controlled along China Garden Road, and all roadway approaches are single lane.

The **Pleasant Valley Road (SR 49) / Diamond Road (SR 49 North) / Fowler Lane** intersection is located about ¼ mile south of the project site. This intersection is controlled by an actuated traffic signal. The eastbound Pleasant Valley Road approach includes a left turn lane, a through lane and a through-right lane. The westbound Pleasant Valley Road approach includes left turn, through and right turn lanes. The northbound Fowler Lane approach consists of a through-left lane and a right turn lane while the southbound Diamond Road approach includes a left turn lane and a through-right lane. The Pleasant Valley Road approaches provide protected left turn phasing while the Diamond Road and Fowler Lane approaches are split phase.

The **Pleasant Valley Road (SR 49) / Racquet Way** intersection is located about ¼ mile east of the Pleasant Valley Road / Diamond Road intersection. This intersection is stop controlled along Racquet Way to the north and a commercial driveway to the south. The Pleasant Valley Road approaches include left turn lanes and a through-right lane while Racquet Way and the driveway are single lane approaches.

The **Diamond Road / Truck Street** intersection is located about 700' north of the project's north intersection. This tee intersection is stop controlled along Truck Street, and all roadway approaches are single lane.

The **Diamond Road / Bradley Drive** intersection is located about 300' north of the project's north intersection. This tee intersection is stop controlled along Bradley Drive. The southbound Diamond Road approach and the Bradley Drive approach are single lane while the northbound Diamond Road approach consists of a left turn lane and a through lane. With the completion of the Diamond Springs Parkway in the future Bradley Drive will have only right-in, right-out movements.

The **Diamond Road / Lime Kiln Road / Black Rice Lane** intersection will provide emergency vehicle access to the project site. This intersection is stop controlled along Lime Kiln Road and Black Rice Lane. All approaches are single lane.

The **Missouri Flat Road / Diamond Springs Parkway** intersection is a future intersection that is part of the Diamond Springs Parkway project. This intersection when completed will consist of a left turn lane, two through lanes and a right turn lane along the eastbound (Missouri Flat Road) and westbound (Diamond Springs Parkway) approaches. The northbound Missouri Flat Road approach will consist of dual left turn lanes and a through-right lane. The opposing southbound approach will consist of a left turn lane and a through-right lane. This intersection will be signalized.

The **Diamond Springs Parkway / Throwita Way** intersection is a future intersection that will be located about 900' west of the Diamond Road / Diamond Springs Parkway intersection. This intersection will be signal controlled. The June 2010 Diamond Springs Parkway DEIR identifies the lane configuration at this intersection to include left and right turn lanes and two through lanes along Diamond Springs Parkway, a single lane along the southbound Throwita Way approach and a left-through lane and a right turn lane along the northbound Throwita Way approach.

The **Diamond Road / Diamond Springs Parkway** intersection is a future intersection that will provide direct access into the project site. This intersection will be signal controlled. The June 2010 Diamond Springs Parkway DEIR identifies the lane configuration at this intersection to include a left turn lane and a right turn lane along Diamond Springs Parkway, two left turn lanes and a through lane along the northbound Diamond Road approach and a right turn lane and a through lane along the southbound Diamond Road approach.

Analysis Criteria

Level of Service Methodology. *Level of Service Analysis* has been employed to provide a basis for describing existing traffic conditions and for evaluating the significance of project traffic impacts. Level of Service measures the *quality* of traffic flow and is represented by letter designations from "A" to "F", with a grade of "A" referring to the best conditions, and "F" representing the worst conditions. The guidelines and analyses used for this report follow El Dorado County standards.

Local agencies adopt minimum Level of Service standards for their facilities. El Dorado County identifies LOS 'E' as the acceptable Level of Service on roadways and state highways within the unincorporated areas of the County in the Community Regions and LOS D in the Rural Centers and Rural Regions except as specified in the General Plan. Four roadway segments, none of which are part of this study, allow LOS F conditions after 2008. The analysis techniques presented in the *2010 Highway Capacity Manual* were used to calculate Level of Service and to provide a basis for describing existing traffic conditions and evaluating the significance of project traffic impacts.

Various software programs have been developed to assist in calculating intersection Level of Service, and the level of sophistication of each program responds to factors that affect the overall flow of traffic. In this case, Synchro-Simtraffic software was employed in order to account for the effects of closely spaced traffic signals along Missouri Flat Road. The files originally developed for the El Dorado County Transportation Commission's *Diamond Springs and El Dorado Area Mobility and Livable Community Plan (DSEDAMLCP)* were obtained and, in consultation with El Dorado County DOT and KAI, applicable adjustments were made to reflect current geometry and operational characteristics. The simulation results contained herein reflect the average of the mean 10 one-hour simulation runs selected from a 20 run sample. Each run employed a 10 minute seeding period.

The intersection Levels of Service presented in this analysis are based on the weighted average total delay per vehicle for the intersection as a whole at signalized intersections and at locations controlled by all-way stops. The average delay experienced by motorists yielding the right of way is the basis for identification of Level of Service at locations controlled by side street stop signs. Applicable Level of Service thresholds based on average delay are shown in Table 1.

Intersection Level of Service Thresholds of Significance. A traffic impact is considered to be significant under El Dorado County guidelines if the project causes an intersection to change from LOS E to LOS F. Worsening of conditions at facilities already operating at unacceptable levels of service is also considered a significant impact. The County's General Plan Policy TC-Xe defines worsen as any of the following conditions:

a. a 2% increase in traffic during the a.m. peak hour, p.m. peak hour or daily trips, or
b. the addition of 100 or more daily trips, or
c. the addition of 10 or more trips during the a.m. peak hour or the p.m. peak hour.

TABLE 1
LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.
Sources: 2010 Highway Capacity Manual, Transportation Research Board (TRB) Special Report 209.			

Intersection Queuing Analysis. The quality of traffic flow can also be affected by queuing at signalized intersections. The lengths of peak period queues were identified and compared to available left lane storage to determine whether spillover from turn lanes would affect the adjoining travel lanes or extend through adjacent intersections. 95th percentile queue lengths have been calculated as a byproduct of the Synchro-Simtraffic simulation. Those locations where the 95th percentile queue exceeds the available storage have also been noted.

Traffic Signal Warrants. The extent to which existing or projected traffic volumes may justify signalization at un-signalized intersections has been determined based on consideration of traffic signal warrant presented in the *Manual of Uniform Traffic Control Devices, 2012.* For this analysis the volume thresholds associated with Warrant 3 (Peak Hour Volume) have been assessed. For this analysis the "rural" criteria have been employed based on speed limits in excess of 40 mph.

Public Transit

The El Dorado County Transit Authority offers local fixed route, regional commuter route, dial-a-ride and para-transit services. The Diamond Springs Route (DS) is about ½ mile from the project site. This route travels along Pleasant Valley Road and loops along Racquet Way. Passengers can use this route to travel to the Missouri Flat Road Transit Center where they can transfer to other routes. The route operates from about 7:00 a.m. to about 6:00 p.m. Monday through Friday at one-hour headways.

The *Western El Dorado County Short and Long Range Transit Plan* has identified the following improvements for transit service in the Diamond Springs area. Short Range improvements include beginning the route schedule at 6:00 a.m., extending the existing weekday route schedule by one hour at the end of the day and instituting Saturday service between 9:00 a.m. and 5:00 p.m. Long Range improvements include revising the route as a result of completion of Diamond Springs Parkway. This will allow the route to be reconfigured to include the Diamond Dorado Shopping Center along Diamond Springs Parkway. This may allow El Dorado Transit to provide a bus stop at or near the project entrance at the Diamond Road / Diamond Springs Parkway intersection.

Bicycle and Pedestrian Facilities

Designated bicycle facilities do not exist in the vicinity of the project. According to the El Dorado County Bicycle Transportation Plan, Class II bike lanes are proposed along Diamond Road from Pleasant Valley Road to Diamond Springs Parkway. In addition, Class II bike facilities are also proposed along Pleasant Valley Road through Diamond Springs and along Diamond Springs Parkway between Diamond Road and Missouri Flat Road. The section of Missouri Flat Road, from about Forni Road to Pleasant Valley Road will also include Class II facilities. This network will provide bicyclists direct routes to and from the Piedmont Oaks site.

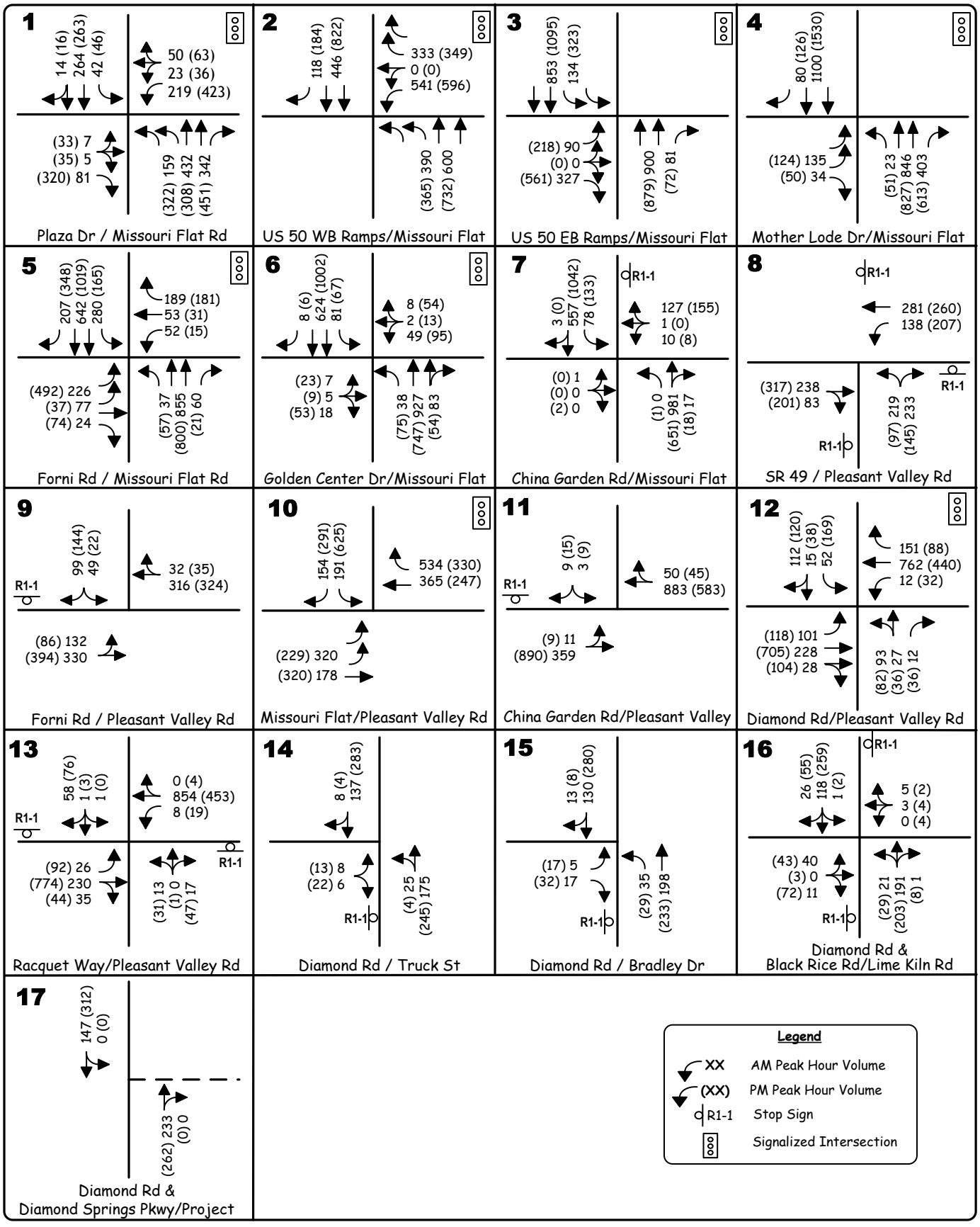
Diamond Road is a rural road and sidewalk is not present in the vicinity of the project. According to the El Dorado County Transportation Commission *El Dorado County Transportation Plan* new development has sidewalks fronting shopping centers and is contained in many residential subdivisions. It is possible that sidewalks will be installed along the west side of Diamond Road as part of the Diamond Dorado Center project. Sidewalks are proposed within the Piedmont Oaks project but not along the east side of Diamond Road. Sidewalk should be installed along the curb returns along the east side of Diamond Road as part of Piedmont Oaks development to provide a contiguous access between the project site and the Diamond Dorado Center.

Existing Traffic Operating Conditions

Traffic Volume Counts. This analysis makes use of peak hour traffic volume counts presented in the *Diamond Springs and El Dorado Area Mobility and Livable Community Plan* (DSEDAMLCP) traffic study, as well as new traffic counts conducted on April 8, 2014 and July 30, 2014. The July counts were adjusted based on turning movement counts that were conducted at adjacent intersections while school was in session. The counts are included in the Appendix, and the intersection turning movements are presented in Figure 3.

Intersection Levels of Service. Table 2 summarizes current operating Levels of Service at the study area intersections developed based on mean 10 simulation runs conducted for each time period. As indicated, all study intersections currently operate with acceptable Levels of Service during the a.m. and p.m. peak hours.

Traffic Signal Warrants. Two unsignalized intersections carry volumes that meet the peak hour signal warrant criteria during either peak period. These include the Missouri Flat Road / China Garden Road intersection and the Pleasant Valley Road / SR 49 (South) intersection where the peak hour signal warrant is met in both AM and PM peak periods. Two additional intersections meet the peak hour volume portion of the peak hour warrant. These include the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / Racquet Way intersection.



EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

TABLE 2
EXISTING PEAK HOUR LEVELS OF SERVICE AT INTERSECTIONS

Location	Control	AM Peak Hour		PM Peak Hour		Traffic Signal Warranted?
		LOS	Average Delay	LOS	Average Delay	
1. Missouri Flat Rd / Plaza Dr	Signal	B	16.7	C	27.7	N/A
2. Missouri Flat Rd / WB US 50 ramps	Signal	B	18.4	B	17.2	N/A
3. Missouri Flat Rd / EB US 50 ramps	Signal	B	16.2	C	21.3	N/A
4. Missouri Flat Rd / Mother Lode Dr	Signal	A	8.5	A	8.5	N/A
5. Missouri Flat Rd / Forni Rd	Signal	C	21.8	C	20.6	N/A
6. Missouri Flat Rd / Golden Center Dr	Signal	B	14.9	C	20.2	N/A
7. Missouri Flat Rd / China Garden Rd	WB Stop					Yes*
NB Left		◊	◊	◊	◊	
SB Left		C	15.2	B	12.5	
EB		E	37.4	B	10.4	
WB		C	23.9	C	17.6	
8. Pleasant Valley Rd (SR 49) / SR-49 South	AWS Stop	B	12.5	C	15.3	Yes
9. Pleasant Valley Rd (SR 49) / Forni Rd	SB Stop					Yes†
SB		D	31.8	B	11.8	
EB Left		A	6.0	A	6.5	
10. Missouri Flat Rd / Pleasant Valley Rd (SR 49)	Signal	B	17.6	B	16.9	N/A
11. Pleasant Valley Rd (SR 49) / China Garden Rd	SB Stop					No
SB		A	1.8	A	2.3	
EB Left		B	13.8	A	8.1	
12. Diamond Rd (SR 49)/Pleasant Valley Rd (SR 49)	Signal	B	18.9	B	17.8	N/A
13. Pleasant Valley Rd / Racquet Way	NB / SB					Yes‡
NB	Stop	A	7.1	C	19.2	
SB		A	9.9	A	7.3	
EB Left		A	6.2	A	4.8	
WB Left		A	6.6	B	11.5	
14. Diamond Road (SR 49) / Truck St	EB Stop					No
NB Left		A	2.4	A	2.5	
EB		A	4.2	A	4.9	
15. Diamond Road (SR 49) / Bradley Dr	EB Stop					No
NB Left		A	3.1	A	3.7	
EB		A	3.6	A	7.4	
16. Diamond Road (SR 49) / Lime Kiln Rd – Black Rice Ln	EB / WB Stop					No
NB Left		A	3.7	A	5.4	
SB Left		A	2.1	A	2.6	
EB		A	5.4	A	6.4	
WB		A	4.1	A	6.7	

* meets volume and delay warrant in AM and PM peak hours
† meets volume warrant in AM and PM peak hours
‡ meets volume warrant in PM peak hour
◊ no delay reported

Intersection Queues. Table 3 presents information regarding current peak period queuing in lanes at signalized study intersections. In each case, the available storage has been presented along with current peak hour traffic volumes and the 95th percentile queue length. On multiple lane approaches the longest queue amongst a group of common lanes has been noted.

Most intersections have lane storage capacity that can accommodate peak period queues. Those 95th percentile queues with length exceeding the available storage have been highlighted. The 95th percentile queue exceeds available storage in nine locations.

TABLE 3
EXISTING PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour		PM Peak Hour	
		VPH	Queue (feet)	VPH	Queue (feet)
1. Missouri Flat Road / Plaza Drive					
NB left turn	330	159 (2)	105	322 (2)	191
NB through	450	432 (2)	100	308 (2)	196
NB right turn	450	342	100	451	131
SB left turn	110	42	64	46	70
EB left+through+right	120	93 (2)	66	388 (2)	203
WB left +through+right turn	275	282 (2)	159	522 (2)	232
2. Missouri Flat Road / WB US 50 ramps					
NB left turn	160	390 (2)	167	365 (2)	165
NB through	360	600 (2)	289	732 (2)	213
SB through	520	446 (2)	157	822 (2)	225
WB left turn	410	541 (2)	211	596 (2)	220
WB right turn	410	333 (2)	127	349 (2)	148
3. Missouri Flat Road / EB US 50 ramps					
NB through	160	900 (2)	206	879 (2)	185
NB right turn	140	81	73	72	85
SB left	160	134 (2)	192	323 (2)	214
SB through	380	853 (2)	353	1,095 (2)	419
EB left+through+right turn	540	417 (3)	137	779 (3)	213
4. Missouri Flat Road / Mother Lode Drive					
NB left turn	150	23	56	51	67
NB through	2,300	846 (2)	175	827 (2)	147
SB through	140	1,100 (2)	106	1,530 (2)	168
SB right turn	130	80	<25	126	66
5. Missouri Flat Road / Forni Road					
NB left turn	250	37	68	57	84
NB through	1,000	855 (2)	268	800 (2)	248
NB right turn	160	60	125	21	79
SB left turn	300	280	271	165	182
SB through	2,300	642 (2)	181	1,019 (2)	260
SB right turn	150	207	125	348	181
Highlighted values indicate queue length in excess of available storage					

TABLE 3 (cont'd)
EXISTING PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour		PM Peak Hour	
		VPH	Queue (feet)	VPH	Queue (feet)
6. Missouri Flat Road / Golden Center Drive					
NB left turn	120	38	68	75	100
SB left turn	160	81	115	67	151
10. Missouri Flat Road / SR 49 (Pleasant Valley Rd)					
SB left turn	600	191	153	625	238
SB right turn	600	154	72	291	93
EB left turn	160	320 (2)	176	229 (2)	137
WB right turn	190	534	221	330	153
12. Diamond Road (SR 49) / Pleasant Valley Rd (SR 49)					
SB left turn	340	52	70	169	146
SB through+right	340	127	100	158	105
NB right turn	100	12	36	36	78
NB left+through	600	120	119	118	129
EB left turn	200	101	120	118	158
WB right turn	170	151	222	88	118
WB left turn	100	12	48	32	90

Highlighted values indicate queue length in excess of available storage

PROJECT CHARACTERISTICS

The development of this project will attract traffic to the project site. The amount of additional traffic on a particular section of the street network is dependent upon two factors:

- Trip Generation, the number of new trips generated by the project, and
- Trip Distribution and Assignment, the specific routes that the new traffic takes.

Trip Generation

Trip generation is determined by identifying the type and size of land use being developed. Recognized sources of trip generation data may then be used to calculate the total number of trip ends that the project creates.

The trip generation for this project was calculated using trip generation rates published in the *Trip Generation Manual* (Institute of Transportation Engineers, 9th Edition, 2012. Applicable rates are found in categories 210 (Single Family Residential) and 710 (General Office Building), as noted in Table 4.

TABLE 4
TRIP GENERATION

Land Use	Unit Quantity	Size	Trips Per Unit						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Single Family Residential (LU 210)	Unit	104	10.47	25%	75%	0.79	63%	37%	1.05
General Office (LU 710)	KSF	20.0	19.32	88%	12%	2.64	17%	83%	5.04
Single Family Residential (LU 210)			**1,089**	21	62	**83**	69	40	**109**
General Office (LU 710)			**386**	46	6	**53**	17	84	**101**
Net New trips			**1,475**	**67**	**68**	**135**	**86**	**124**	**210**

KSF – thousand square feet
Notes – no pass-by trip reduction; numbers may not add up due to rounding

Application of applicable trip generation rates yields a total of 1,475 new daily trips, with 135 new trips expected in the a.m. peak hour and 210 new trips generated during the p.m. peak hour.

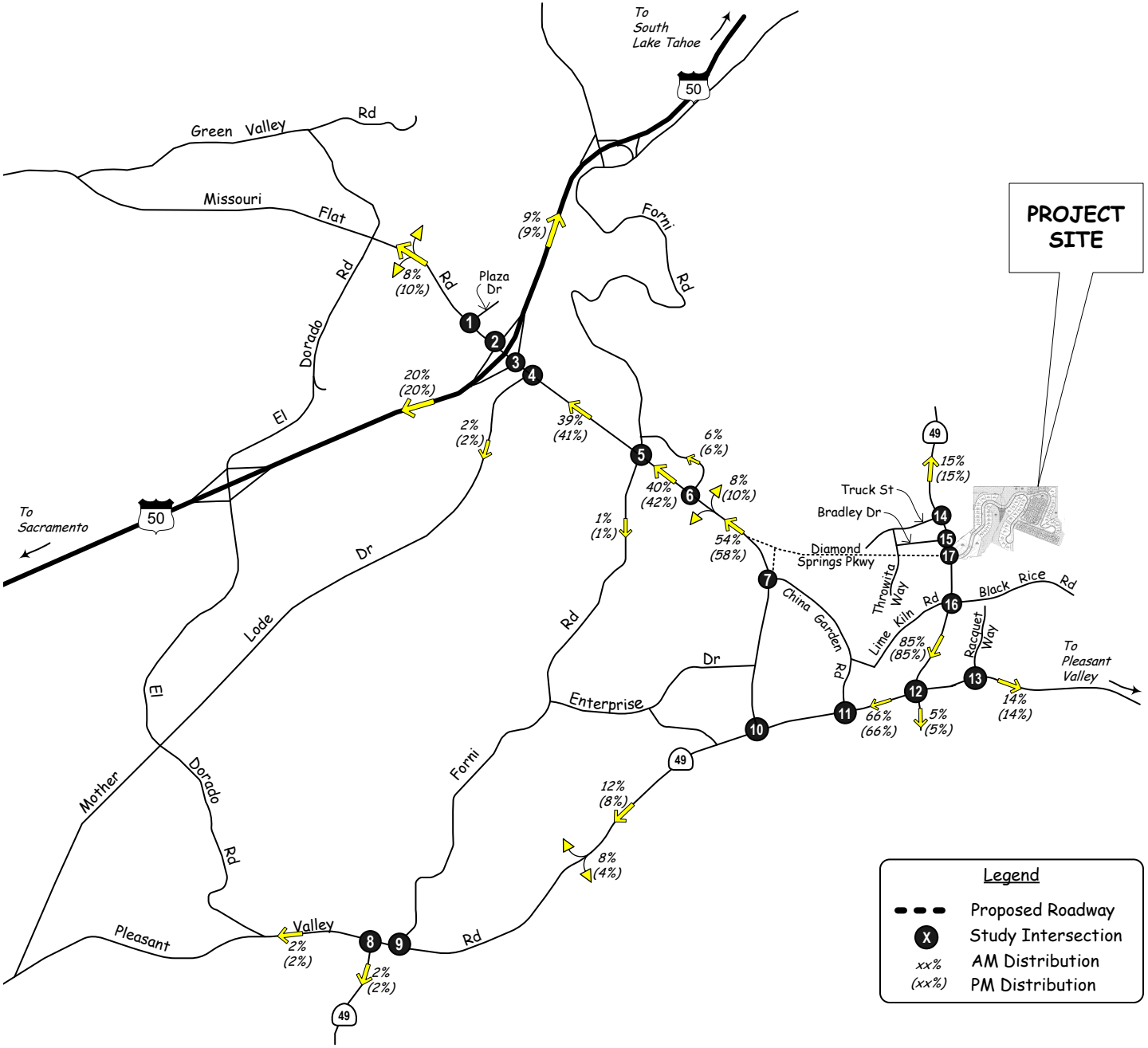
Trip Distribution & Assignment

Two trip distribution patterns were applied to trips related to the Project. One pattern was applied to Existing and Near Term Conditions (i.e., Existing plus Project and 2019 plus Project) and another pattern was applied to Long-Term (2035) Conditions. Table 5 presents the project trip distributions.

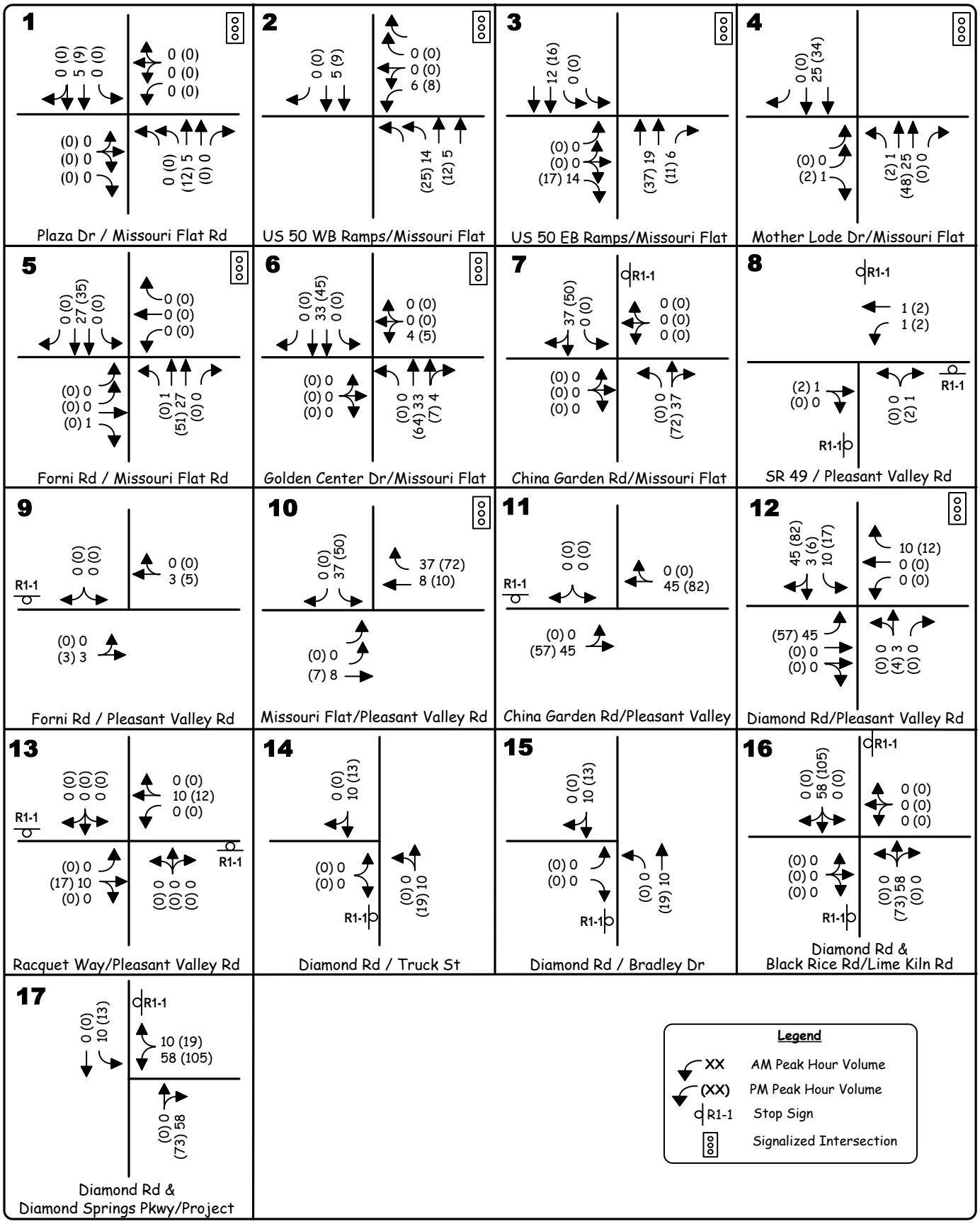
Existing and 2019. To evaluate the traffic related effects of the Project, trips that would be generated by the Project were distributed onto the roadway network. Trip distribution simulates the geographical pattern of travel, matching trips generated by one type of land use (e.g. residential) with trips generated by other types of land uses (e.g., education, employment, and shopping). Trip distribution patterns to and from the Project were based on the previous traffic study for the project site conducted by AECOM in 2012 but adjusted to account for school-related traffic. The project trip distribution pattern is shown in Figure 4 with the project traffic shown in Figure 5.

TABLE 5
PROJECT TRIP DISTRIBUTION

Direction	Route	Distribution	
		Existing / 2019	2035
North	Diamond Road (SR 49)	15%	15%
	Missouri Flat Road , north of US 50	8%	10%
South	Fowler Lane	5%	5%
	Koki Lane / Paterson Drive	8%	4%
	SR 49 (South)	2%	2%
West	Pleasant Valley Road west of SR 49 (South)	2%	2%
	US 50 west of Missouri Flat Road	20%	20%
	Mother Lode Drive west of Missouri Flat Road	2%	2%
	Forni Road west of Missouri Flat Road	1%	1%
East	US 50 east of Missouri Flat Road	9%	9%
	Pleasant Valley Road east of Diamond Road	14%	14%
Internal along Missouri Flat Road	Along Missouri Flat Road	8%	10%
	Golden Center Drive	6%	6%
Total		100%	100%



EXISTING AND 2019 PROJECT TRIP DISTRIBUTION



EXISTING & 2019 PROJECT ONLY TRAFFIC VOLUMES AND LANE CONFIGURATIONS

PROJECT TRAFFIC IMPACTS

Existing Plus Project Conditions

Traffic Volumes The impacts of developing the project uses on the project site have been identified by superimposing project traffic onto existing background conditions. Figure 6 displays the "Existing Plus Project" traffic volumes at each study intersection in both AM and PM peak hours.

Circulation System Improvements. Figure 6 also presents the intersection geometry and traffic controls resulting from implementation of the project's planned improvements along Diamond Springs Road. For purposes of the analysis it is assumed that a left turn lane will be added along southbound Diamond Road to provide left turn storage. The proposed access roadway will be stop controlled.

Intersection Levels of Service. Intersection Levels of Service were calculated and used as the basis for evaluating project impacts. Table 6 displays the peak hour Levels of Service at each study intersection and compares existing Levels of Service with those accompanying the project.

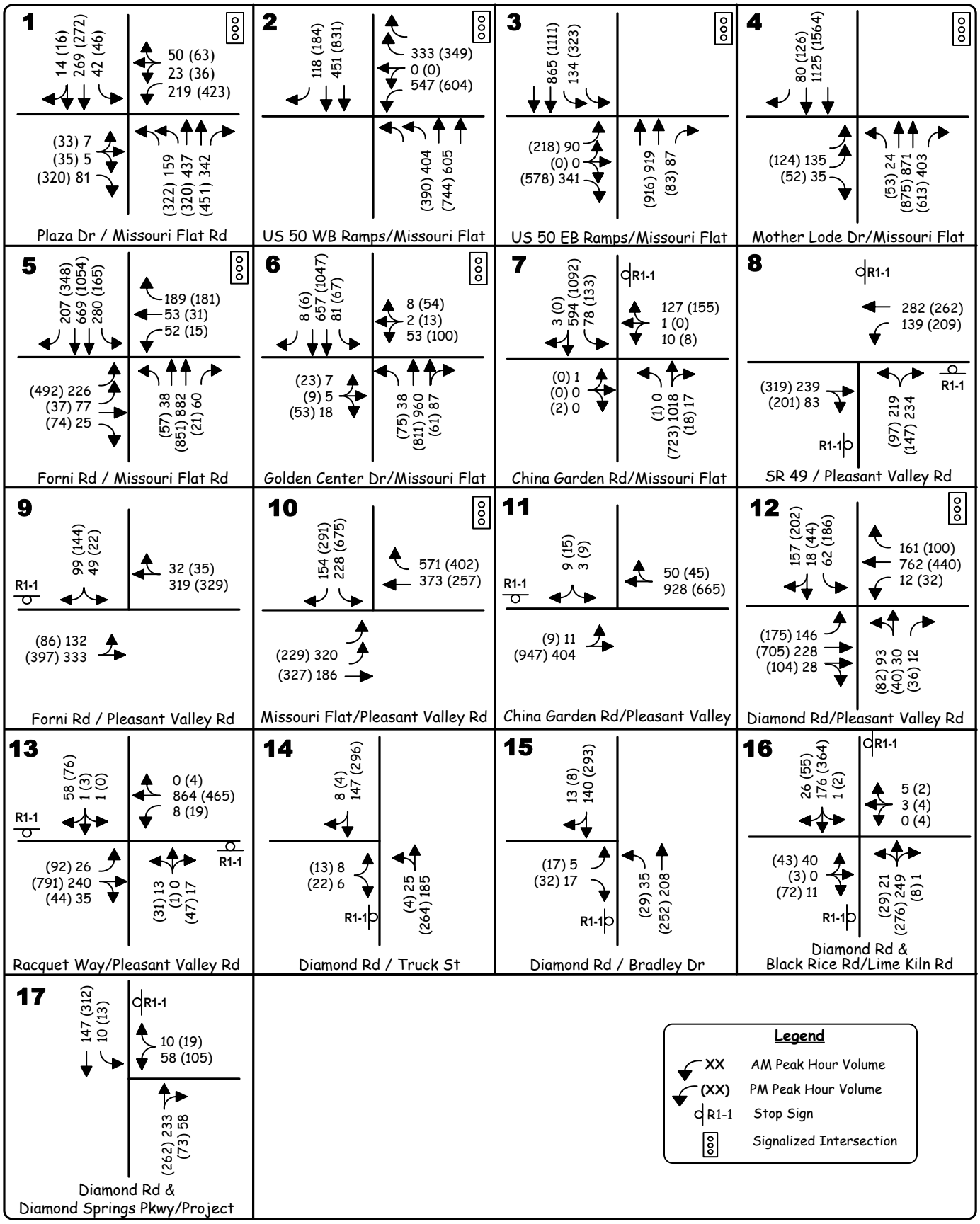
All intersections will continue to operate better than the minimum El Dorado County standard (i.e., LOS E or better).

Traffic Signal Warrants. Existing Plus Project traffic volumes at unsignalized intersections were compared to peak hour warrant requirements to determine whether traffic signals may be needed. Two unsignalized intersections will continue to carry volumes that meet the peak hour signal warrant criteria during either peak period. These include the Missouri Flat Road / China Garden Road intersection and the Pleasant Valley Road / SR 49 (South) intersection where the peak hour signal warrant is met in both AM and PM peak periods. Two additional intersections meet the peak hour volume portion of the peak hour warrant. These include the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / Racquet Way intersection.

Intersection Queues. Table 7 identifies peak period queues assuming the addition of project trips**. P**roject trips and the SimTraffic software may change the length of some queues. Those 95th percentile queues with length exceeding the available storage have been highlighted. Under Existing plus Project conditions eleven locations will exceed the available storage.

Project Access

Access is proposed via a stop control along the Project Access approach to the Diamond Road intersection. This access is projected to be the east leg of the proposed Diamond Springs Parkway / Diamond Road intersection. Emergency only vehicle access will be provided via Black Rice Lane south of the Project access intersection. The forecasted LOS for the intersection is LOS A for both the main line left turns and the side street approach.



EXISTING PLUS PROJECT
TRAFFIC VOLUMES AND LANE CONFIGURATIONS

TABLE 6
PEAK HOUR INTERSECTION LEVELS OF SERVICE
EXISTING PLUS PROJECT CONDITIONS

Location	Control	AM Peak Hour				PM Peak Hour				Traffic Signal Warranted?
		Existing		Ex Plus Project		Existing		Ex Plus Project		
		LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	
1. Missouri Flat Rd / Plaza Dr	Signal	B	16.7	B	16.1	C	27.7	C	27.7	N/A
2. Missouri Flat Rd / WB US 50 ramps	Signal	B	18.4	B	19.1	B	17.2	B	17.8	N/A
3. Missouri Flat Rd / EB US 50 ramps	Signal	B	16.2	B	16.5	C	21.3	C	21.7	N/A
4. Missouri Flat Rd / Mother Lode Dr	Signal	A	8.5	A	8.8	A	8.5	A	8.9	N/A
5. Missouri Flat Rd / Forni Rd	Signal	C	21.8	C	21.1	C	20.6	C	21.8	N/A
6. Missouri Flat Rd / Golden Center Dr	Signal	B	14.9	B	14.8	C	20.2	C	21.5	N/A
7. Missouri Flat Rd / China Garden Rd	WB Stop									Yes*
NB Left		◊	◊	◊	◊	◊	◊	◊	◊	
SB Left		C	15.2	C	16.4	B	12.5	B	13.9	
EB		E	37.4	C	19.0	B	10.4	B	11.9	
WB		C	23.9	E	35.0	C	17.6	C	23.9	
8. Pleasant Valley Rd (SR 49) / SR-49 South	AWS Stop	B	12.5	B	11.1	C	15.3	C	17.4	Yes
9. Pleasant Valley Rd (SR 49) / Forni Rd	SB Stop									Yes†
SB		D	31.8	E	37.0	B	11.8	B	11.1	
EB Left		A	6.0	A	5.9	A	6.5	A	6.3	
10. Missouri Flat Rd / Pleasant Valley Rd (SR 49)	Signal	B	17.6	B	19.3	B	16.9	B	18.4	N/A
11. Pleasant Valley Rd (SR 49) / China Garden Rd	SB Stop									No
SB		A	1.8	A	2.2	A	2.3	A	2.7	
EB Left		B	13.8	B	13.0	A	8.1	B	10.9	
12. Diamond Rd (SR 49) / Pleasant Valley Rd (SR 49)	Signal	B	18.9	C	25.3	B	17.8	C	19.7	N/A

* meets volume and delay warrant in AM and PM peak hours

† meets volume warrant in AM and PM peak hours

‡ meets volume warrant in PM peak hour

◊ no delay reported

TABLE 6 (cont'd)
PEAK HOUR INTERSECTION LEVELS OF SERVICE
EXISTING PLUS PROJECT CONDITIONS

Location	Control	AM Peak Hour				PM Peak Hour				Traffic Signal Warranted?
		Existing		Ex Plus Project		Existing		Ex Plus Project		
		LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	
13. Pleasant Valley Rd / Racquet Way	NB / SB									Yes‡
NB	Stop	A	7.1	A	9.8	C	19.2	C	20.0	
SB		A	9.9	B	10.3	A	7.3	A	7.2	
EB Left		A	6.2	A	7.1	A	4.8	A	5.1	
WB Left		A	6.6	A	6.3	B	11.5	B	10.8	
14. Diamond Road (SR 49) / Truck St	EB Stop									No
NB Left		A	2.4	A	2.6	A	2.5	A	4.0	
EB		A	4.2	A	4.8	A	4.9	A	5.1	
15. Diamond Road (SR 49) / Bradley Dr	EB Stop									No
NB Left		A	3.1	A	2.7	A	3.7	A	3.1	
EB		A	3.6	A	3.6	A	7.4	A	5.0	
16. Diamond Road (SR 49) / Lime Kiln Rd – Black Rice Ln	EB / WB Stop									No
NB Left		A	3.7	A	4.2	A	5.4	A	5.8	
SB Left		A	2.1	A	1.7	A	2.6	A	4.3	
EB		A	5.4	A	6.6	A	6.4	A	7.5	
WB		A	4.1	A	4.8	A	6.7	A	8.0	
17. Diamond Road (SR 49) / Project Access	WB Stop									No
SB Left		---	---	A	3.7	---	---	A	3.7	
WB		---	---	A	6.3	---	---	A	8.8	

* meets volume and delay warrant in AM and PM peak hours
† meets volume warrant in AM and PM peak hours
‡ meets volume warrant in PM peak hour
◊ no delay reported

TABLE 7
EXISTING PLUS PROJECT PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour VPH Existing	AM Peak Hour VPH Project Only	AM Peak Hour VPH Total	AM Peak Hour Ex Plus Project Queue (feet)	PM Peak Hour VPH Existing	PM Peak Hour VPH Project Only	PM Peak Hour VPH Total	PM Peak Hour Ex Plus Project Queue (feet)
1. Missouri Flat Road / Plaza Drive									
NB left turn	330	159 (2)	0	159	97	322 (2)	0	322	195
NB through	450	432 (2)	5	437	95	308 (2)	12	320	199
NB right turn	450	342	0	342	96	451	0	451	136
SB left turn	110	42	0	42	61	46	0	46	76
EB left+through+right	120	93 (2)	0	93	67	388 (2)	0	388	203
WB left +through+right turn	275	282 (2)	0	282	151	522 (2)	0	522	229
2. Missouri Flat Road / WB US 50 ramps									
NB left turn	160	390 (2)	14	404	170	365 (2)	25	390	166
NB through	360	600 (2)	5	605	349	732 (2)	12	744	275
SB through	520	446 (2)	5	451	164	822 (2)	9	831	223
WB left turn	410	541 (2)	6	547	217	596 (2)	8	604	230
WB right turn	410	333 (2)	0	333	125	349 (2)	0	349	142
3. Missouri Flat Road / EB US 50 ramps									
NB through	160	900 (2)	19	919	201	879 (2)	37	916	189
NB right turn	140	81	0	81	70	72	0	72	84
SB left	160	134 (2)	0	134	183	323 (2)	0	323	213
SB through	380	853 (2)	12	865	384	1,095 (2)	16	1,111	431
EB left+through+right turn	540	417 (3)	14	431	156	779 (3)	17	796	222
4. Missouri Flat Road / Mother Lode Drive									
NB left turn	150	23	1	24	62	51	2	53	73
NB through	2,300	846 (2)	25	871	191	827 (2)	48	875	170
SB through	140	1,100 (2)	25	1,125	113	1,530 (2)	34	1,564	171
SB right turn	130	80	0	80	<25	126	0	126	81

Highlighted values indicate queue length in excess of available storage

TABLE 7 (cont'd)
EXISTING PLUS PROJECT PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour				PM Peak Hour			
		VPH			Ex Plus Project Queue (feet)	VPH			Ex Plus Project Queue (feet)
		Existing	Project Only	Total		Existing	Project Only	Total	
5. Missouri Flat Road / Forni Road									
NB left turn	250	37	1	38	64	57	0	57	88
NB through	1,000	855 (2)	27	882	270	800 (2)	51	851	276
NB right turn	160	60	0	60	134	21	0	21	72
SB left turn	300	280	0	280	275	165	0	165	185
SB through	2,300	642 (2)	27	669	187	1,019 (2)	35	1,054	247
SB right turn	150	207	1	208	122	348	5	353	167
6. Missouri Flat Road / Golden Center Drive									
NB left turn	120	38	0	38	77	75	0	75	122
SB left turn	160	81	0	81	125	67	0	67	142
10. Missouri Flat Road / SR 49 (Pleasant Valley Rd)									
SB left turn	600	191	37	228	179	625	50	675	230
SB right turn	600	154	0	154	81	291	0	291	104
EB left turn	160	320	0	320	152	229	0	229	138
WB right turn	190	534	37	571	251	330	72	402	162
12. Diamond Road (SR 49) / Pleasant Valley Rd (SR 49)									
SB left turn	340	52	10	62	80	169	17	186	159
SB through+right	340	127	48	175	140	158	83	241	166
NB right turn	100	12	0	12	49	36	0	36	72
NB left+through	600	120	3	123	144	118	4	122	132
EB left turn	200	101	45	146	168	118	53	171	203
WB right turn	170	151	10	161	245	88	12	100	159
WB left turn	100	12	0	12	62	32	0	32	96

Highlighted values indicate queue length in excess of available storage

EXISTING PLUS APPROVED PROJECTS IMPACTS (2019)

The analysis of the near term 2019 cumulative condition is intended to consider the impact of this project within the context of the "Existing Plus Approved Projects" (EPAP) conditions occurring within 5 years (i.e., by 2019).

Analysis Methodology

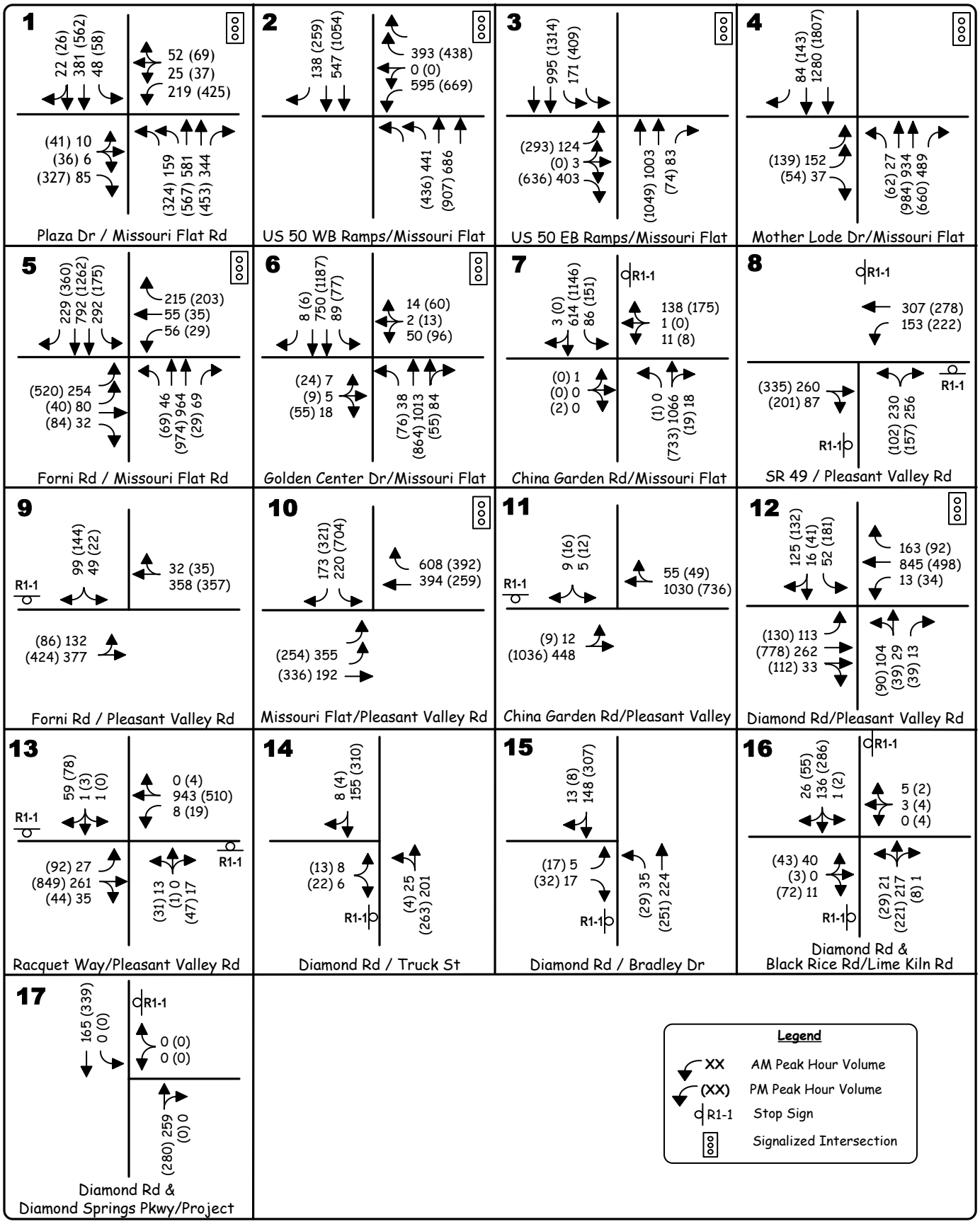
El Dorado County traffic study guidelines prescribe two methodologies to determine future short term traffic volumes. The two methodologies involve either 1) adding trips associated with specific approved projects located in the study area to current turning movement counts, or 2) interpolating short term growth based on information developed from long term traffic volumes projections.

Direction regarding the analysis of Year 2019 conditions was provided by Caltrans in consultation with DOT. Because the study area circulation system is influenced by regional growth, interpolation of available long term forecasts is the preferred methodology for estimating year 2019 volumes.

The approach taken to produce Year 2019 volume follows El Dorado County traffic study guidelines. The Year 2035 traffic volumes presented in the *DSEDAMLCP* traffic study were selected as being representative of long term conditions, with adjustment of specific approach volumes. Peak hour approach volumes for 2019 were calculated using straight-line interpolation. The resulting approach growth rate at each intersection was determined to be between 5% and 9% on various intersection approaches. These volumes were developed in the preparation of *The Crossing Traffic Impact Analysis* prepared by KDAnderson & Associates, Inc. in 2014.

Year 2019 Forecasts / Conditions

Traffic Volumes. The identified short term growth rates described above were applied to the current traffic volumes at each intersection, and the resulting background base Year 2019 volumes determined. Two additional near term projects were identified by El Dorado County staff and were added to the base volumes. The two projects include Phase 1 of *The Crossing* and the *Willow Creek Retail Center.* The Crossing is located north of the Missouri Flat Road / US 50 interchange while Willow Creek is located in the northwest quadrant of the Missouri Flat Road / Forni Road intersection. 2019 No Project volumes are presented in Figure 7.



2019 TRAFFIC VOLUMES AND LANE CONFIGURATIONS

Intersection Levels of Service. The identified Year 2019 volumes were used to recalculate operating Levels of Service at selected intersections. For the purpose of this analysis, no improvements to study area intersections have been assumed to occur by the Year 2019.

Table 8 displays the a.m. and p.m. peak hour Levels of Service at each study intersection in the 2019 condition. One unsignalized intersection, Missouri Flat Road at China Garden Road will operate at an LOS F condition along the eastbound (driveway) and westbound (China Garden Road) approaches in the AM peak hour. This intersection meets the peak hour warrant in both AM and PM peak periods.

Intersection Queues. Table 9 identifies peak period queues for the Year 2019 base condition. Approach queues are observed to increase as a result of the projected traffic increase in the next five years. Thirteen approaches are projected to exceed the available storage.

TABLE 8
PEAK HOUR INTERSECTION LEVELS OF SERVICE
2019 PLUS PROJECT CONDITIONS

Location	Control	AM Peak Hour				PM Peak Hour				Traffic Signal Warranted?
		2019		2019 Plus Project		2019		2019 Plus Project		
		LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	
1. Missouri Flat Rd / Plaza Dr	Signal	B	16.2	B	15.6	C	31.6	C	29.6	N/A
2. Missouri Flat Rd / WB US 50 ramps	Signal	C	20.1	C	20.5	C	25.4	C	27.2	N/A
3. Missouri Flat Rd / EB US 50 ramps	Signal	B	18.7	B	18.9	C	26.1	C	28.4	N/A
4. Missouri Flat Rd / Mother Lode Dr	Signal	A	9.7	B	10.3	B	10.2	B	10.2	N/A
5. Missouri Flat Rd / Forni Rd	Signal	C	22.6	C	21.5	C	26.2	C	31.5	N/A
6. Missouri Flat Rd / Golden Center Dr	Signal	B	15.6	B	15.8	C	23.7	C	29.7	N/A
7. Missouri Flat Rd / China Garden Rd	WB Stop									Yes*
NB Left		◊	◊	◊	◊	◊	◊	◊	◊	
SB Left		C	19.8	C	18.6	C	15.2	E	42.3	
EB		F	61.4	F	67.1	C	16.1	F	67.2	
WB		F	74.7	F	60.8	D	32.3	F	129.5	
8. Pleasant Valley Rd (SR 49) / SR-49 South	AWS Stop	C	21.2	C	18.0	C	21.9	C	22.2	Yes
9. Pleasant Valley Rd (SR 49) / Forni Rd	SB Stop									Yes†
SB		E	38.4	F	53.5	C	23.1	C	21.6	
EB Left		A	6.7	A	6.8	A	6.7	A	6.4	
10. Missouri Flat Rd / Pleasant Valley Rd (SR 49)	Signal	C	20.4	C	22.5	B	18.4	B	14.1	N/A
11. Pleasant Valley Rd (SR 49) / China Garden Rd	SB Stop									No
SB		A	2.8	A	3.4	A	4.2	A	4.5	
EB Left		C	21.1	C	15.6	B	11.0	B	14.6	

* meets volume and delay warrant in AM and PM peak hours

† meets volume warrant in AM and PM peak hours

‡ meets volume warrant in PM peak hour

◊ no delay reported

TABLE 8 (cont'd)
PEAK HOUR INTERSECTION LEVELS OF SERVICE
2019 PLUS PROJECT CONDITIONS

Location	Control	AM Peak Hour				PM Peak Hour				Traffic Signal Warranted?
		2019		2019 Plus Project		2019		2019 Plus Project		
		LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	
12. Diamond Rd (SR 49) / Pleasant Valley Rd (SR 49)	Signal	C	30.6	D	38.9	C	20.3	C	23.2	N/A
13. Pleasant Valley Rd / Racquet Way	NB / SB									Yes‡
NB	Stop	B	14.6	E	49.5	C	21.8	C	20.8	
SB		E	41.4	F	94.1	A	8.3	A	8.1	
EB Left		A	9.4	B	11.2	A	5.0	A	5.3	
WB Left		B	10.4	B	11.6	B	12.3	B	11.6	
14. Diamond Road (SR 49) / Truck St	EB Stop									No
NB Left		A	2.6	A	2.4	A	2.7	A	3.3	
EB		A	4.1	A	4.3	A	5.1	A	4.5	
15. Diamond Road (SR 49) / Bradley Dr	EB Stop									No
NB Left		A	2.5	A	2.8	A	3.1	A	3.7	
EB		A	4.2	A	3.8	A	5.1	A	5.4	
16. Diamond Rd (SR 49) / Lime Kiln Rd – Black Rice Ln	EB / WB									No
NB Left	Stop	A	3.8	A	4.2	A	4.9	A	6.5	
SB Left		A	1.4	A	1.6	A	2.3	A	4.6	
EB		A	5.5	A	6.6	A	6.7	A	8.5	
WB		A	4.6	A	4.9	A	7.5	A	9.3	
17. Diamond Road (SR 49) / Project Access	WB Stop									No
SB Left		---	---	A	3.6	---	---	A	3.1	
WB		---	---	A	6.3	---	---	A	9.6	

* meets volume and delay warrant in AM and PM peak hours
† meets volume warrant in AM and PM peak hours
‡ meets volume warrant in PM peak hour
◊ no delay reported

TABLE 9
2019 PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour		PM Peak Hour	
		VPH	Queue (feet)	VPH	Queue (feet)
1. Missouri Flat Road / Plaza Drive					
NB left turn	330	159 (2)	99	324 (2)	211
NB through	450	581 (2)	117	567 (2)	240
NB right turn	450	344	103	453	228
SB left turn	110	48	71	58	122
EB left+through+right	120	101 (2)	77	404 (2)	224
WB left +through+right turn	275	296 (2)	147	531 (2)	252
2. Missouri Flat Road / WB US 50 ramps					
NB left turn	160	441 (2)	170	436 (2)	168
NB through	360	686 (2)	421	907 (2)	343
SB through	520	547 (2)	173	1,054 (2)	483
WB left turn	410	595 (2)	235	669 (2)	252
WB right turn	410	393 (2)	155	438 (2)	199
3. Missouri Flat Road / EB US 50 ramps					
NB through	160	1,003 (2)	193	1,049 (2)	180
NB right turn	140	83	75	74	84
SB left	160	171 (2)	207	409 (2)	218
SB through	380	995 (2)	406	1,314 (2)	454
EB left+through+right turn	540	530 (3)	178	929 (3)	312
4. Missouri Flat Road / Mother Lode Drive					
NB left turn	150	27	80	62	91
NB through	2,300	934 (2)	234	984 (2)	201
SB through	140	1,280 (2)	133	1,807 (2)	180
SB right turn	130	84	41	143	104
5. Missouri Flat Road / Forni Road					
NB left turn	250	46	97	69	111
NB through	1,000	964 (2)	317	974 (2)	323
NB right turn	160	69	157	29	113
SB left turn	300	292	287	175	212
SB through	2,300	792 (2)	246	1,262 (2)	294
SB right turn	150	229	127	360	190
6. Missouri Flat Road / Golden Center Drive					
NB left turn	120	38	80	76	136
SB left turn	160	89	138	77	175
10. Missouri Flat Road / SR 49 (Pleasant Valley Rd)					
SB left turn	600	220	174	704	223
SB right turn	600	173	98	321	123
EB left turn	160	355 (2)	158	254 (2)	145
WB right turn	190	608	271	392	175

Highlighted values indicate queue length in excess of available storage

TABLE 9 (cont'd)
2019 PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

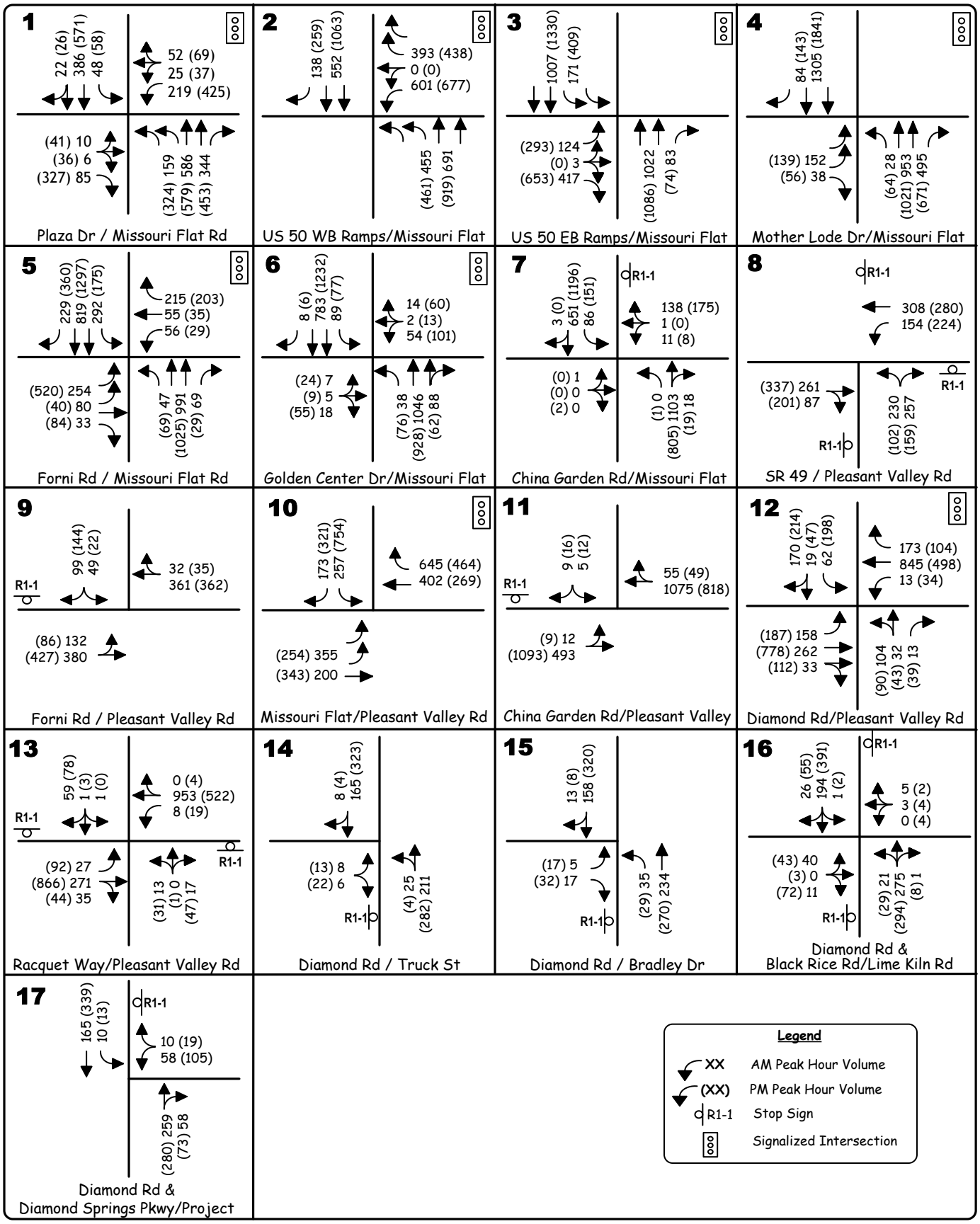
Location	Capacity (feet)	AM Peak Hour		PM Peak Hour	
		VPH	Queue (feet)	VPH	Queue (feet)
12. Diamond Road (SR 49) / Pleasant Valley Rd (SR 49)					
SB left turn	340	52	81	181	173
SB through+right	340	141	124	173	129
NB right turn	100	13	55	39	73
NB left+through	600	133	152	129	143
EB left turn	200	113	143	130	184
WB right turn	170	163	256	92	159
WB left turn	100	13	67	34	90

Highlighted values indicate queue length in excess of available storage

2019 Plus Project

Intersection Levels of Service. The identified Year 2019 plus Project volumes were used to recalculate operating Levels of Service at selected intersections. Figure 8 displays the "2019 Plus Project" traffic volumes at each study intersection in both a.m. and p.m. peak hours. Table 8 displays the AM and PM peak hour Levels of Service at each study intersection in the 2019 plus Project condition. Three intersections will operate at LOS F conditions with the proposed project. These include the Missouri Flat Road / China Garden Road intersection which will continue to operate at LOS F in both AM and PM peak hours, the Pleasant Valley Road (SR 49) / Forni Road intersection which will decline to LOS F on the southbound approach and Pleasant Valley Road / Racquet Way which will decline to LOS F conditions on the northbound and southbound approaches. The Pleasant Valley Road (SR 49) / Forni Road intersection will meet the volume portion of the peak hour warrant in both AM and PM peak hours while the Pleasant Valley Road / Racquet Way intersection will meet the volume portion of the peak hour warrant in the PM peak hour.

Intersection Queues. Table 10 identifies peak period queues for the Year 2019 plus Project condition assuming the addition of project trips**.** Project trips will result in additional queuing throughout the study area with fourteen locations projected to exceed the available storage.



2019 PLUS PROJECT
TRAFFIC VOLUMES AND LANE CONFIGURATIONS

TABLE 10
2019 PLUS PROJECT PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour				PM Peak Hour			
		VPH			2019 Plus Project Queue (feet)	VPH			2019 Plus Project Queue (feet)
		2019	Project Only	Total		2019	Project Only	Total	
1. Missouri Flat Road / Plaza Drive									
NB left turn	330	159 (2)	0	159	100	324 (2)	0	324	168
NB through	450	581 (2)	5	586	120	567 (2)	12	579	199
NB right turn	450	344	0	344	117	453	0	453	197
SB left turn	110	48	0	48	68	58	0	58	120
EB left+through+right	120	101 (2)	0	101	73	404 (2)	0	404	229
WB left +through+right turn	275	296 (2)	0	296	143	531 (2)	0	531	261
2. Missouri Flat Road / WB US 50 ramps									
NB left turn	160	441 (2)	14	455	170	436 (2)	25	461	165
NB through	360	686 (2)	5	691	447	907 (2)	12	919	346
SB through	520	547 (2)	5	552	170	1,054 (2)	9	1,063	504
WB left turn	410	595 (2)	6	601	237	669 (2)	8	677	243
WB right turn	410	393 (2)	0	393	155	438 (2)	0	438	187
3. Missouri Flat Road / EB US 50 ramps									
NB through	160	1,003 (2)	19	1,022	199	1,049 (2)	37	1,086	184
NB right turn	140	83	0	83	73	74	0	74	85
SB left	160	171 (2)	0	171	205	409 (2)	0	409	220
SB through	380	995 (2)	12	1,007	409	1,314 (2)	16	1,330	452
EB left+through+right turn	540	530 (3)	14	544	177	929 (3)	17	946	373
4. Missouri Flat Road / Mother Lode Drive									
NB left turn	150	27	1	28	78	62	2	64	102
NB through	2,300	934 (2)	19	953	301	984 (2)	37	1,021	204
SB through	140	1,280 (2)	25	1,305	131	1,807 (2)	34	1,841	177
SB right turn	130	84	0	84	35	143	0	143	98

Highlighted values indicate queue length in excess of available storage

TABLE 10 (cont'd)
2019 PLUS PROJECT PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour VPH 2019	AM Peak Hour VPH Project Only	AM Peak Hour VPH Total	AM Peak Hour 2019 Plus Project Queue (feet)	PM Peak Hour VPH 2019	PM Peak Hour VPH Project Only	PM Peak Hour VPH Total	PM Peak Hour 2019 Plus Project Queue (feet)
5. Missouri Flat Road / Forni Road									
NB left turn	250	46	1	47	96	69	0	69	136
NB through	1,000	964 (2)	27	991	309	974 (2)	51	1,025	330
NB right turn	160	69	0	69	156	29	0	29	93
SB left turn	300	292	0	292	282	175	0	175	214
SB through	2,300	792 (2)	27	819	240	1,262 (2)	35	1,297	321
SB right turn	150	229	0	229	135	360	0	360	195
6. Missouri Flat Road / Golden Center Drive									
NB left turn	120	38	0	38	67	76	0	76	130
SB left turn	160	89	0	89	137	77	0	77	191
10. Missouri Flat Road / SR 49 (Pleasant Valley Rd)									
SB left turn	600	220	37	257	203	704	50	754	217
SB right turn	600	173	0	173	94	321	0	321	122
EB left turn	160	355 (2)	0	355	158	254 (2)	0	254	147
WB right turn	190	608	37	645	276	392	72	464	198
12. Diamond Road (SR 49) / Pleasant Valley Rd (SR 49)									
SB left turn	340	52	10	62	85	181	17	198	190
SB through+right	340	141	48	189	176	173	88	261	200
NB right turn	100	13	0	13	53	39	0	39	82
NB left+through	600	133	3	136	172	129	4	133	143
EB left turn	200	113	45	158	178	130	57	187	211
WB right turn	170	163	10	173	269	92	12	104	179
WB left turn	100	13	0	13	56	34	0	34	94

Highlighted values indicate queue length in excess of available storage

CUMULATIVE IMPACTS (2035)

The analysis of the long range 2035 cumulative condition is intended to consider the impact of this project within the context of buildout of the General Plan circulation element occurring in 2035.

Year 2035 Forecasts / Conditions

Roadway Conditions

Roadways in 2035 are projected to remain with their current lane configurations. The Diamond Springs Parkway, north of China Garden Road, will connect Missouri Flat Road to Diamond Road (SR 49) and is projected to be completed by 2035. This roadway will include two through lanes in each direction with turn lanes at key intersections. Missouri Flat Road will become the west and south legs of the Missouri Flat Road / China Garden Road intersection. Missouri Flat Road south of China Garden Road will continue to include one through lane in each direction. Diamond Road, as part of the Diamond Springs parkway connection will be widened to two lanes in each direction between Diamond Springs Parkway and Pleasant Valley Road. Dual left turn lanes will be provided for northbound Diamond Road at Diamond Springs Parkway and south Diamond Road at Pleasant Valley Road. The inside lanes will allow for u-turns as through movements and left turns across Diamond Road will be prohibited in this segment.

The Missouri Flat Road / Diamond Springs Parkway intersection will include two left turn lanes and a through-right lane along the northbound approach, a left turn lane, two through lanes and a right turn lane along the eastbound approach, a single lane along the southbound approach and a left turn lane, a through lane and a through-right lane on the westbound approach. The intersection will be signalized and was analyzed as part of the 2035 conditions.

The Diamond Springs Parkway / Diamond Road intersection will include two left turn lanes and a through lane along the northbound approach, a through lane and a right turn lane along the southbound approach and a left lane and a right lane along the eastbound approach. The intersection will be signalized and was analyzed with the signal in 2035 conditions. As part of this project the Bradley Drive intersection will be modified to right-in, right-out access only. Additionally, the Diamond Road / Lime Kiln Road – Black Rice Lane will be modified to allow right-in, right-out and left-in movements only.

An intermediate intersection at Throwita Way will be constructed. This intersection will include a left turn lane, two through lanes and a right turn lane for eastbound traffic, a left turn lane, a through lane and a through-right lane for westbound traffic, a single lane for south bound traffic and a right lane and a through-left lane for northbound traffic. The intersection will be signalized and was analyzed as part of the 2035 conditions.

2035 Traffic Forecasts

Year 2035 traffic forecasts were based on the *DSEDAMLCP* traffic volumes and were expanded to account for traffic along the Diamond Springs Parkway Corridor and Diamond Road (SR 49). Traffic volumes not contained in the *DSEDAMLCP* were developed based upon the growth rates

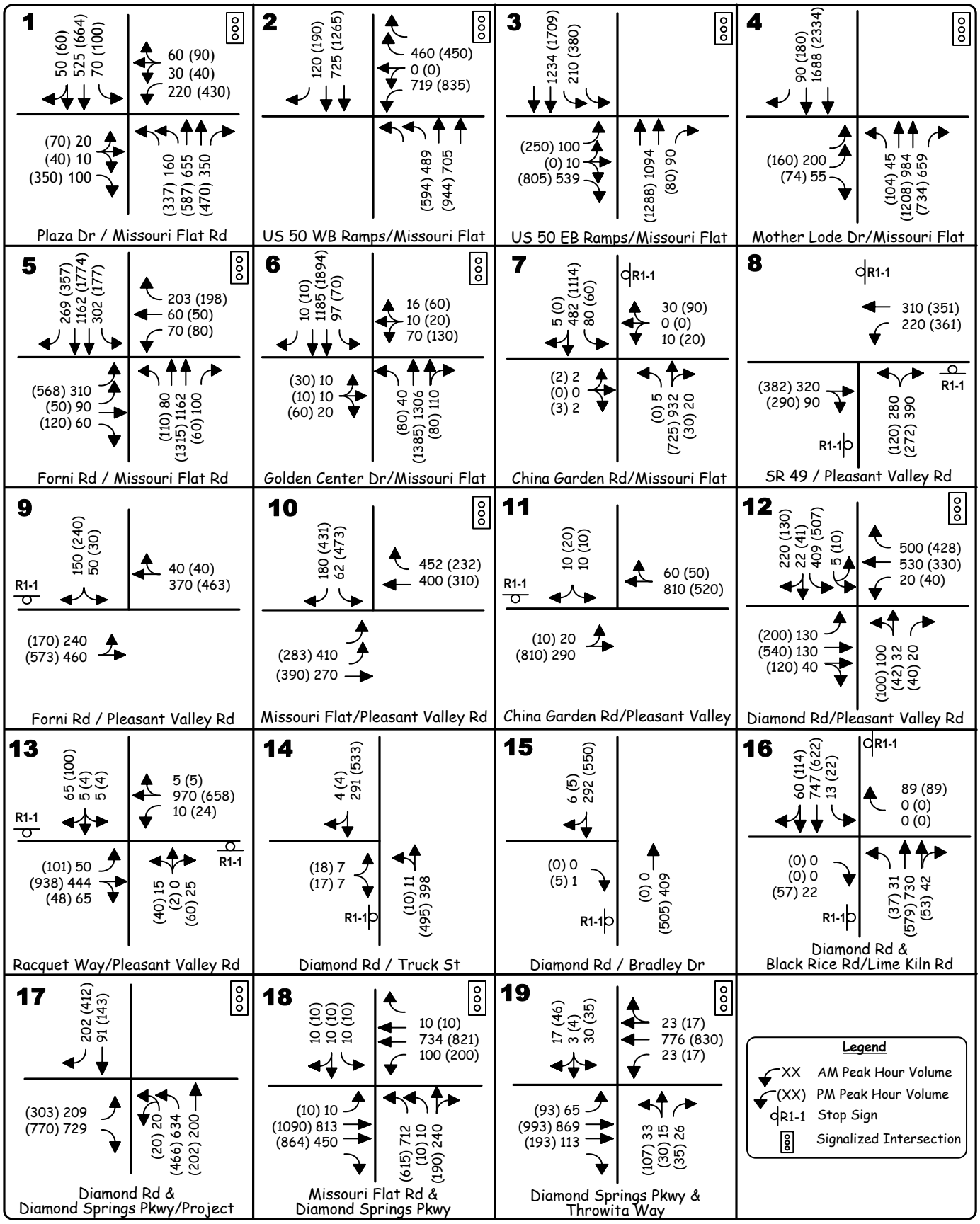
identified between Existing and 2035 *DSEDAMLCP* time periods, the *Diamond Springs Parkway EIR Circulation Element* prepared by Kimley Horn Associates and the *Diamond Dorado Retail Center EIR Traffic Impact Analysis* also prepared by Kimley Horn Associates. Intersection turning movements are presented in Figure 9.

Intersection Levels of Service. The identified Year 2035 volumes were used to recalculate operating Levels of Service at the study intersections. Table 11 displays the a.m. and p.m. peak hour Levels of Service at each study intersection in the 2035 condition. 2035 Synchro files developed for the *DESDAMLCP* were obtained and expanded to include study intersections that were identified for analysis for this project.

Four intersections will operate with LOS F conditions. These include the Missouri Flat Road / US 50 Westbound Ramps intersection which will operate at LOS F in the PM peak hour, the SR 49 / Pleasant Valley Road intersection which will operate at LOS F in both AM and PM peak hours, the Pleasant Valley Road / Racquet Way intersection which will operate with the southbound approach at LOS F in the AM peak hour and the Pleasant Valley Road / Forni Road intersection which will operate at LOS F along the southbound approach in the AM and PM peak hours.

Traffic Signal Warrants. Two unsignalized intersections carry volumes that meet the peak hour signal warrant criteria during either peak period. These include the Pleasant Valley Road / SR 49 (South) intersection where the peak hour signal warrant is met in both AM and PM peak periods and the Pleasant Valley Road / Racquet Way intersection where the peak hour signal warrant is met in the PM peak hour. Three additional intersections meet the peak hour volume portion of the peak hour warrant. These include the Missouri Flat Road / China Garden Road intersection, the Pleasant Valley Road / Forni Road intersection and the Diamond Road / Lime Kiln Road – Black Rice Lane intersection.

Intersection Queues. Table 12 identifies peak period queues for the Year 2035 base condition. Project trips will result in additional queuing throughout the study area with 24 locations projected to exceed the available storage. The most extensive queues are projected to occur in the vicinity of the US 50 / Missouri Flat Road interchange where the westbound US 50 off-ramp queue is projected to exceed 1,100 feet and the eastbound US 50 off-ramp is projected to exceed 1,700 feet. Additionally, the northbound queue along Missouri Flat Road at Mother Lode Drive is expected to exceed 2,200 feet.



2035 NO PROJECT
TRAFFIC VOLUMES AND LANE CONFIGURATIONS

TABLE 11
PEAK HOUR INTERSECTION LEVELS OF SERVICE
2035 PLUS PROJECT CONDITIONS

Location	Control	AM Peak Hour				PM Peak Hour				Traffic Signal Warranted?
		2035		2035 Plus Project		2035		2035 Plus Project		
		LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	
1. Missouri Flat Rd / Plaza Dr	Signal	B	15.5	B	15.8	E	57.3	E	64.5	N/A
2. Missouri Flat Rd / WB US 50 ramps	Signal	C	31.1	C	21.3	F	109.3	F	111.1	N/A
3. Missouri Flat Rd / EB US 50 ramps	Signal	C	30.6	C	25.5	E	71.9	E	78.6	N/A
4. Missouri Flat Rd / Mother Lode Dr	Signal	B	17.2	B	16.1	D	50.1	E	64.1	N/A
5. Missouri Flat Rd / Forni Rd	Signal	D	41.5	D	39.5	E	59.1	E	65.5	N/A
6. Missouri Flat Rd / Golden Center Dr	Signal	C	24.2	C	25.1	D	35.2	D	37.1	N/A
7. Missouri Flat Rd / China Garden Rd	WB Stop									Yes*
NB Left		A	3.4	A	3.9	◊	◊	◊	◊	
SB Left		B	14.8	C	17.8	B	11.1	B	12.0	
EB		B	14.5	C	20.5	E	27.9	D	27.3	
WB		B	12.4	B	11.2	E	47.9	F	56.6	
8. Pleasant Valley Rd (SR 49) / SR-49 South	AWS Stop	F	58.7	F	55.5	F	70.0	F	68.7	Yes
9. Pleasant Valley Rd (SR 49) / Forni Rd	SB Stop									Yes†
SB		F	220.9	F	212.9	F	97.7	F	179.0	
EB Left		A	8.5	A	8.8	A	9.7	A	9.9	
10. Missouri Flat Rd / Pleasant Valley Rd (SR 49)	Signal	D	48.9	D	51.8	C	30.6	C	30.3	N/A
11. Pleasant Valley Rd (SR 49) / China Garden Rd	SB Stop									No
SB		A	3.2	A	2.6	A	3.3	A	4.1	
EB Left		B	11.7	B	11.0	A	7.8	A	7.8	
12. Diamond Road (SR 49) / Pleasant Valley Rd (SR 49)	Signal	C	26.9	C	26.0	C	22.6	C	22.8	N/A

* meets volume and delay warrant in AM and PM peak hours
† meets volume warrant in AM and PM peak hours
‡ meets volume warrant in PM peak hour
◊ no delay reported

TABLE 11 (cont'd)
PEAK HOUR INTERSECTION LEVELS OF SERVICE
2035 PLUS PROJECT CONDITIONS

Location	Control	AM Peak Hour				PM Peak Hour				Traffic Signal Warranted?
		2035		2035 Plus Project		2035		2035 Plus Project		
		LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	
13. Pleasant Valley Rd / Racquet Way	NB / SB									Yes‡
NB	Stop	E	41.2	C	24.3	E	41.7	E	46.0	
SB		F	55.8	E	38.5	B	13.6	C	17.3	
EB Left		B	11.1	B	12.1	A	6.1	A	6.4	
WB Left		A	9.6	B	13.6	B	11.4	B	12.0	
14. Diamond Road (SR 49) / Truck St	EB Stop									No
NB Left		A	3.1	A	3.1	A	3.6	A	5.7	
EB		A	5.6	A	5.8	A	8.9	A	8.5	
15. Diamond Road (SR 49) / Bradley Dr	EB Stop									No
EB right		A	3.6	A	2.3	A	3.7	A	4.0	
16. Diamond Rd (SR 49) / Lime Kiln Rd – Black Rice Ln	EB / WB									Yes†
NB Left	Stop	A	7.8	A	7.1	A	6.8	A	6.9	
SB Left		A	5.7	A	5.6	A	4.7	A	5.2	
EB right		A	4.2	A	4.7	A	3.8	A	3.7	
WB right		A	6.0	A	5.6	A	4.9	A	4.9	
17. Diamond Rd (SR 49) / Diamond Springs Pkwy - Project Access	Signal	C	27.8	C	29.9	C	29.2	C	28.0	N/A
18. Missouri Flat Road / Diamond Springs Pkwy	Signal	C	20.8	C	21.7	C	23.7	C	25.1	N/A
19. Diamond Springs Pkwy / Throwita Way	Signal	B	14.6	B	13.1	B	17.0	B	16.8	N/A

* meets volume and delay warrant in AM and PM peak hours
† meets volume warrant in AM and PM peak hours
‡ meets volume warrant in PM peak hour
◊ no delay reported

TABLE 12
2035 PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour		PM Peak Hour	
		VPH	Queue (feet)	VPH	Queue (feet)
1. Missouri Flat Road / Plaza Drive					
NB left turn	330	160 (2)	87	330 (2)	147
NB through	450	655 (2)	170	574 (2)	218
NB right turn	450	350	170	460	248
SB left turn	110	70	79	100	236
EB left+through+right	120	130 (2)	78	460 (2)	241
WB left +through+right turn	275	310 (2)	125	560 (2)	390
2. Missouri Flat Road / WB US 50 ramps					
NB left turn	160	489 (2)	169	594 (2)	169
NB through	360	705 (2)	308	914 (2)	357
SB through	520	725 (2)	265	1,265 (2)	545
WB left turn	410	719 (2)	677	835 (2)	1,158
WB right turn	410	460 (2)	352	450 (2)	522
3. Missouri Flat Road / EB US 50 ramps					
NB through	160	1,094 (2)	194	1,288 (2)	188
NB right turn	140	90	99	80	85
SB left	160	210 (2)	196	380 (2)	198
SB through	380	1,234 (2)	443	1,709 (2)	422
EB left+through+right turn	540	649 (3)	337	925 (3)	1,728
4. Missouri Flat Road / Mother Lode Drive					
NB left turn	150	45	115	104	226
NB through	2,300	984 (2)	355	1,208 (2)	2,137
SB through	140	1,688 (2)	168	2,244 (2)	165
SB right turn	130	90	96	170	109
5. Missouri Flat Road / Forni Road					
NB left turn	250	80	224	110	286
NB through	1,000	1,162 (2)	446	1,315 (2)	490
NB right turn	160	100	190	60	163
SB left turn	300	302	367	177	347
SB through	2,300	1,162 (2)	548	1,774 (2)	528
SB right turn	150	269	229	357	235
6. Missouri Flat Road / Golden Center Drive					
NB left turn	120	40	124	80	192
SB left turn	160	97	194	70	169
10. Missouri Flat Road / SR 49 (Pleasant Valley Rd)					
SB left turn	600	62	56	473	198
SB right turn	600	180	77	431	117
EB left turn	160	410 (2)	160	283 (2)	210
WB right turn	190	452	167	232	118

Highlighted values indicate queue length in excess of available storage

TABLE 12 (cont'd)
2035 PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour		PM Peak Hour	
		VPH	Queue (feet)	VPH	Queue (feet)
12. Diamond Rd (SR 49) / Pleasant Valley Rd (SR 49)					
SB left turn	340	409	193	507	216
SB through+right	340	242	136	171	101
NB right turn	100	20	73	40	99
NB left+through	600	132	171	142	184
EB left turn	200	130	144	200	199
WB right turn	170	500	246	428	204
WB left turn	100	20	97	40	110
17. Diamond Rd (SR 49) / Diamond Springs Pkwy					
NB left	350	634 (2)	366	466 (2)	329
SB right	464	202	122	412	265
EB left	995	209	211	303	260
EB right	995	729	292	770	227
18. Missouri Flat Rd / Diamond Springs Pkwy					
NB left	275	712 (2)	226	615 (2)	210
EB through	1,600	813 (2)	352	1,090 (2)	372
EB right	250	450	217	864	310
WB left	500	100	123	200	217
19. Diamond Springs Pkwy / Throwita Way					
NB right	200	26	42	35	65
EB left	200	65	109	93	129
EB right	200	113	121	193	127
WB left	200	23	64	17	49

Highlighted values indicate queue length in excess of available storage

2035 Plus Project

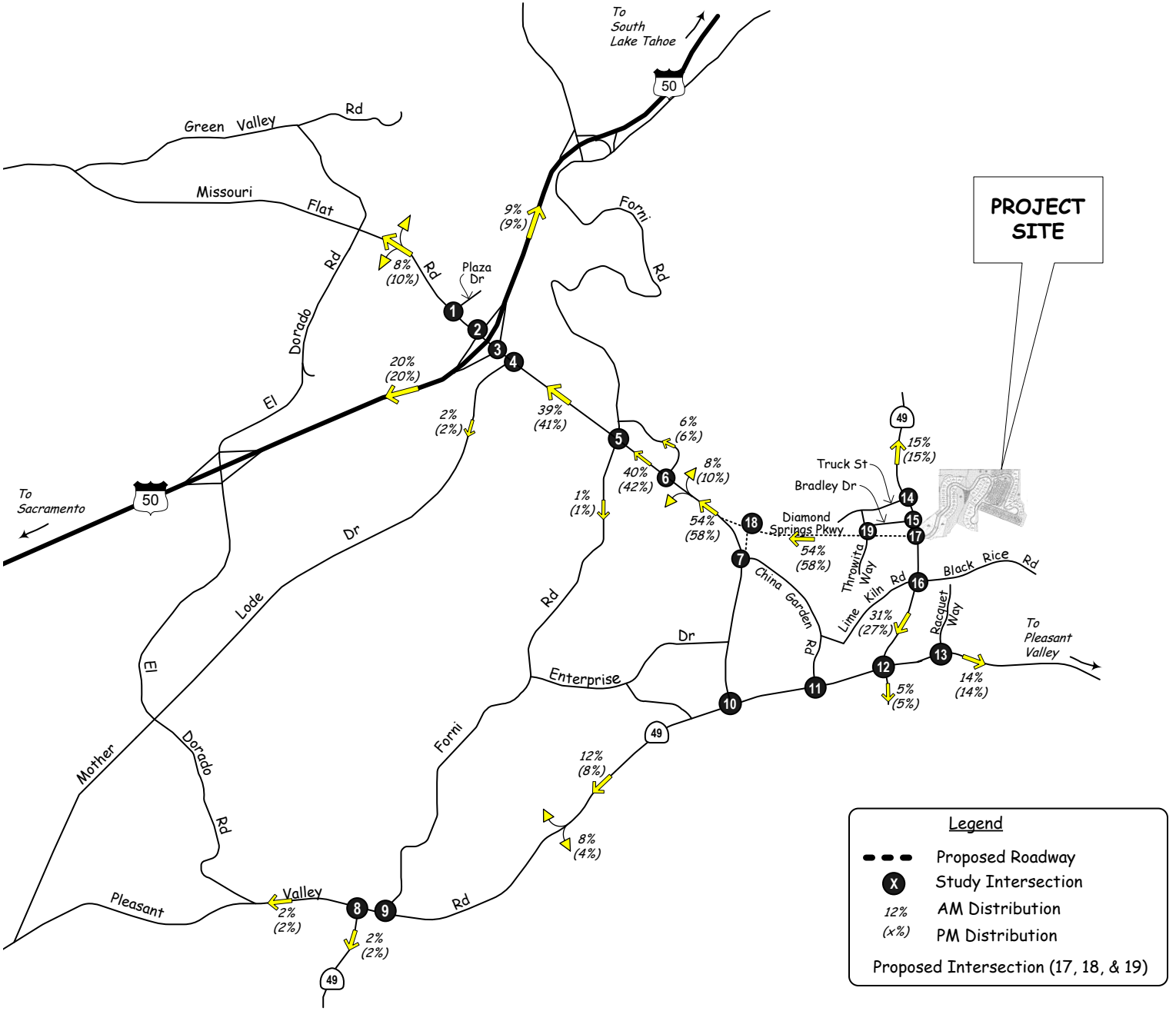
Trip Distribution & Assignment

A new trip distribution pattern was applied to trips related to the Project in the future. Table 5 presents the project trip distributions for 2035. The Long-Term scenario considers the completion of the Diamond Springs Parkway (DSP), between Missouri Flat Road and Diamond Road. Project traffic that is projected to use Missouri Flat Road and Pleasant Valley Parkway to get to the project site in the short term will be able to use DSP by 2035 to access the site directly. Figure 10 presents the modified trip distribution with DSP completed.

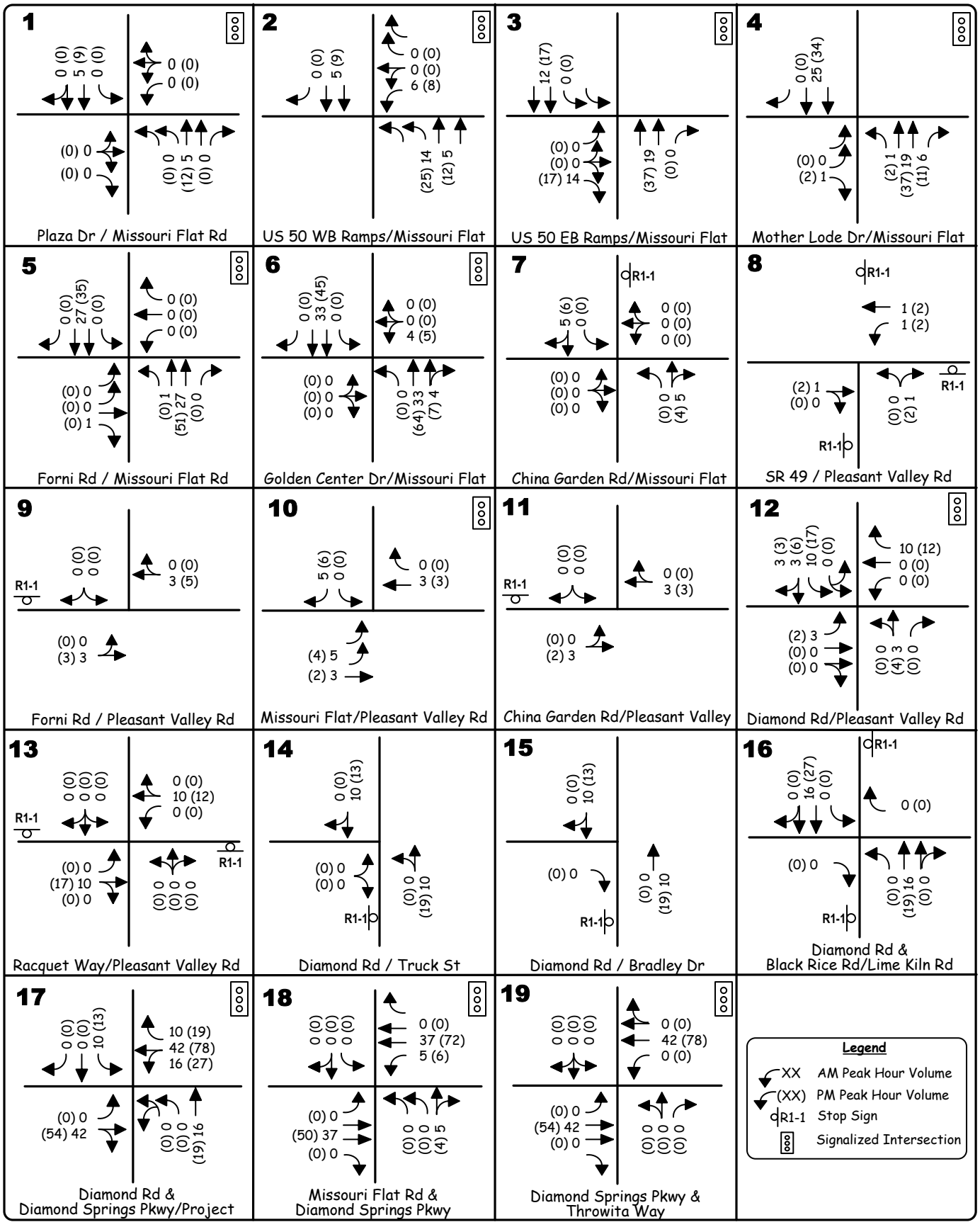
Intersection Levels of Service. The Year 2035 plus Project volumes were used to recalculate operating Levels of Service at the study intersections. Figure 11 displays the "2035 Project Only" traffic volumes while Figure 12 present the "2035 Plus Project traffic" traffic volumes at each study intersection in both a.m. and p.m. peak hours. Table 11 displays the a.m. and p.m. peak hour Levels of Service at each study intersection in the 2035 plus Project condition. Four intersections will operate at LOS F conditions with the proposed project. These include Missouri Flat Road / US 50 Westbound Ramps intersection which will continue to operate at LOS F in the PM peak hour, the SR 49 / Pleasant Valley Road intersection which will continue to operate at LOS F in both AM and PM peak hours, the Pleasant Valley Road / Forni Road intersection which will continue to operate at LOS F along the southbound approach in the AM and PM peak hours and the Missouri Flat Road / China Garden Road intersection which will continue to operate at LOS F along the westbound approach.

Traffic Signal Warrants. Two unsignalized intersections carry volumes that meet the peak hour signal warrant criteria during either peak period. These include the Pleasant Valley Road / SR 49 (South) intersection where the peak hour signal warrant is met in both AM and PM peak periods and the Pleasant Valley Road / Racquet Way intersection where the peak hour signal warrant is met in the PM peak hour. Three additional intersections meet the peak hour volume portion of the peak hour warrant. These include the Missouri Flat Road / China Garden Road intersection, the Pleasant Valley Road / Forni Road intersection and the Diamond Road / Lime Kiln Road – Black Rice Lane intersection.

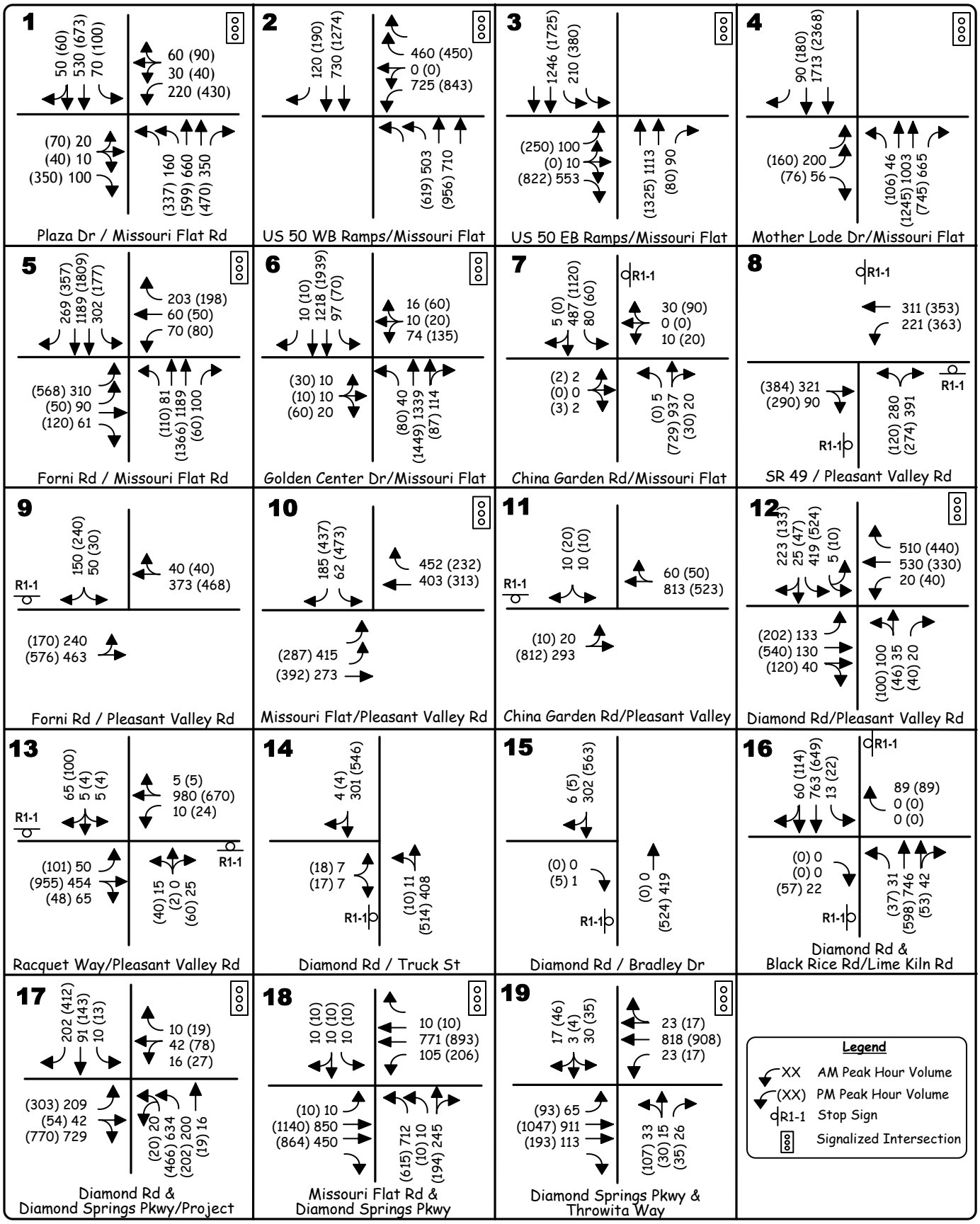
Intersection Queues. Table 13 identifies peak period queues for the Year 2035 plus Project condition assuming the addition of project trips**.** Project trips will result in additional queuing throughout the study area with 26 locations projected to exceed the available storage. The most extensive queues will continue to occur in the vicinity of the US 50 / Missouri Flat Road interchange where the westbound US 50 off-ramp queue is projected to exceed 1,100 feet, the eastbound US 50 off-ramp is projected to exceed 1,800 feet and the northbound Missouri Flat Road approach to Mother Lode Drive is projected to exceed 2,500 feet.



LONG-TERM (2035) PROJECT TRIP DISTRIBUTION



2035 PROJECT ONLY
TRAFFIC VOLUMES AND LANE CONFIGURATIONS



2035 PLUS PROJECT
TRAFFIC VOLUMES AND LANE CONFIGURATIONS

TABLE 13
2035 PLUS PROJECT PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour				PM Peak Hour			
		VPH			2035 Plus Project Queue (feet)	VPH			2035 Plus Project Queue (feet)
		2035	Project Only	Total		2035	Project Only	Total	
1. Missouri Flat Rd / Plaza Drive									
NB left turn	330	160 (2)	0	160	92	330 (2)	0	330	147
NB through	450	655 (2)	5	660	181	574 (2)	12	586	204
NB right turn	450	350	0	350	182	460	0	460	221
SB left turn	110	70	0	70	85	100	0	100	241
EB left+through+right	120	130 (2)	0	130	83	460 (2)	0	460	257
WB left +through+right turn	275	310 (2)	0	310	121	560 (2)	0	560	569
2. Missouri Flat Rd / WB US 50 ramps									
NB left turn	160	489 (2)	14	503	171	594 (2)	25	619	170
NB through	360	705 (2)	5	710	326	914 (2)	12	926	371
SB through	520	725 (2)	5	730	218	1,265 (2)	9	1,274	546
WB left turn	410	719 (2)	6	725	283	835 (2)	8	843	1,122
WB right turn	410	460 (2)	0	460	186	450 (2)	0	450	515
3. Missouri Flat Rd / EB US 50 ramps									
NB through	160	1,094 (2)	19	1,113	195	1,288 (2)	37	1,325	192
NB right turn	140	90	0	90	94	80	0	80	90
SB left	160	210 (2)	0	210	171	380 (2)	0	380	197
SB through	380	1,234 (2)	12	1,246	367	1,709 (2)	16	1,725	429
EB left+through+right turn	540	649 (3)	14	663	301	925 (3)	17	942	1,873
4. Missouri Flat Rd / Mother Lode Drive									
NB left turn	150	45	1	46	127	104	2	106	223
NB through	2,300	984 (2)	19	1,003	323	1,208 (2)	37	1,245	2,590
SB through	140	1,688 (2)	25	1,713	138	2,244 (2)	34	2,278	165
SB right turn	130	90	0	90	81	170	0	170	95

Highlighted values indicate queue length in excess of available storage

TABLE 13 (cont'd)
2035 PLUS PROJECT PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour VPH 2035	AM Peak Hour VPH Project Only	AM Peak Hour VPH Total	AM Peak Hour 2035 Plus Project Queue (feet)	PM Peak Hour VPH 2035	PM Peak Hour VPH Project Only	PM Peak Hour VPH Total	PM Peak Hour 2035 Plus Project Queue (feet)
5. Missouri Flat Rd / Forni Rd									
NB left turn	250	80	1	81	222	110	0	110	328
NB through	1,000	1,162 (2)	27	1,189	461	1,315 (2)	51	1,366	495
NB right turn	160	100	0	100	179	60	0	60	172
SB left turn	300	302	0	302	391	177	0	177	339
SB through	2,300	1,162 (2)	27	1,189	576	1,774 (2)	35	1,809	544
SB right turn	150	269	0	269	226	357	0	357	235
6. Missouri Flat Rd / Golden Center Drive									
NB left turn	120	40	0	40	126	80	0	80	192
SB left turn	160	97	0	97	187	70	0	70	170
10. Missouri Flat Rd / SR 49 (Pleasant Valley Rd)									
SB left turn	600	62	0	62	58	473	0	473	193
SB right turn	600	180	2	182	81	431	6	437	126
EB left turn	160	410 (2)	2	412	198	283 (2)	4	287	207
WB right turn	190	452	0	452	160	232	0	232	132
12. Diamond Rd (SR 49) / Pleasant Valley Rd (SR 49)									
SB left turn	340	409	10	419	196	507	17	524	216
SB through+right	340	242	4	246	152	171	9	180	102
NB right turn	100	20	0	20	68	40	0	40	94
NB left+through	600	132	3	135	147	142	4	146	174
EB left turn	200	130	1	131	141	200	2	202	207
WB right turn	170	500	10	510	246	428	12	440	217
WB left turn	100	20	0	20	88	40	0	40	103

Highlighted values indicate queue length in excess of available storage

TABLE 13 (cont'd)
2035 PLUS PROJECT PEAK HOUR QUEUES AT SIGNALIZED INTERSECTIONS

Location	Capacity (feet)	AM Peak Hour VPH 2035	AM Peak Hour VPH Project Only	AM Peak Hour VPH Total	AM Peak Hour 2035 Plus Project Queue (feet)	PM Peak Hour VPH 2035	PM Peak Hour VPH Project Only	PM Peak Hour VPH Total	PM Peak Hour 2035 Plus Project Queue (feet)
17. Diamond Rd (SR 49) / Diamond Springs Pkwy									
NB left	350	634 (2)	0	634	297	466 (2)	0	466	233
SB left	100	0	10	10	34	0	13	13	55
SB right	464	202	0	202	115	412	0	412	214
EB left	995	209	0	209	201	303	54	357	241
EB right	995	729	0	729	398	770	0	770	336
WB left	200	0	14	14	48	0	27	27	72
18. Missouri Flat Rd / Diamond Springs Pkwy									
NB left	275	712 (2)	0	712	271	615 (2)	0	615	220
EB through	1,600	813 (2)	37	850	329	1,090 (2)	50	1,140	399
EB right	250	450	0	450	220	864	0	864	299
WB left	500	100	2	102	121	200	6	206	231
19. Diamond Springs Pkwy / Throwita Way									
NB right	200	26	0	26	46	35	0	35	43
EB left	200	65	0	65	114	93	0	93	137
EB right	200	113	0	113	118	193	0	193	144
WB left	200	23	0	23	57	17	0	17	47

Highlighted values indicate queue length in excess of available storage

FINDINGS / RECOMMENDATIONS / MITIGATIONS

The preceding analysis has identified project impacts that may occur without mitigation. The text that follows identifies a strategy for mitigating the impacts of the proposed project. Recommendations are identified for facilities that have deficiencies in the roadway network without the project. If the project causes a significant impact, mitigations are identified for the facility.

Existing Conditions

All intersections operate within acceptable El Dorado County LOS thresholds. No recommendations are made.

Existing plus Project Conditions - Mitigations

All intersections will operate within acceptable El Dorado County LOS thresholds. The following mitigations are made:

- The project shall contribute its fair share to the cost of regional circulation improvements via the existing countywide traffic impact mitigation (TIM) fee program.

- Sidewalk should be installed along the curb returns along the east side of Diamond Road as part of Piedmont Oaks development to provide contiguous access between the project site and the Diamond Dorado Center.

Diamond Road / Project Access intersection: A left turn lane with standard Caltrans transitions on each approach and departure should be constructed along Diamond Road for left turn access into the project site. The left turn lane should be constructed back to back with the left turn lane at Bradley Drive. The left turn lane for the project should be 100' with the left turn lane at Bradley Drive 120' long.

No additional mitigations are made at this time.

2019 Conditions - Recommendations

Missouri Flat Road / China Garden Road intersection: This intersection will operate with the eastbound driveway and westbound China Garden Road approach operating at LOS F in the AM peak hour. Although the County General Plan allows LOS F conditions along Missouri Flat Road between Mother Lode Drive and China Garden Road this does not apply to the intersections. The intersection meets the peak hour traffic signal warrant and signalization of this intersection will improve the operation in the a.m. peak hour to LOS B (18.4 seconds delay).

2019 plus Project Conditions - Mitigations

Missouri Flat Road / China Garden Road intersection: Under project conditions the intersection will continue to operate at LOS F conditions on the eastbound driveway and westbound approach. The project should pay their fair share of signalizing the intersection identified in the 2019 Conditions section. The fair share is project traffic divided by the difference in future and existing volumes. With Diamond Springs Parkway (DSP) being constructed in the future, traffic will shift to DSP, resulting in a net decrease in traffic by 2035 at the Missouri Flat Road / China Garden Road intersection. The fair share methodology was determined using the total volumes at the Missouri Flat Road / DSP intersection as all traffic at this intersection would travel through the Missouri Flat Road / China Garden Road if DSP were not constructed. Using this method the project is responsible for 6.41% of the project cost. With signalization the intersection will operate at LOS B (18.7 seconds) in the a.m. peak hour and LOS C (30.2 seconds) in the PM peak hour.

Pleasant Valley Road / Forni Road intersection: This intersection will operate with the southbound Forni Road approach operating at LOS F in the AM peak hour. The volume portion of the peak hour signal warrant is met in both AM and PM peak hours. A traffic signal is not recommended at this time due to proximity of this intersection to the Pleasant Valley Road / SR-49 South intersection. This intersection is under Caltrans jurisdiction. As noted in the *Diamond Dorado Traffic Impact Analysis* prepared by Farhad & Associates in 2010 Caltrans indicated that a traffic signal should not be installed at this location until the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / SR-49 South intersection is realigned to constitute one intersection. Another possible solution may include a roundabout with the realignment of Pleasant Valley Road with SR 49 and Forni Road. No mitigation is recommended as part of this project.

Pleasant Valley Road / Racquet Way intersection: This intersection will operate with the southbound approach at LOS F in the AM peak hour. Installation of a traffic signal will improve the intersection operation to LOS C (31.4 seconds per vehicle). The project should pay their fair share of the improvement as the intersection will decline to LOS F in the 2035 No Project Condition. Using the Caltrans fair share methodology the project should pay 5.4% of the improvement.

No other mitigations are necessary.

2035 Conditions - Recommendations

Missouri Flat Road / US 50 Eastbound and Westbound Ramp intersections: The westbound US 50 ramp intersections will operate at LOS F conditions in 2035. A single point urban interchange (SPUI) should be considered that will combine the eastbound and westbound ramp intersections into a single intersection along Missouri Flat Road. The SPUI would consist of two through lanes and two left turn lanes at the intersection with two left lanes and two right turn lane along the eastbound and westbound off-ramps. Implementation of this new interchange will result in LOS D (37.5 seconds per vehicle) operation at the new intersection. The County is

currently undertaking the Missouri Flat Area Master Circulation and Funding Plan (MC&FP) Phase II analysis which will provide a mechanism for the County to fund improvements to the U.S. Highway 50/Missouri Flat Road Interchange and adjacent arterials and collector roads.

Pleasant Valley Road/ SR 49 intersection: This intersection will operate at LOS F conditions in the AM peak hour (58.7 seconds per vehicle) and the PM peak hour (70.0 seconds per vehicle). As noted in the *Diamond Dorado Traffic Impact Analysis* prepared by Farhad & Associates in 2010 Caltrans indicated that a traffic signal should not be installed at this location until the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / SR-49 South intersection is realigned to constitute one intersection. Another possible solution may include a roundabout with the realignment of Pleasant Valley Road with SR 49 and Forni Road.

Pleasant Valley Road/ Forni Road intersection: This intersection will operate with the southbound Forni Road approach operating at LOS F in the AM peak hour. The volume portion of the peak hour signal warrant is met in the AM and PM peak hour. A traffic signal is not recommended at this time due to proximity of this intersection to the Pleasant Valley Road / SR-49 South intersection. This intersection is under Caltrans jurisdiction. As noted in the *Diamond Dorado Traffic Impact Analysis* prepared by Farhad & Associates in 2010 Caltrans indicated that a traffic signal should not be installed at this location until the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / SR-49 South intersection is realigned to constitute one intersection. Another possible solution may include a roundabout with the realignment of Pleasant Valley Road with SR 49 and Forni Road.

Pleasant Valley Road/ Racquet Way intersection: The southbound approach of this intersection will operate at LOS F conditions in the AM peak hour (55.8 seconds per vehicle). The intersection meets the traffic volume section of the peak hour signal warrant in the AM peak hour and both delay and volume sections of the warrant in the PM peak hour. Signalization of this intersection will improve the operation to an LOS B condition (19.7 seconds per vehicle) in the AM peak hour.

2035 plus Project Conditions - Mitigations

Missouri Flat Road / US 50 Eastbound and Westbound Ramp intersections: The westbound US 50 ramp intersections will both operate at LOS F conditions in 2035. A single point urban interchange (SPUI) should be considered that will combine both ramp intersections into a single intersection along Missouri Flat Road. The SPUI would consist of two through lanes and two left turn lanes at the intersection with two left lanes and two right turn lane along the eastbound and westbound off-ramps. Implementation of this new interchange will result in LOS D (38.6 seconds per vehicle) operation at the new intersection.

The County is currently undertaking the Missouri Flat Area Master Circulation and Funding Plan (MC&FP) Phase II analysis which will provide a mechanism for the County to fund improvements to the U.S. Highway 50/Missouri Flat Road Interchange and adjacent arterials and collector roads. Since there is no funding mechanism in place the project should pay their fair share of the improvements.

The project should pay their fair share of the improvement as the intersection will decline to LOS F in the 2035 No Project Condition. Using the Caltrans fair share methodology the project should pay 3.2% of the improvement.

Missouri Flat Road / China Garden Road intersection: Under project conditions the intersection will continue to operate at LOS F conditions on the eastbound driveway and westbound approach. The intersection was identified for signalization in the 2019 scenario. With signalization the intersection will operate at LOS A (9.7 seconds) in the PM peak hour.

Pleasant Valley Road/ SR 49 intersection: This intersection will operate at LOS F conditions in the AM peak hour (55.5 seconds per vehicle) and the PM peak hour (68.7 seconds per vehicle). As noted in the *Diamond Dorado Traffic Impact Analysis* prepared by Farhad & Associates in 2010 Caltrans indicated that a traffic signal should not be installed at this location until the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / SR-49 South intersection is realigned to constitute one intersection. Another possible solution may include a roundabout with the realignment of Pleasant Valley Road with SR 49 and Forni Road. Since there is no defined project at this time there are no mitigations required for the project.

Pleasant Valley Road/ Forni Road intersection: This intersection will operate with the southbound Forni Road approach operating at LOS F in the AM peak hour. The volume portion of the peak hour signal warrant is met in both AM and PM peak hours. A traffic signal is not recommended at this time due to proximity of this intersection to the Pleasant Valley Road / SR-49 South intersection. This intersection is under Caltrans jurisdiction. As noted in the *Diamond Dorado Traffic Impact Analysis* prepared by Farhad & Associates in 2010 Caltrans has indicated that a traffic signal should not be installed at this location until the Pleasant Valley Road / Forni Road intersection and the Pleasant Valley Road / SR-49 South intersection is realigned to constitute one intersection. Another possible solution may include a roundabout with the realignment of Pleasant Valley Road with SR 49 and Forni Road. Since there is no defined project at this time there are no mitigations required for the project.

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APPENDICES

(under separate cover)

APPENDIX
FAIR SHARE PERCENTAGES & COSTS

$$\frac{\text{(Future + Project Volumes) - Future}}{\text{(Future + Project) – Existing}}$$

US 50 Eastbound - Westbound Ramps / Missouri Flat Road (Single Point Interchange)

AM: $\frac{4{,}201 - 4{,}170}{4{,}201 - 3{,}060} = 2.7\%$

PM: $\frac{5{,}764 - 5{,}710}{5{,}764 - 4{,}222} = 3.5\%$

Average Fair Share Percentage: 3.1%

Pleasant Valley Road / Racquet Way

AM: $\frac{1{,}679 - 1{,}659}{1{,}679 - 1{,}243} = 4.6\%$

PM: $\frac{2{,}013 - 1{,}984}{2{,}013 - 1{,}544} = 6.2\%$

Average Fair Share Percentage: 5.4%

Missouri Flat Road / China Garden Road

AM: $\frac{3{,}197 - 3{,}109}{3{,}197 - 1813} = -6.36\%$

PM: $\frac{3{,}967 - 3{,}430}{3{,}967 - 2{,}001} = -6.46\%$

Average Fair Share Percentage: 6.41%