

**ALTERNATIVES ANALYSIS FOR
NORTH VINEYARDS GREENS
DEVELOPMENT PROJECT**

**(SECTION 404 INDIVIDUAL PERMIT APPLICATION,
CORPS REGULATORY #200600428)**

Prepared for:

UNITED STATES ARMY CORPS OF ENGINEERS

On Behalf of:

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March 2007



Alternatives Analysis for North Vineyards Greens Development Project

(Section 404 Individual Permit Application,
Corps Regulatory #200600428)

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13 March 2007

This document should be cited as:

David Magney Environmental Consulting. 2007. Alternatives Analysis for North Vineyards Greens Development Project. 13 March 2007. (PN 06-0111) Ojai, California. Prepared for U.S. Army Corps of Engineers, Sacramento, California (Regulatory #200600428). Prepared on behalf of Peter Daru, Sacramento, California.



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INTRODUCTION

PROJECT BACKGROUND

The ±206.3-acre North Vineyard Greens (NVG) Project (Project) property site is part of the ±1,594.5-acre North Vineyard Station Specific Plan (NVSSP) Area in southern Sacramento County. The Project consists of North Vineyard Greens Unit 1 (±146.7 acres), North Vineyard Greens Unit 3 (±49.4 acres), and Gosal Estates (±10.2 acres). It is expected that approximately 750 dwelling units will be built on approximately 139 gross residential acres within the NVG Project site. Single-family housing will account for about 525 dwelling units and multiple-family housing will account for about 225 units¹. The Specific Plan was prepared according to direction in the Sacramento County General Plan² and involved public input, extensive analyses of environmental conditions, adjacent land use, and area-wide infrastructure needs. It places a high priority on aesthetics, quality of life, and land use compatibility.

The Specific Plan area is bounded by Florin Road to the north, Gerber Road and/or Gerber Creek on the south, the northerly extension of Vineyard Road on the east, and generally by Elder Creek on the west side. The Specific Plan consists of a 5,732-dwelling unit residential land use plan with supporting commercial, business professional, park, school, and open space uses. The proposed project responds to the need for a well-planned, high quality suburban environment in the North Vineyard Station area. The North Vineyard Station Specific Plan Environmental Impact Report (State Clearinghouse [SCH] # 96032057) was prepared to identify potential environmental impacts from the development of the North Vineyard Station Area.

The Specific Plan includes a regional flood control plan for Gerber and Elder Creeks. The North Vineyard Station Drainage Master Plan identifies existing drainage facilities and flooding patterns and analyzes alternatives to recommend preferred flood control and conveyance facilities to serve the drainage needs of the Plan Area. The County of Sacramento has submitted an individual permit application for the North Vineyard Station Drainage Master Plan project that includes the improvements to Gerber Creek and construction of the detention basin within the project area.

¹ Department of Environmental Review and Assessment, County of Sacramento. 2005. North Vineyards Greens Units #1, #3, Gosal Estates, and Davis Property. Draft Supplemental Environmental Impact Report.

² Planning and Community Development Department, County of Sacramento. www.saccounty.net/planning/gpupdate/gpu-index.html



PROJECT OBJECTIVES

Section 404(b)(1) of the Clean Water Act describes the Alternatives Analysis (AA) required for 404 permit applications³. Guidelines call for project objectives to be expressed in terms of basic and overall purpose. The basic project purpose is to provide housing in southern Sacramento County. The overall project purpose is to create a small, low density single-family subdivision as well as a high-density component, beginning in 2008, that is proximate to local and regional job centers and existing infrastructure in a manner that is consistent with Sacramento County's urban growth policies requiring compact urban form. The Project is not dependent on water.

The North Vineyard Greens project would provide additional housing needed to accommodate job growth and housing demand within Sacramento County projected by the Sacramento Area Council of Governments (SACOG)⁴. Sacramento County continues to experience a dramatic population increase, with growth rates in the unincorporated areas of the County averaging 27.7% between 1970 and 1990. (Sacramento County General Plan⁵, Housing Element p. 130-31; the Vineyard Community Planning Area, which contains Mequity, LLC's proposed North Vineyard Greens community, experienced a 116% growth rate between 1990 and 2000⁶.)

SACOG projects that the Sacramento area will need to house more than 1 million additional people in the next 25 years. This population growth continues to put tremendous pressure on the housing market, and SACOG projects that current conditions would yield a shortfall of over 500,000 dwelling units for the Sacramento region by 2050. Rising housing demand, coupled with a shortage of approved residential development sites near established urban areas and regional job centers, have led to a rapid escalation in home prices. Also, homebuilders must look further from urban areas and job centers to find available homesites and developable land. Mequity, LLC conceived the proposed North Vineyard Greens community to provide new housing to accommodate some of the high demand for housing in the Sacramento region resulting from sustained population growth. North Vineyard Greens is located in an underdeveloped rural residential portion of South/Central Sacramento County that is proximate to established commercial/industrial uses and convenient to major regional job centers in downtown Sacramento, Rancho Cordova, and along the Highway 50 corridor. It is also proximate to existing infrastructure.

³ Section 404(b)(1) Guidelines. www.usace.army.mil/cw/cecwo/reg/40cfr230.pdf

⁴ Sacramento Area Council of Governments Employment and Housing Demand projections. www.sacog.org/demographics/projections/index.cfm

⁵ Planning and Community Development Department, County of Sacramento. www.saccounty.net/planning/gpupdate/gpu-index.html

⁶ Sacramento Area Council of Government Population projections. www.sacog.org/demographics/projections/index.cfm

PROJECT DESCRIPTION

PROJECT LOCATION

The ±206.3-acre Project site is located north of Gerber Road, west of Bradshaw Road, south of Florin Road, and east of Elk Grove Florin Road (Figure 1, Project Site and Vicinity). The site corresponds to a portion of Section 6 of Township 7 North, Range 6 East of the Elk Grove, California 7.5-minute quadrangle (U.S. Department of the Interior, Geological Survey, photorevised 1979). The North Vineyard Greens site corresponds to Assessor's Parcel Numbers 066-0070-020, 043-046; 066-0080-001-003, 016; 065-080-027, 029, 057, 064, 070 and 080.

EXISTING CONDITIONS

Much of the site is leveled pasture and is currently fallow but was farmed and irrigated historically. Rural residences and plant nursery operations are located in the northern and southern portions of the site (Figure 2, Aerial Photograph of Project Site). The nurseries are currently active and several drainage ditches are located west of the northern nursery. The Central California Traction Railroad easement runs diagonally through NVG Unit 1, dividing it into two unequal halves. Gerber Creek meanders through the southern and central portions of NVG Units 1 and 2. A man-made stock pond is situated in the southern portion of NVG Unit 1 and south of Gerber Creek. It has been constructed by excavation and placement of fill around the perimeter. The pond is filled by a mechanical pump that draws ground water. It is surrounded by willows (*Salix* sp.), Pampas Grass (*Cortaderia selloana*), Fremont Cottonwood (*Populus fremontii*), grape (*Vitis* sp.), and date palm (*Phoenix* sp.).

The primary vegetation community present on-site is annual grassland. Within the annual grassland are ephemeral features (i.e. seasonal wetlands and vernal pools). The annual grassland community is comprised primarily of non-native naturalized Mediterranean grasses. These include Ripgut Brome (*Bromus diandrus*), Soft Chess (*Bromus hordeaceus*), Wild Oats (*Avena fatua*), Italian Ryegrass (*Lolium multiflorum*), Mediterranean Barley (*Hordeum marinum*), and Medusahead Grass (*Taeniatherum caput-medusae*). Other non-native herbaceous species in this community include Hairy Hawk-bit (*Leontodon taraxacoides*), Broadleaf Filaree (*Erodium botrys*), Pineapple Weed (*Chamomilla suaveolens*), and Yellow Star-thistle (*Centaurea solstitialis*).

The site is situated at an elevation of approximately 50 feet above mean sea level. According to the Soil Survey of Sacramento County, California (U.S. Department of Agriculture, Natural Resource Conservation Service 1993), three soil units, or types, have been mapped for the site⁷. These are: (213) San Joaquin silt loam, leveled, 0-1 percent slopes, (214) San Joaquin silt loam, 0-3% slopes and (216) San Joaquin-Durixeralfs complex, 0-1 percent slopes. The San Joaquin silt loam, 0-1% slopes is not listed as a hydric soil and does not contain listed hydric inclusions.

⁷ ECORP Consulting, Inc. 5 May 2006. Section 404 Individual Permit Application for North Vineyard Greens. Corps Regulatory # 200600428.



The San Joaquin-Durixeralfs complex and San Joaquin silt loam, 0-3 % slopes are not considered to be hydric soils; however, they do contain listed hydric inclusions.

A Wetland Delineation/Assessment was submitted to the U.S. Army Corps of Engineers (Corps) for the entire North Vineyard Station Specific Plan Area and any other parcels affected by the North Vineyard Station Drainage Master Plan (NVS DMP) on December 31, 2002, as part of the NVS DMP Corps Application. The Wetland Delineation for North Vineyard Greens⁸ was performed by ECORP Consulting, Inc., Rocklin, California. A total of 4.12 acres of jurisdictional waters of the U.S. have been mapped on the project site (Figure 3, Wetland Delineation, and Figure 4, Proposed Impact Plan). The 4.12 acres are comprised of the wetlands/waters of the U.S. categories as shown in Table 1, Jurisdictional Waters of the U.S.

Table 1. Jurisdictional Waters of the U.S.

Type	Description	Existing Acres**	NVG Project AA Acres
Wetlands	Vernal pool	0.15	0.15
	Seasonal wetland*	0.84	0.52
	Seasonal wetland swale*	0.01	0.01
	Seasonal marsh	0.92	0.92
Other Waters of the U.S.	Gerber Creek*	2.20	0.00
Total		4.12	1.60

* Impacts to 0.32 acre of seasonal wetland, < 0.005 acre of seasonal wetland swale, and 2.20 acres of Gerber Creek are addressed by the North Vineyard Station Drainage Master Plan Individual Permit Application and the Vineyard Creek project (Regulatory Branch Number 200300251) and are not included in the North Vineyard Greens project Alternatives Analysis.

**Acreage values are expressed to the nearest 0.01 acre. Does not include 1.48 acres of existing seasonal wetlands expected to be classified as non-jurisdictional by the Corps and which are coded and labeled in Figure 3.

Vernal pools totaling 0.15 acre have been mapped within the non-irrigated pastures. Vernal pools are topographic basins within the grassland community and typically are underlain with an impermeable or semi-permeable hardpan or duripan layer. Vernal pools are inundated up to one foot throughout the wet season and are dry by late spring through the following wet season. The plant species composition within vernal pools is predominantly native annual species that include Slender Popcorn Flower (*Plagiobothrys stipitatus*), Bractless Hedge Hyssop (*Gratiola ebracteata*), Annual Hairgrass (*Deschampsia danthonioides*), Dwarf Woolly Heads (*Psilocarphus brevissimus*), and Fremont's Goldfields (*Lasthenia fremontii*).

Seasonal wetlands are ephemerally wet areas where surface runoff and rainwater accumulate within low-lying areas or adjacent to larger creeks and streams. They tend to be dominated by mostly non-native annual, and sometimes perennial, hydrophytic species. Seasonal wetland depressions, totaling 0.84 acre, have been mapped onsite. Impacts to 0.52 acre of seasonal wetland are addressed by the North Vineyard Greens Project, and impacts to 0.32 acre are addressed by other NVSSP projects. The vegetative composition of the seasonal wetlands is

⁸ *Ibid.*

primarily non-native wetland generalist plants, including *Lolium multiflorum*, Curly Dock (*Rumex crispus*), *Bromus hordeaceus*, and Manna Grass (*Glyceria* sp.).

A total of 0.01 acre of seasonal wetland swale was mapped on the project site. Seasonal wetland swales are ephemerally wet areas that carry runoff to larger drainages and typically occur as linear features. Most of the seasonal wetland swales on the project site have physical characteristics similar to those found in the vernal pools (depth, vegetation, hydrology, and soil). Impacts to less than 0.005 acre of seasonal wetland swale are addressed under another NVSSP project, leaving approximately 0.01 acre to be addressed by the NVG Project.

The seasonal marsh totals 0.92 acre, and is located just south of the Central California Traction Railroad Tracks. Plants within the seasonal marsh are typical seasonal wetland and moist soil species, such as Baltic Rush (*Juncus balticus* var. *mexicanus*), Broadleaf Cattail (*Typha latifolia*), Cockle-bur (*Xanthium strumarium*), and Dotted Smartweed (*Polygonum punctatum*). This marsh is situated in a low-lying area of the project vicinity and, in addition to the runoff during the wet season, may also receive periodic runoff from the nursery throughout the year.

Gerber Creek (2.20 acres) exhibits bed-and-bank characteristics and is largely unvegetated due to its depth and the scouring effects of flowing water. However, some hydrophytic vegetation may be present along the upper edges, and in areas where sediment accumulations provide a substrate suitable for plant establishment and growth. Himalayan Blackberry (*Rubus discolor*) thickets can be found along the banks at various reaches of the creek. Impacts to Gerber Creek are not addressed under the NVG Project.

A fish pond and several drainage ditches are located in the eastern and northeastern portion of the project site. These waters are considered non-jurisdictional per the field verification visit on 12 August 2004 by the Corps⁹. For the purposes of this Alternatives Analysis, the man-made fish pond and associated seasonal wetland adjacent to it in the southern portion of NVG Unit 1 are considered non-jurisdictional based on isolation from waters of the U.S., and personal communication with Ms. Andrea Jones, Regulatory Project Manager, U.S. Army Corps of Engineers, Sacramento. Formal designation of these areas as non-jurisdictional, which total 1.48 acres (Figure 3, Wetland Delineation), is expected very soon.

Individual acreages for the onsite wetlands shown in Figure 3 are listed below in Table 2, Acreages for Delineated NVG Wetlands.

⁹ *Ibid.*



Table 2. Acreages for Delineated NVG Wetlands

Wetland Type	Code	Acreage
Vernal pool	V1	0.10
	V2	0.04
	V3	<0.005
Seasonal wetland	S1	0.08
	S2	0.09
	S3	0.16
	S4	<0.005
	S5	0.04
	S6	0.01
	S7	0.02
	S8	0.01
	S9	0.10
	S10	<0.005
	Snj1	1.13
	Snj2	0.35
	Snj3	0.01
Seasonal wetland swale	Sw1	0.01
Seasonal marsh	M1	0.92

PROJECT IMPACTS TO WATERS OF THE U.S.

Project implementation would result in direct impacts to approximately 1.60 acres of waters of the U.S, including wetlands, as indicated in Table 1 above. Figure 4, Proposed Impact Plan, shows the proposed NVG development in relation to the existing total of 4.12 acres of jurisdictional waters and wetlands of the U.S. Impacts to Gerber Creek (2.20 acres), as well as seasonal wetlands (0.25 acre) and seasonal wetland swale (less than 0.005 acre) impacted by the proposed widening and realignment of Gerber Creek, will be assessed and mitigated separately as part of the North Vineyard Station Drainage Master Plan. Impacts to another onsite seasonal wetland totaling 0.07 acre have been mitigated in accordance with the Vineyard Creek project (Regulatory Branch Number 200300251), because the seasonal wetland was directly impacted by the construction of Waterman Road, an offsite improvement required for the Vineyard Creek project by Sacramento County.

Figure 1. Project Site and Vicinity

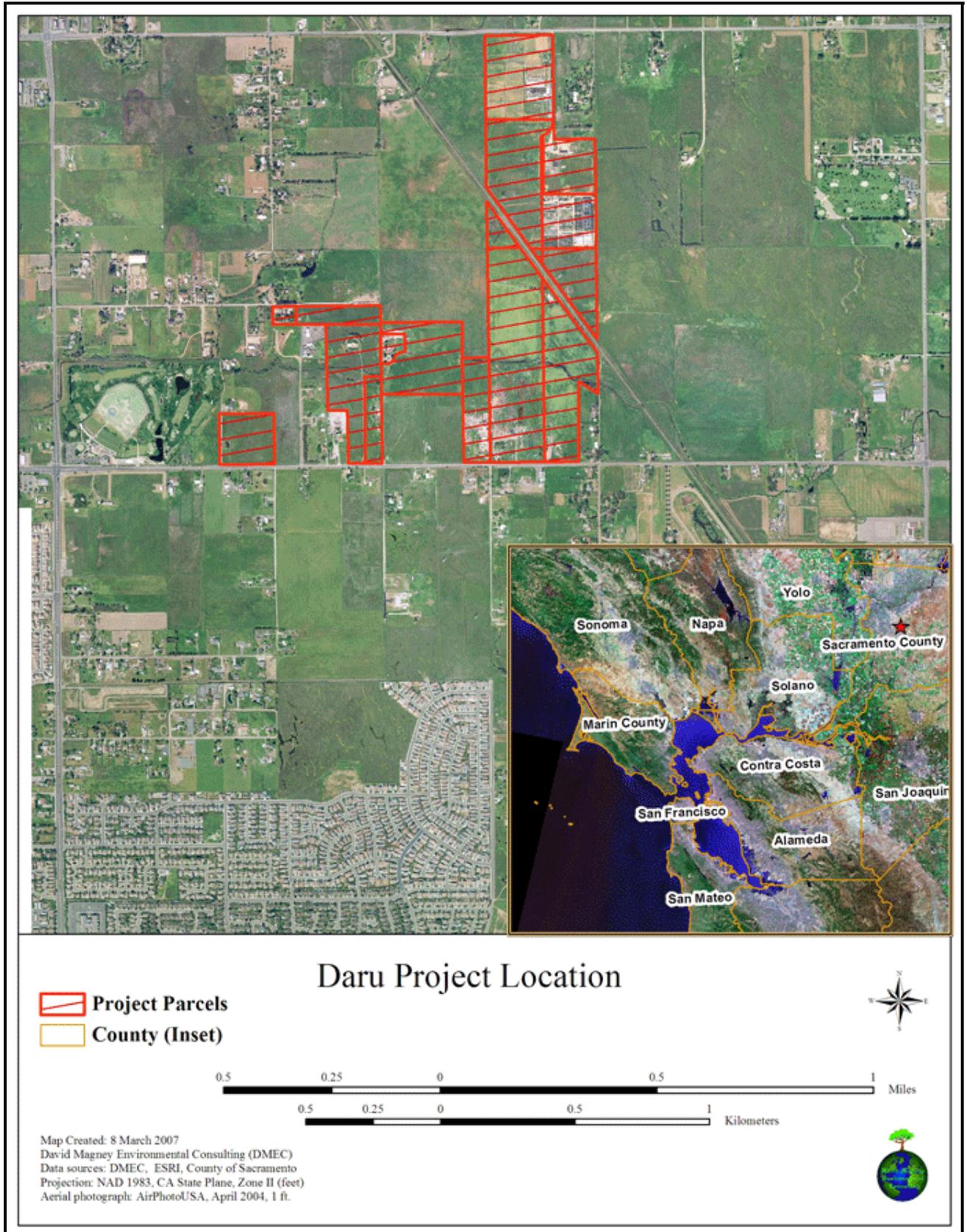


Figure 2. Aerial Photograph of Project Site

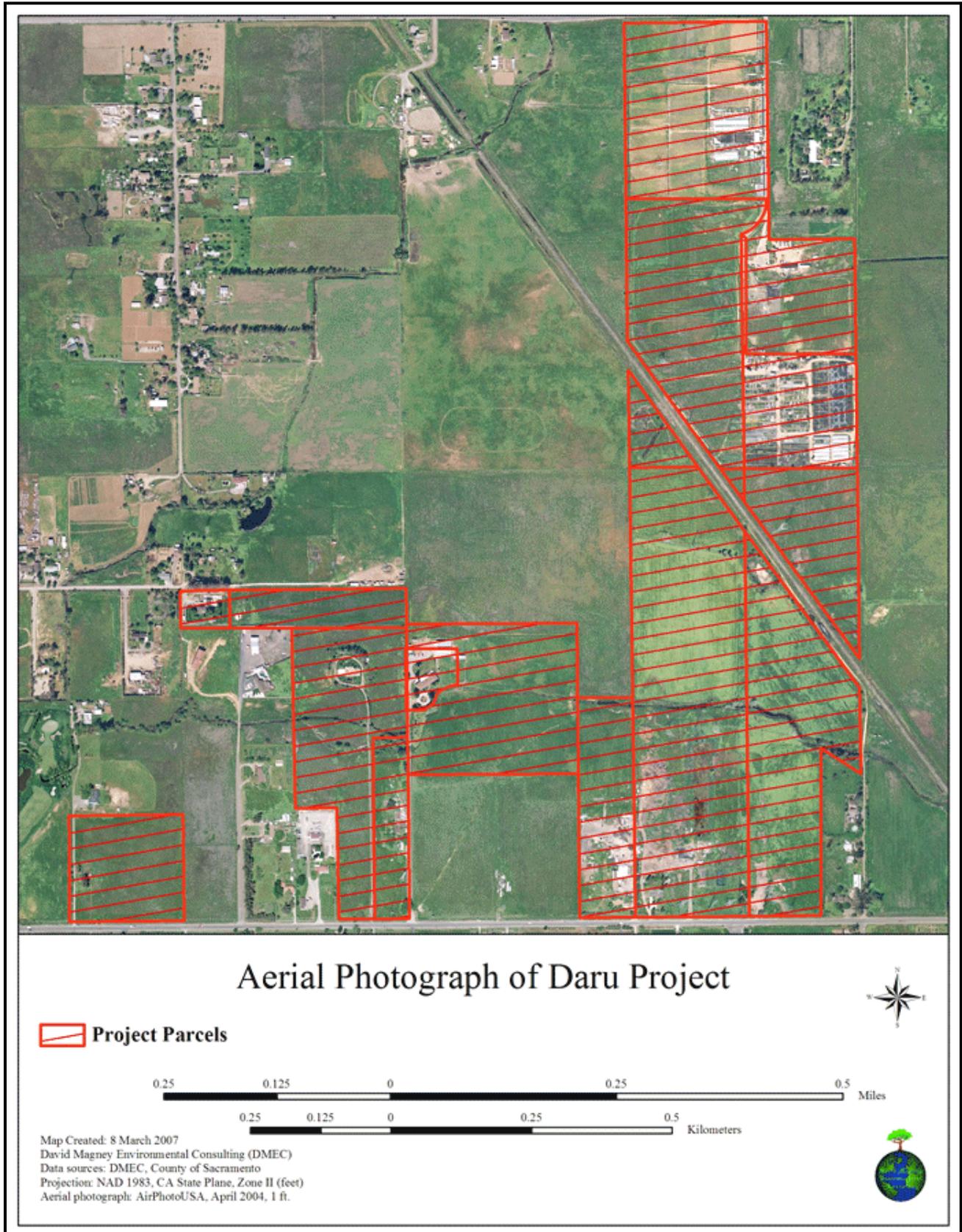


Figure 3. Wetland Delineation

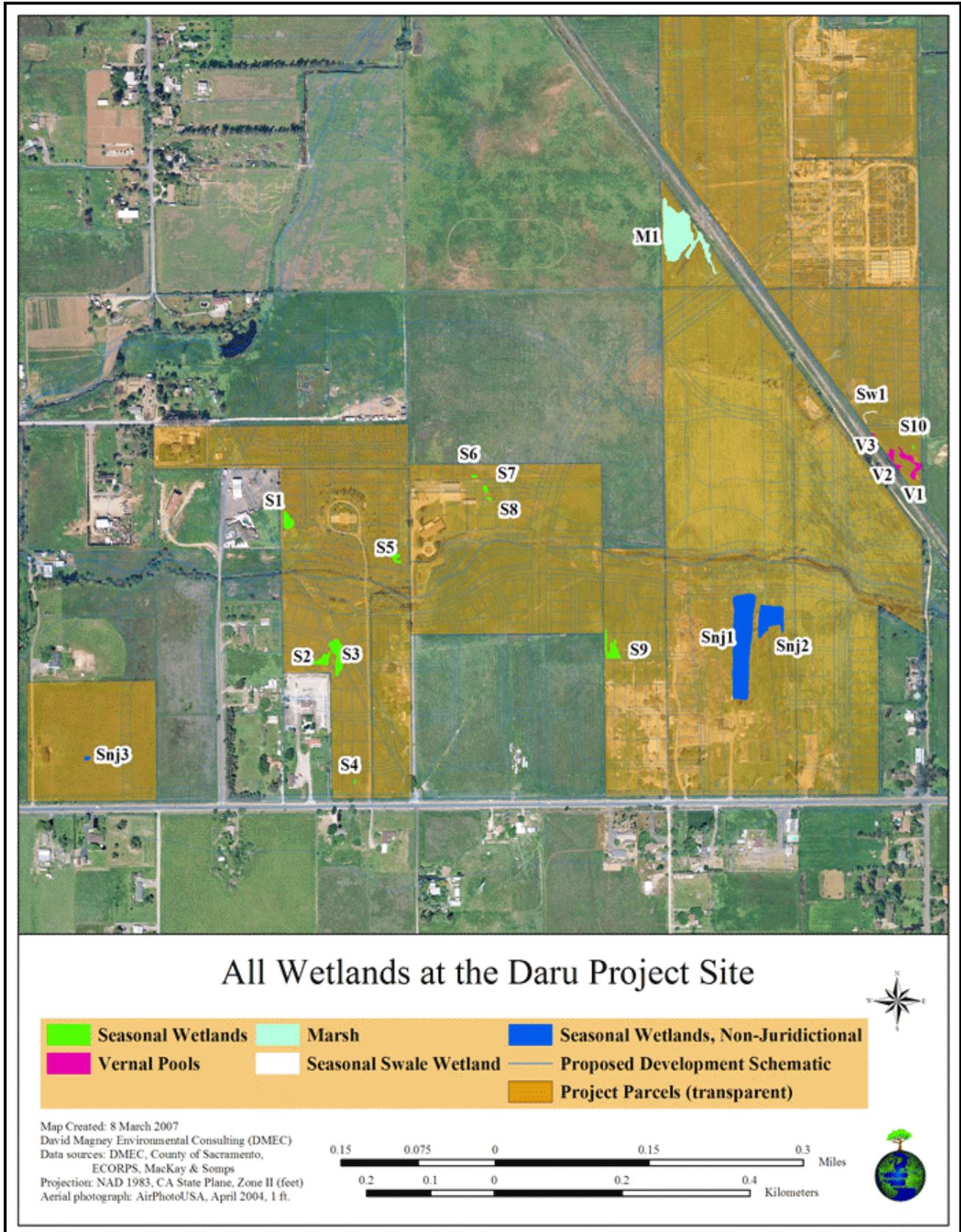
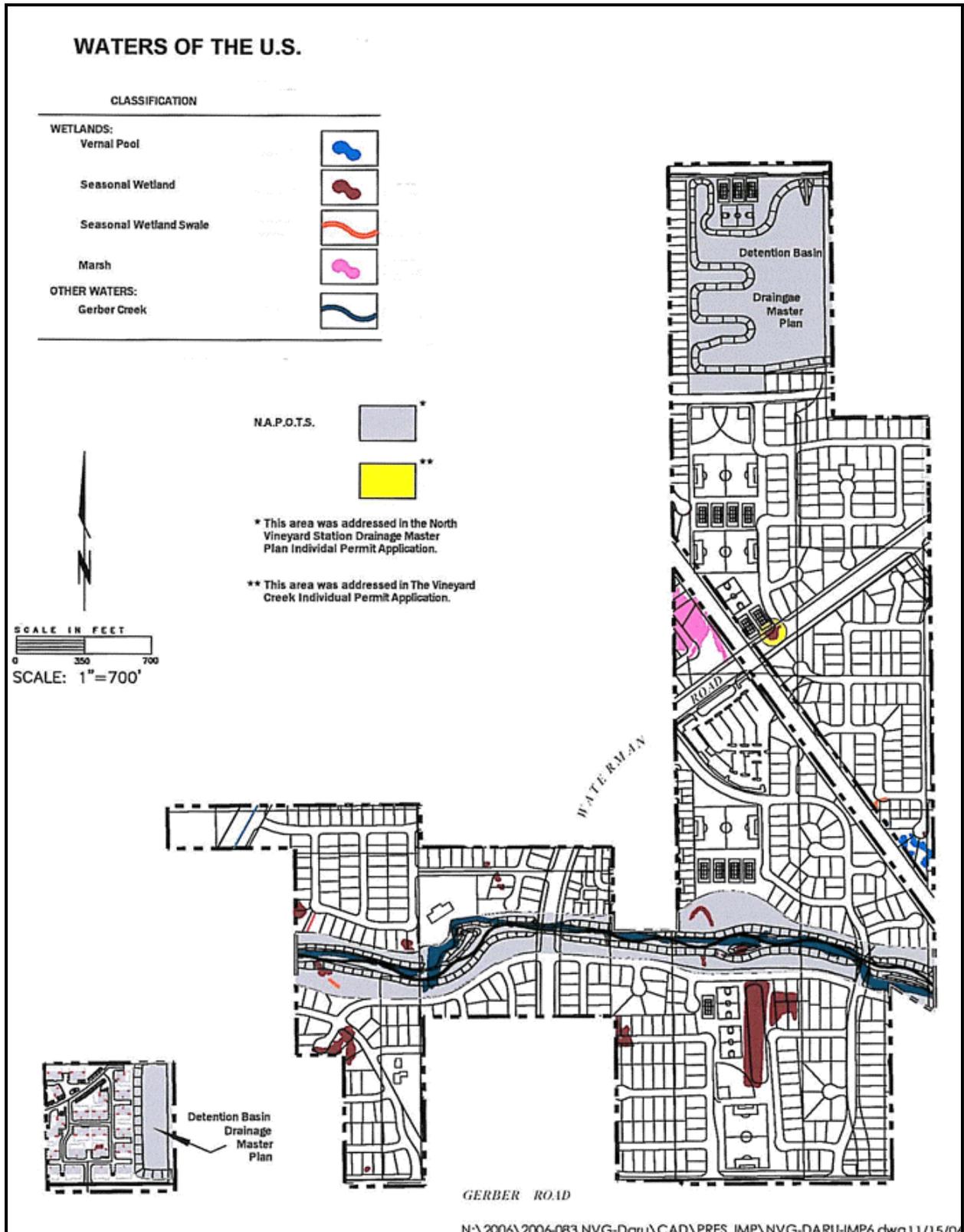


Figure 4. Proposed Impact Plan



Note: This figure was adapted from Figure 7 in the 404 IP application prepared by Ecorp Consulting, Inc.



PROJECT ALTERNATIVES

PURPOSE OF ALTERNATIVES ANALYSIS

The purpose of this Alternatives Analysis is to objectively evaluate the practicability of six project alternatives and provide the Corps with documentation to be used in evaluating the proposed project permit application in compliance with 404(b)(1) guidelines (Guidelines).

The project, as proposed, would result in the discharge of dredged and fill material into 1.60 acres of waters of the U.S., including wetlands. In addition to requiring the identification of the least environmentally damaging practicable alternative (LEDPA), the Guidelines mandate that a project must not violate any applicable toxic effluent standard or prohibition, 40 C.F. R. §230.10(b)(2), jeopardize the continued existence of any endangered or threatened species (or destroy or adversely modify critical habitat), 40 C.F.R. §230.10(b)(1), or cause or contribute to significant degradation of waters of the U.S., 40 C.F.R. §230.10(c). Prior to completing its review, the Corps must also evaluate the proposed project in light of the public interest. Finally, the Corps must ensure that its environmental review complies with the National Environmental Policy Act (NEPA), codified at 42 U.S. C. §4321 et seq.

PROPOSED PROJECT ALTERNATIVES

Six project alternatives are proposed below to provide a range of alternatives to be considered, including the No Project (no action) alternative. The least environmentally damaging practicable alternative will be identified through the analysis of these proposed alternatives. The six project alternatives considered include:

1. No Project;
2. Alternate Project Site;
3. Proposed Project with Total Avoidance;
4. Proposed Project with Partial Avoidance and Onsite Mitigation;
5. Proposed Project with Onsite Mitigation; and
6. Proposed Project with Offsite Mitigation.

These alternatives provide the required range of alternatives to satisfy NEPA and AA Guidelines. Each project alternative is briefly described in the following subsections.



Alternative 1 – No Project

The No Project (“No-Action”) Alternative would result in no changes within the NVSSP Area and NVG Project site, and the jurisdictional waters and wetlands of the U.S. would remain “as is”. This alternative is inconsistent with the proposed project purpose of providing additional housing to help meet growing demand in the County of Sacramento.

Although impacts at the NVG project site would be avoided under this alternative, no benefits or improvements to the County of Sacramento would be realized and neither the basic nor overall project objectives would be met.

Alternative 2 – Alternate Project Site

This alternative would involve building approximately 750 dwelling units on approximately 139 acres at another suitable location in southern Sacramento County, California. Although impacts within the NVSSP Area and NVG Project site would be avoided, potential impacts to jurisdictional waters and wetlands of the U.S. and other resources would be possible at any alternate project sites since seasonal wetlands similar to those found at the Project site occur throughout southern Sacramento County.

Site selection criteria represent the first level of evaluation for determining the availability of potential alternate sites for the North Vineyard Greens Project that allow the project purpose to be achieved. According to a 20 February 2007 Multiple Listing Service (MLS) search presented by MetroList®, there are currently no available parcels that meet the project requirements within the Sacramento Urban Services Boundary (USB) as called for in the Corps Response to Public Comment letter dated 9 December 2005. A copy of the MetroList® search results is included as Appendix A. In addition, any relocation of the NVG Project from within the larger NVSSP Area ($\pm 1,594$ acres) to another site would have impacts on other surrounding projects in the NVSSP Area.

Alternative 3 – Proposed Project With Total Avoidance

This project alternative would involve building approximately 675 dwelling units on approximately 121 acres within the NVSSP Area and NVG Project site of southern Sacramento County, California. The Project would result in no direct disturbance of jurisdictional waters and wetlands of the U.S., but there would be a high potential for their degradation due to isolation and urban edge effects.

The Total Avoidance (No Fill) Alternative would preserve all 1.60 acres of jurisdictional wetlands within 100-foot buffer zones (Figure 5, Total Avoidance Alternative). This would result in the loss of 68 dwelling units on approximately 18 acres, including buffer areas. With the extent and characteristics of wetlands and vernal pools currently present on the NVG Project site, a no fill alternative would not be significantly less damaging to aquatic resources than a fill alternative. A no fill alternative would still permit development on 121 acres with avoidance of jurisdictional areas.

Using the cost figure of \$160,000 per acre for onsite development¹⁰, the loss of approximately 18 developable acres would be expected to add approximately \$23,800 to the per acre cost of development for the remaining 121 acres. This determination is based on the assumption that the fixed costs for developing 121 acres would be close to those for developing all 139 acres, with those fixed costs being spread over fewer acres and resulting in a higher per acre cost. Realigning streets and other infrastructure to avoid wetland impacts would also add to project costs.

Potentially avoided wetlands and vernal pools, which historically have been impacted by agricultural use, would be subject to further degradation due to reduced wetland functionality resulting from isolation and urban edge effects. This will likely cut off sheet flows, leading to potential desiccation of the wetlands and pools and conversion to uplands. Potentially avoided wetlands or vernal pools would remain completely isolated from each other and almost completely isolated from other jurisdictional waters, with the only potential connection to other waters being tenuous overland sheet flow connections.

Given these circumstances, any remaining wetlands on the NVG Project site would not be considered as “contributing to the overall environmental health or vitality of the regional ecosystem”, as is typical of wetland special aquatic sites (See 40 C.F.R. §230.3[q-1]), and there would not be significantly less impact to aquatic ecosystems than with the proposed project with no avoidance.

Alternative 4 – Proposed Project With Partial Avoidance and Onsite Mitigation

This alternative involves building approximately 735 dwelling units on approximately 135 acres within the NVSSP Area and NVG Project site of southern Sacramento County, California. The project would result in the filling of 0.53 acre of jurisdictional waters and wetlands of the U.S., requiring onsite mitigation of approximately 1.06 acres at a 2:1 replacement ratio.

This alternative proposes to preserve 1.07 acres of wetlands within 100-foot buffers in two locations adjacent to the Central California Traction Railroad easement in NVG Unit 1 (Figure 6, Partial Avoidance Alternative). The preserved wetlands would consist of 0.92 acre of seasonal marsh and 0.15 acre of vernal pools. This alternative would result in the loss of 15 dwelling units on approximately 4 acres.

Using the cost figure of \$160,000 per acre for onsite development, the loss of approximately 4 developable acres would add approximately \$4,700 to the per acre cost of development for the remaining 135 acres (See discussion on costs in Alternative 3 above). Realigning streets and other infrastructure to avoid wetland impacts would also add to project costs.

Potentially avoided seasonal marsh wetlands and vernal pools, which historically have been impacted by agricultural use, would be subject to further degradation due to reduced wetland functionality resulting from isolation and urban edge effects. The remaining 0.53 acre of wetlands on the project site would be filled, with proposed mitigation to be the creation of 1.06 acres of wetland preserve in NVG Unit 1. Preservation and mitigation would result in a total of 2.13 acres of wetlands onsite.

¹⁰ Provided by MacKay and Soms Civil Engineers, Inc., Sacramento, California.



The proposed mitigation area is located adjacent to and north of Gerber Creek in open space that includes an electrical transmission line easement. This has the advantage of consolidating these remaining wetlands so that there is an opportunity for connectivity between the wetlands and with Gerber Creek. There would be no additional loss of developable land onsite with mitigation in this location.

Alternative 5 – Proposed Project With Onsite Mitigation

This alternative involves building approximately 750 dwelling units on approximately 139 acres within the NVSSP Area and NVG Project site of southern Sacramento County, California. Project would result in the filling of 1.60 acres of jurisdictional waters and wetlands of the U.S. with proposed onsite mitigation of approximately 3.20 acres.

This alternative proposes to mitigate for the filling of 1.60 acres of wetlands through the creation of 3.20 acres of wetland preserve in NVG Unit 1 (Figure 7, Project with Onsite Mitigation). The proposed mitigation area is located adjacent to and north of Gerber Creek in open space that includes overhead electrical transmission line easement. This has the advantage of consolidating these wetlands so that there is an opportunity for connectivity between the wetlands and with Gerber Creek. There would be no loss of developable land onsite with mitigation in this location.

Alternative 6 - Proposed Project With Offsite Mitigation

This alternative involves building approximately 750 dwelling units on approximately 139 acres within the NVSSP Area and NVG Project site of southern Sacramento County, California. Project would result in the filling of 1.60 acres of jurisdictional waters and wetlands of the U.S. with proposed offsite mitigation of 3.20 acres.

This alternative proposes to mitigate for the filling of 1.60 acres of wetlands through the purchase or creation of 3.20 acres of wetland preserve at suitable offsite locations. Though this alternative provides for wetland preserve offsite, it eliminates wetland function onsite. This approach could increase project costs, but there would be no loss of developable land onsite with the mitigation offsite.



SUMMARY OF PROJECT ALTERNATIVES

Alternative 1 (No Project) does not impact the North Vineyard Greens site, nor does it provide housing or meet project objectives.

Alternative 2 (Alternate Site) does not impact the NVG site, has unknown potential impacts on alternate sites, and project objectives cannot be met because no suitable alternate sites are currently available.

Alternative 3 (Total Avoidance) significantly impacts avoided jurisdictional wetlands due to isolation and urban edge effects, provides less housing with significantly higher per-acre project development costs, and does not fully meet project objectives.

Alternative 4 (Partial Avoidance) impacts avoided wetlands, minimally restores wetland function onsite with mitigation, increases per-acre project costs, and partially meets project objectives.

Alternative 5 (Project with Onsite Mitigation) partially restores contiguous wetland ecosystem function onsite and meets project objectives.

Alternative 6 (Project with Offsite Mitigation) eliminates wetland function onsite, preserves wetland function at offsite locations, and meets project objectives.

The six project alternatives described above are summarized below in Table 3, Project Alternatives Summary.

Table 3. Project Alternatives Summary

Alternative	Wetlands Preserved*	Wetlands Impacted*	2:1 Wetland Mitigation	Dwelling Units	Developed Acres
1. No Project	1.60 ac	0	0	0	0
2. Alternate Site	1.60 ac	Unknown	Unknown	Approx. 750 (if available)	Approx. 139 (if available)
3. Total Avoidance	1.60 ac	0	0	Approx. 675	Approx. 121
4. Partial Avoidance	1.07 ac	0.53 ac	1.06 ac	Approx. 735	Approx. 135
5. Project with Onsite Mitigation	0	1.60 ac	3.20 ac	Approx. 750	Approx. 139
6. Project with Offsite Mitigation	0	1.60 ac	3.20 ac	Approx. 750	Approx. 139

*Does not include 2.52 acres of existing jurisdictional waters/wetlands on the NVG site that are addressed by other NVSSP projects. Also does not include 1.48 acres of existing wetlands that are expected to be classified as non-jurisdictional.

Figure 5. Total Avoidance Alternative

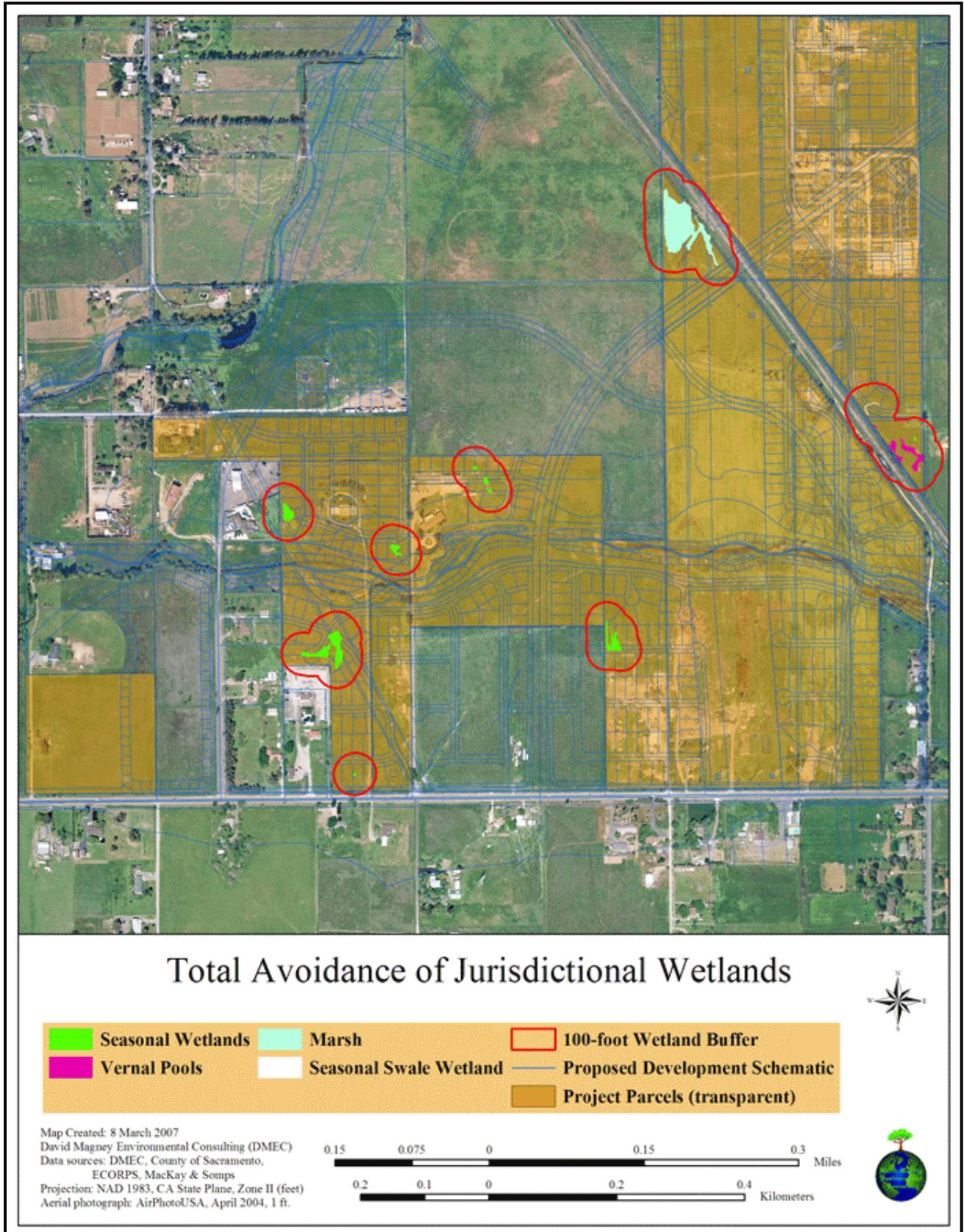


Figure 6. Partial Avoidance Alternative

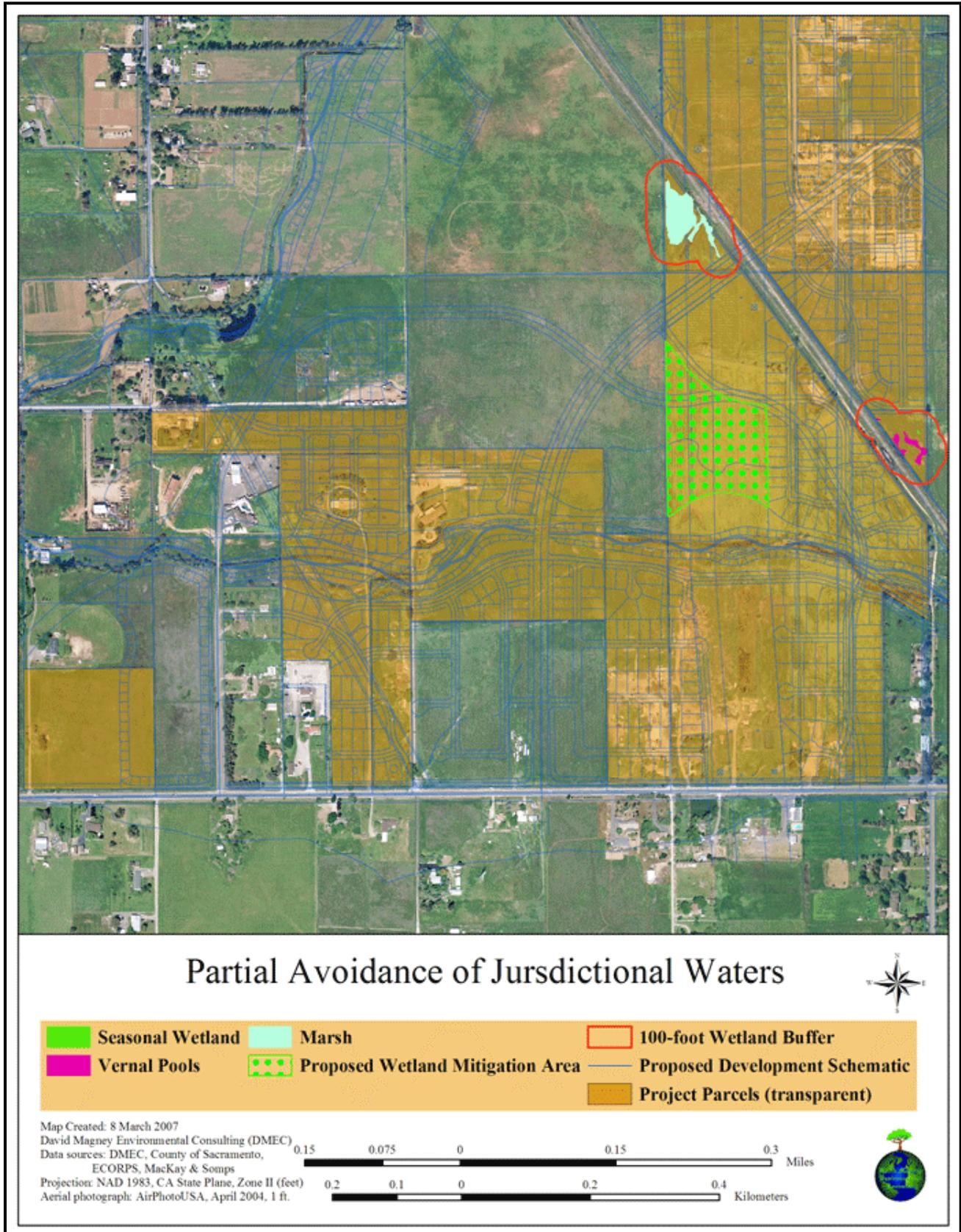
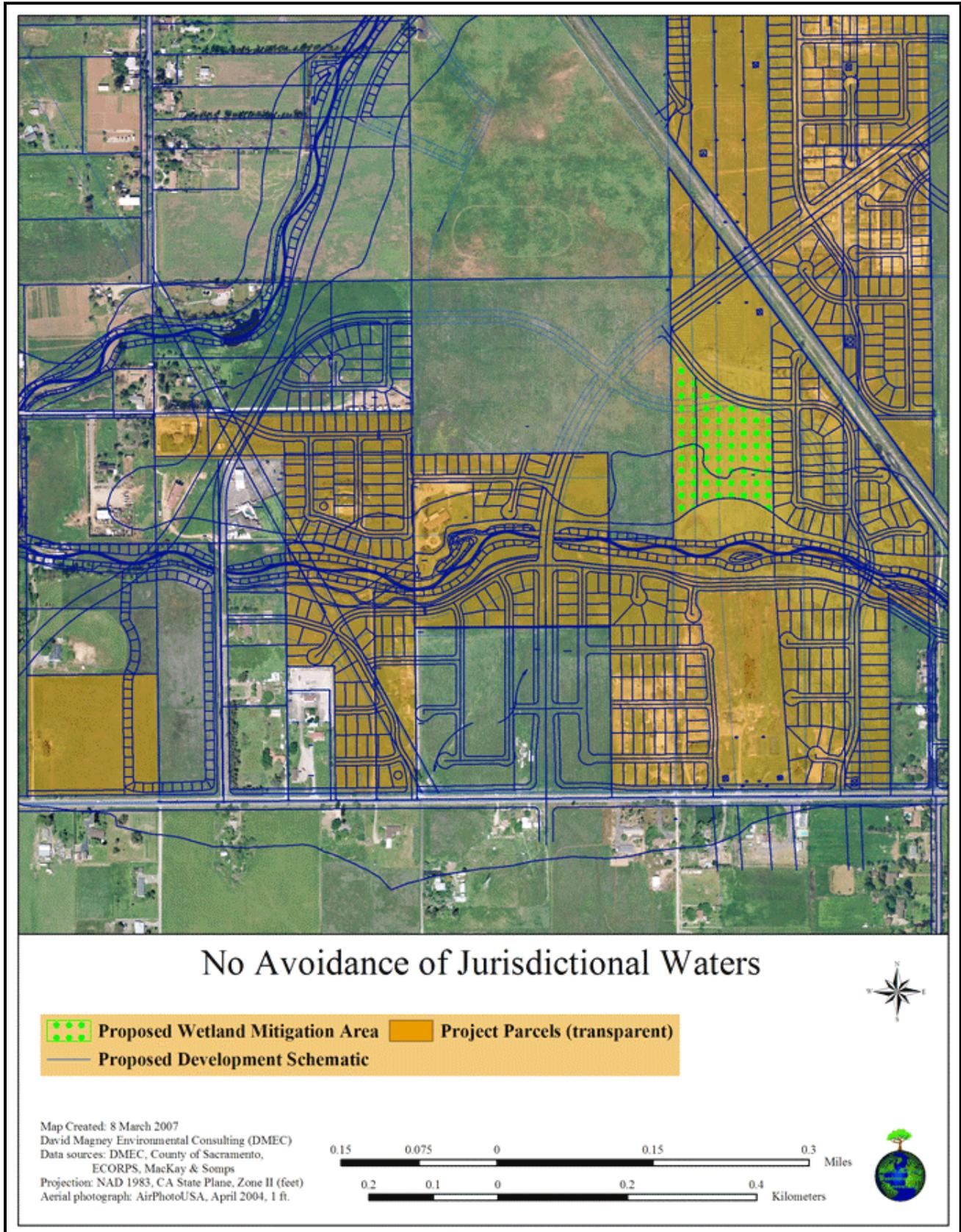


Figure 7. Project with Onsite Mitigation



LEAST ENVIRONMENTALLY DAMAGING ALTERNATIVE

LEDPA ANALYSIS

Section 404(b)(1) Guidelines require that the Alternatives Analysis be adequate to establish the project as the least environmentally damaging practicable alternative (LEDPA). This is accomplished by comparing the proposed project alternatives in terms of cost, practicability, project purpose, and overall environmental effects. For this analysis, a reasonable statement of overall project purpose has been developed, and six alternatives have been proposed in light of that purpose. This Alternatives Analysis has been prepared to be consistent with these Guidelines.

- Alternative 1 (No Project) does not impact the North Vineyard Greens site, nor does it provide housing or meet project objectives. Despite the lack of environmental effects with Alternative 1, it is not practicable and does not meet guidelines as LEDPA.
- Alternative 2 (Alternate Site) does not impact the NVG site, has unknown potential impacts on alternate sites, and cannot meet project objectives because no suitable alternate sites are currently available. The environmental effects of Alternative 2 are unknown, and because it is not practicable it does not meet guidelines as LEDPA.
- Alternative 3 (Total Avoidance) significantly impacts avoided jurisdictional wetlands because they would be subject to further degradation due to reduced wetland functionality resulting from isolation and urban edge effects. This alternative provides 75 fewer dwelling units with about \$23,800 in additional per-acre development costs, and does not fully meet project objectives. Because of the moderate to high environmental effects and low practicability it does not meet guidelines as LEDPA.
- Alternative 4 (Partial Avoidance) impacts avoided wetlands as described above, restores only some wetland functions onsite, provides 15 fewer dwelling units with about \$4,700 in additional per-acre development costs, and only partially meets project objectives. The environmental effects of this alternative are considered moderate, and it is only moderately practicable. For these reasons it does not meet guidelines as LEDPA.
- Alternative 5 (Project with Onsite Mitigation) partially restores contiguous wetland ecosystem functions onsite and fully meets project objectives. Because the onsite mitigation provides the opportunity for connectivity among restored/created wetlands and with Gerber Creek, the environmental effects appear to be low. Because this alternative is also highly practicable it meets guidelines as LEDPA.
- Alternative 6 (Project with Offsite Mitigation) eliminates wetland function onsite, preserves wetland functions at offsite locations, and fully meets project objectives. Because this alternative does not provide any onsite wetland functionality its environmental effects are considered to be moderate. Though it is highly practicable it does not meet guidelines as LEDPA.



Table 4. LEDPA Analysis Summary

Project Alternative	Overall Project Impacts	Comments	Practicability	Comments	LEDPA
1. No Project	None	No impacts at NVG site; 1.60 acres preserved	Not practicable	Provides no additional housing; project objectives not met	No
2. Alternate Site	Unknown	No impacts at NVG site; 1.60 acres preserved; impacts at alternate sites unknown	Not practicable	Alternate sites that meet project requirements not available; project objectives not met	No
3. Total Avoidance	Moderate to High	1.60 acres preserved; isolation and urban edge effects have significant negative impacts on avoided wetlands by decreasing wetland function	Low	Provides 75 fewer dwelling units with about \$23,800 in additional per-acre costs; project objectives not fully met	No
4. Partial Avoidance	Moderate	1.07 acres preserved with 1.06 mitigation acres for a total of 2.13 acres onsite; significant negative impacts on avoided wetlands; minimal onsite restoration of wetlands with mitigation	Moderate	Provides 15 fewer dwelling units with about \$4,700 in additional per-acre costs; project objectives partially met	No
5. Project with Onsite Mitigation	Low	Mitigation of 3.20 acres adjacent to Gerber Creek partially restores contiguous wetland ecosystem function onsite	High	Provides optimum amount of housing for the site; project objectives fully met	Yes
6. Project with Offsite Mitigation	Moderate	Eliminates wetland function onsite; preserves wetland function at offsite locations	High	Provides optimum amount of housing for the site; project objectives fully met	No



CONCLUSIONS

Pursuant to the Guidelines, this analysis also takes into consideration the other factors listed in 40 C.F.R. §230.10 (b) and (c) in identifying the least environmentally damaging practicable alternative. In identifying the Proposed Project with Onsite Mitigation as the LEDPA, it was determined that this preferred alternative is not likely to result in violations of any applicable toxic effluent standard or prohibition, jeopardize the continued existence of any endangered or threatened species (or destroy or adversely modify critical habitat of such species), cause or contribute to violations of any applicable state water quality standard, or cause or contribute to any degradation of waters of the U.S.

A review of the six alternatives described above was performed in an effort to determine the preferred alternative that meets guidelines as LEDPA. This analysis was founded upon a legitimate and reasonably defined overall project purpose, and considered a meaningful number of alternatives to the project. Five of the alternatives considered failed to meet guidelines as LEDPA.

The preferred alternative, Proposed Project with Onsite Mitigation (Alternative 5), represents a balanced approach that allows the North Vineyard Greens development project to meet the environmental, project purpose, logistics, availability, and cost evaluation criteria. Avoiding direct impacts to onsite wetlands is considered generally infeasible since the wetlands are scattered across the Project site in different areas and would result in losses of additional dwelling units when the project is reconfigured.

Project components would need to be redesigned to accommodate preserving/avoiding onsite wetlands beyond just eliminating development lots, such as the realignment of roads. This would result in the loss of additional lots, and further decrease the economic viability of the Project. Furthermore, the functionality of the wetlands, if preserved, would almost certainly decrease because they will be surrounded by development in close proximity, even if a buffer zone is established around them. They will become entirely isolated from any other natural habitat, wetland or upland, resulting in decreased wetland functions.

For these reasons, we conclude that Alternative 5, the proposed project with onsite mitigation, is the LEDPA since it replaces impacted wetlands in-kind onsite as opposed to creating or preserving wetlands well offsite and outside of the Elder/Gerber Creek watershed.

CITATIONS

REFERENCES CITED

Department of Environmental Review and Assessment, County of Sacramento. 2005. North Vineyards Greens Units #1, #3, Gosal Estates, and Davis Property. Draft Supplemental Environmental Impact Report.

ECORP Consulting, Inc. 5 May 2006. Section 404 Individual Permit Application for North Vineyard Greens. Corps Regulatory # 200600428.

MacKay and Soms Civil Engineers, Inc., Sacramento, California, provided estimated onsite development costs.

Planning and Community Development Department, County of Sacramento.
www.saccounty.net/planning/gpupdate/gpu-index.html

Sacramento Area Council of Governments Employment, Housing Demand, and Population projections.
www.sacog.org/demographics/projections/index.cfm

Section 404(b)(1) Guidelines. www.usace.army.mil/cw/cecwo/reg/40cfr230.pdf

PERSONAL COMMUNICATIONS

Andrea Jones, Regulatory Project Manager, U.S. Army Corps of Engineers, Sacramento, California; Meeting in Sacramento on 27 February 2007 regarding the North Vineyard Greens Section 404 Individual Permit Application.

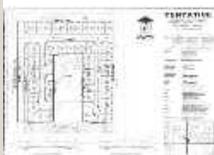
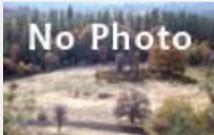
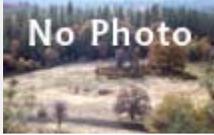
APPENDIX

20 February 2007 MLS Search Results for Alternate Project Sites within the Sacramento Urban Services Boundary

Search Criteria:

Land in **Sacramento** County priced above **\$0,000** of any acreage in **Any** zone.

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			\$8,300,000 40.00	24 Bradshaw Rd Sacramento	Multi-Residential	York & Associates Real Estate
			\$5,500,000 7.45	5101 Stockton Blvd Sacramento	Commercial	The Griffin Company
			\$4,225,300 7.40	8331 Bradshaw Rd Sacramento	Residential	Home Shop Realty
			\$4,200,000 10.00	7991 CARMENCIT A Ave Sacramento	Residential	Lyon RE Sierra Oaks
			\$3,950,000 7.50	1111111111 Elsie Ave Sacramento	Residential	California Real Estate & Loans
			\$3,945,000 5.26	9600 Calvine Rd Sacramento	Agricultural/Res	Steele Realty & Invest, Inc
			\$3,800,000 10.00	7960 Bradshaw Rd Sacramento	Residential	Steele Realty & Invest, Inc

			\$3,788,800 4.61	8280 Elk Grove Blvd Elk Grove	Commercial	RE/MAX Gold
			\$3,525,000 14.54	9445 Fruitridge Rd Sacramento	Industrial	Re/Max Gold
No Photo			\$3,400,000 9.87	7739 Bradshaw Rd Sacramento	Commercial	Coldwell Banker-Res R E Srv
No Photo			\$3,000,000 9.87	7669 Bradshaw Rd Sacramento	Rezone Possible	Coldwell Banker-Res R E Srv
No Photo			\$3,000,000 12.03	9250 Jackson Rd Sacramento	Industrial	Lyon RE Elk Grove
No Photo			\$2,995,000 6.43	7711 Elk Grove Florin Rd Sacramento	Agricultural/Res	VJ'S Systems Inc.
			\$2,925,000 9.46	8100 Carmencita Ave Sacramento	Agricultural/Res	Prudential CA Realty
No Photo			\$2,900,000 14.05	8235 Excelsior Rd Sacramento	Residential	Keller Williams Realty
No Photo			\$2,900,000 1.11	8686 W Stockton Blvd Elk Grove	Business/Professn l	Coldwell Banker-Res R E Srv
No Photo			\$2,899,999 6.46	7729 Elk Grove Florin Rd Sacramento	Agricultural/Res	Delta Homes and Lending

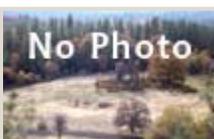
			\$2,800,000 14.27	9437 Gerber Rd Sacramento	Commercial	Westcoast Mortgage Group and Realty
			\$2,640,000 15.87	9661 Rogers Rd Sacramento	Agricultural	Charles Dobbins, Realtor
		M	\$2,200,000 5.00	9999 Carmencita Ave Sacramento	Agricultural	Jason Youngs, Broker
			\$1,975,000 13.50	9375 Calvine Rd Sacramento	Agricultural/Res	Coldwell Banker-Res R E Srv
		PS	\$1,958,200 16.66	00 Rogers Rd Sacramento	Rezone Possible	Steele Realty & Invest, Inc
		M	\$1,900,000 14.07	00 Bradshaw Rd Sacramento	Commercial	Connects Real Estate Services
			\$1,900,000 7.00	7060 Bradshaw Rd Sacramento	Commercial	Titan Realty Services
			\$1,900,000 0.77	8690 W Stockton Blvd Elk Grove	Business/Professn l	Coldwell Banker-Res R E Srv

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		PS	\$1,840,000 3.79	8009 Franklin Sacramento	Agricultural	Lyon RE Elk Grove
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			\$1,800,000 4.41	7801 Cotton Elk Grove	Residential	Adair Realty & Land Develop Co
			\$1,790,000 3.50	8770 Calvine Sacramento	Agricultural/Res	Re/Max Gold
		PS	\$1,750,000 10.00	00 Florin Sacramento	Agricultural	Steele Realty & Invest, Inc
			\$1,700,000 4.67	9672 Gavern Sacramento	Agricultural	Coldwell Banker-Res R E Srv
			\$1,600,000 9.50	8971 alder Sacramento	Agricultural	George Tzikas, REALTOR
		PS	\$1,600,000 5.25	7616 Rangeview Sacramento	Residential	Mack J. McBeth Realty
			\$1,499,900 1.25	7800 Shasta Elk Grove	Residential	Coldwell Banker-Res R E Srv
			\$1,499,900 1.25	7116 Shasta Sacramento	Rezone Possible	Coldwell Banker-Res R E Srv
			\$1,400,000 1.87	5303 Stockton Sacramento	Commercial	The Griffin Company
			\$1,400,000 3.34	9024 Fruitridge Sacramento	Commercial	Price Realty

			\$1,400,000 2.24	9757 Calvine Sacramento	Residential	RE/MAX Gold
			\$1,300,000 3.30	6212 Bradshaw Sacramento	Commercial	PCA Real Estate Services
			\$1,300,000 1.70	5261 Stockton Sacramento	Commercial	The Griffin Company
			\$1,250,000 3.15	7870 Bradshaw Sacramento	Agricultural/Res	Keller Williams Realty
		PS	\$1,199,888 2.41	6524 Lemon Hill Sacramento	Residential	Prudential CA Realty
			\$1,100,000 9.82	8161 Excelsior Sacramento	Agricultural/Res	Steele Realty & Invest, Inc
		PS	\$1,056,750 11.40	00 Rogers Sacramento	Rezone Possible	Steele Realty & Invest, Inc
			\$1,000,000 1.25	9775 Calvine Sacramento	Rezone Possible	RE/MAX Gold
			\$1,000,000 1.25	9791 Calvine Sacramento	Residential	RE/MAX Gold
		M	\$1,000,000 2.99	99999 Short Sacramento	Residential	Advanta Homes
			\$ 999,950 1.16	6106 Pomegranate Sacramento	Residential	Foremost Realty

		\$ 999,000 3.18	00 Carlisle Sacramento	Multi-Residential	RE/MAX Westlake Investments
		\$ 949,000 2.26	9999 Florin Sacramento	Commercial	Coldwell Banker-Res R E Srv
		\$ 760,000 1.60	5730 Martin L King Sacramento	Multi-Residential	RE/MAX Gold of Greenhaven

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		\$ 750,000 0.92	5205 Southwest Sacramento	Multi-Residential	B. Burks & Associates
		\$ 750,000 15.05	00 Jackson Sacramento	Agricultural	RE/MAX Gold
		\$ 720,000 1.04	7309 N Power Inn Sacramento	Residential	Prudential CA Realty
		\$ 695,000 2.10	7315 Gardener Sacramento	Agricultural/Res	MFN Realty
		\$ 695,000 2.44	6121 Pomegranate Sacramento	Residential	RE/MAX Gold of Greenhave n

			\$ 650,000 1.50	1 Lemon Hill Sacramento	Residential	Entrust Realty & Mortgage
	PS		\$ 650,000 1.00	7100 Tokay Sacramento	Business/Professnl	Lyon RE Fair Oaks
			\$ 599,950 1.50	5221 64th Sacramento	Residential	Dick Shelton Invest Prop
	M		\$ 599,000 0.49	7700 Stockton Sacramento	Commercial	Golden Hill Construct & Realty Inc.
			\$ 559,000 1.05	7140 Tokay Sacramento	Business/Professnl	Jordan Realty Company
			\$ 558,800 1.02	1Lot Pomegranate Sacramento	Residential	Century 21 A-1 Network
	M		\$ 509,000 3.65	14 Grand View Sacramento	Other	HomeWork s Real Estate
	PS		\$ 495,000 1.75	7539 POWER INN Sacramento	Commercial	Nolan Real Estate
			\$ 475,000 1.80	7294 Gardner Sacramento	Agricultural/Res	Keller Williams Realty Folsom

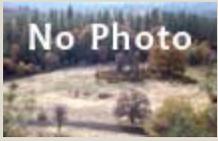
			\$ 450,000 0.83	7576 Stockton Sacramento	Commercial	Lyon RE Elk Grove
			\$ 439,900 0.48	6408 Requa Sacramento	Business/Professnl	Calweb Properties
		PS	\$ 425,000 2.50	1 Asher Sacramento	Industrial	Century 21 Landmark Network
			\$ 400,000 0.27	7713 W Shore Sacramento	Residential	Help-U- Sell Regal Realty
			\$ 399,999 0.33	3600 Agneta Elk Grove	Residential	RE/MAX Gold
		PS	\$ 395,000 1.53	15 Excelsior Sacramento	Agricultural/Res	Lyon RE Elk Grove
			\$ 375,000 0.35	3001 FRUITRIDGE Sacramento	Business/Professnl	Realty World- Sierra Properties
			\$ 350,000 0.57	8590 Bruceville Elk Grove	Residential	Valley Crossroads Realty
			\$ 350,000 0.32	5000 Enrico Sacramento	Multi-Residential	HomeTow n Realtors
			\$ 330,000 1.16	00 Pomegranate Sacramento	Multi-Residential	American Realty & Business Corp

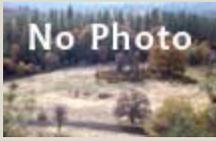
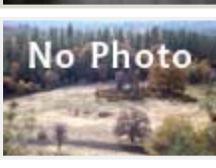
	PS	\$ 300,000 0.32	00 Martin L King Sacramento	Commercial	Lyon RE Fair Oak
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		\$ 299,000 0.46	7118 Bowling Sacramento	Business/Professnl	SCJ Cooper Realtors
		\$ 250,000 0.79	9204 Florin Sacramento	Agricultural	Coldwell Banker- Res R E Srv
		\$ 224,999 0.50	5716 Wilkinson Sacramento	Multi-Residential	Keller Williams Realty
		\$ 199,000 0.42	00 67th Sacramento	Residential	RE/MAX Gold El Dorado Hills
		\$ 195,000 0.28	5800 Belleview Sacramento	Residential	Coldwell Banker- Res R E Srv
		\$ 195,000 0.28	9 Florin Sacramento	Comm'l/Prof/Office	Capital Realty & Loans, Inc.
		\$ 195,000 0.28	8 Florin Sacramento	Comm'l/Prof/Office	Capital Realty & Loans, Inc.
		\$ 189,950 0.28	1 Bacchini Sacramento	Business/Professnl	RE/MAX Gold Sacramento

	P S	\$ 189,000 0.23	3701 Martin L King Sacramento	Commercial	Lyon RE Elk Grove
		\$ 175,000 0.26	7605 Countryfield Sacramento	Residential	Century 21 Select Real Estate
		\$ 175,000 0.30	7506 Citrus Sacramento	Multi-Residential	RE/MAX Gold of Greenhaven
		\$ 159,900 0.29	3519 25th Sacramento	Residential	Keller Williams Realty
		\$ 159,000 0.12	2425 45th Sacramento	Residential	Coldwell Banker-Res R E Srv
	P S	\$ 150,000 0.33	3340 25th Sacramento	Residential	Lyon RE Downtown
	P S	\$ 150,000 0.16	4420 Martin L King Sacramento	Residential	Lyon RE Fair Oaks
		\$ 145,000 0.22	3250 33rd Sacramento	Residential	Coldwell Banker Professionals
		\$ 135,000 0.18	3125 Occidental Sacramento	Multi-Residential	The Galster Group
		\$ 125,000 0.11	3701 16th Sacramento	Residential	The Souza/Sasse Group

			\$ 115,000 0.14	3915 35th Sacramento	Residential	The Souza/Sasse Group
			\$ 115,000 0.12	4204at left 35th Sacramento	Residential	1st American Realty
			\$ 114,900 0.18	4917 37th Sacramento	Residential	Tri-Point Realty
			\$ 105,900 0.25	5910 Wilkinson Sacramento	Residential	Tsering Realty
	P S		\$ 99,950 0.25	5750 Bellview Sacramento	Residential	Century 21 Haley & Assoc. Inc
	P S		\$ 90,000 0.25	6308 Bibbs Sacramento	Residential	Prudential CA Realty
			\$ 89,950 0.19	4225 51st Sacramento	Commercial	The Souza/Sasse Group

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			\$ 89,900 0.12	3833 36th Sacramento	Residential	Century 21 All Professional
	M PS		\$ 30,000 0.00	2671 29th Sacramento	Residential	Goins Realty Inc.



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