POTRERO HILLS LANDFILL GRASSLAND MANAGEMENT PLAN FOR MITIGATION AREAS

SOUTHERN HILLS, EASTERN VALLEY, GRIFFITH RANCH AND DIRECTOR'S GUILD PARCELS SOLANO COUNTY, CALIFORNIA

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1.0 INTRODUCTION

1.1 BACKGROUND

This Grassland Management Plan (GMP) describes the objectives, forage production, appropriate stocking rate, range readiness criteria, grazing regime, and non-grazing management activities for the Potrero Hills mitigation parcels (Southern Hills, Eastern Valley, Pond 5 Buffer, Director's Guild and Griffith Ranch) to provide for grassland management for the purpose of maintaining and enhancing biodiversity. Specifically, the GMP describes livestock grazing operations and non-grazing management activities for the long-term conservation of aquatic resources, special-status species, and associated grassland habitats on the property.

This GMP is proposed for a 797-acre mitigation area composed of five mitigation parcels: 1) the 429-acre Southern Hills parcel; 2) the 309-acre Eastern Valley parcel; 3) the 41-acre Pond 5 buffer area on the Phase II parcel; 4) the 112-acre Griffith Ranch parcel; and 5) the 84-acre Director's Guild parcel. For purposes of the GMP the Pond 5 Buffer area and Southern Hills parcel will be combined and collectively referred to as the Southern Hills grazing unit. The Southern Hills and Griffith Ranch parcels are located immediately south and north of the Potrero Hills Phase II expansion area, respectively. The Pond 5 Buffer area is located on the south side of the Potrero Hills Valley. The Director's Guild parcel is located about 0.25 miles north of the northern boundary of the expansion area on Griffith Ranch along Scally Road. Resource management of the grasslands planted on the existing landfill and proposed landfill expansion area is proposed for both interim and final cover vegetation. This would consist of mowing and/or grazing for wildland fuels reduction and invasive non-native weed control. Figures 1 and 2 show the location of the mitigation parcels in relationship to the existing landfill and proposed expansion area.

1.2 SOILS AND FORAGE PRODUCTIVITY

Soil texture is the most important factor in determining proper stocking (based on livestock carrying capacity) and grazing use levels. Finer textured soils (clays and silts) hold more moisture resulting in higher forage production levels. Slope steepness is also a factor in calculating proper grazing use levels because steeper slopes are more prone to erosion and lighter grazing use levels are required to protect soils.

The soils on the mitigation parcels are mapped as Altamont clay, 9-30 percent slopes (AcE); Altamont clay, 30-50 percent slopes (AcF2); Altamont-Diablo clays, 2-9 percent slopes (Amc); Altamont-Diablo clays, 9 to 30 percent slopes, eroded (AmE2); Antioch-San Ysidro complex, thick surface 0 to 2 percent slopes (AsA); Antioch-San Ysidro complex, thick surface 2 to 9 percent slopes (AsC); Clear Lake clay, 0 to 2 percent slopes (CeA); Clear Lake clay, 2 to 5 percent slopes (CeB); Diablo-Ayar clays, 9 to 30 percent slopes, eroded (DaE2); Gaviota sandy loam, 30-75 percent slopes (GaG2); Millsholm loam, 15-30 percent slopes (MmE), Pescadero clay loam (Pc), and Solano loam (Sh). The parent materials for the on-site soils are the siltstones and sandstones of the Potrero Hills. All the soils are well drained except for the Clear Lake clays, which are poorly drained. All the soils have slow permeability except for the Gaviota and Millsholm series which have moderately rapid to

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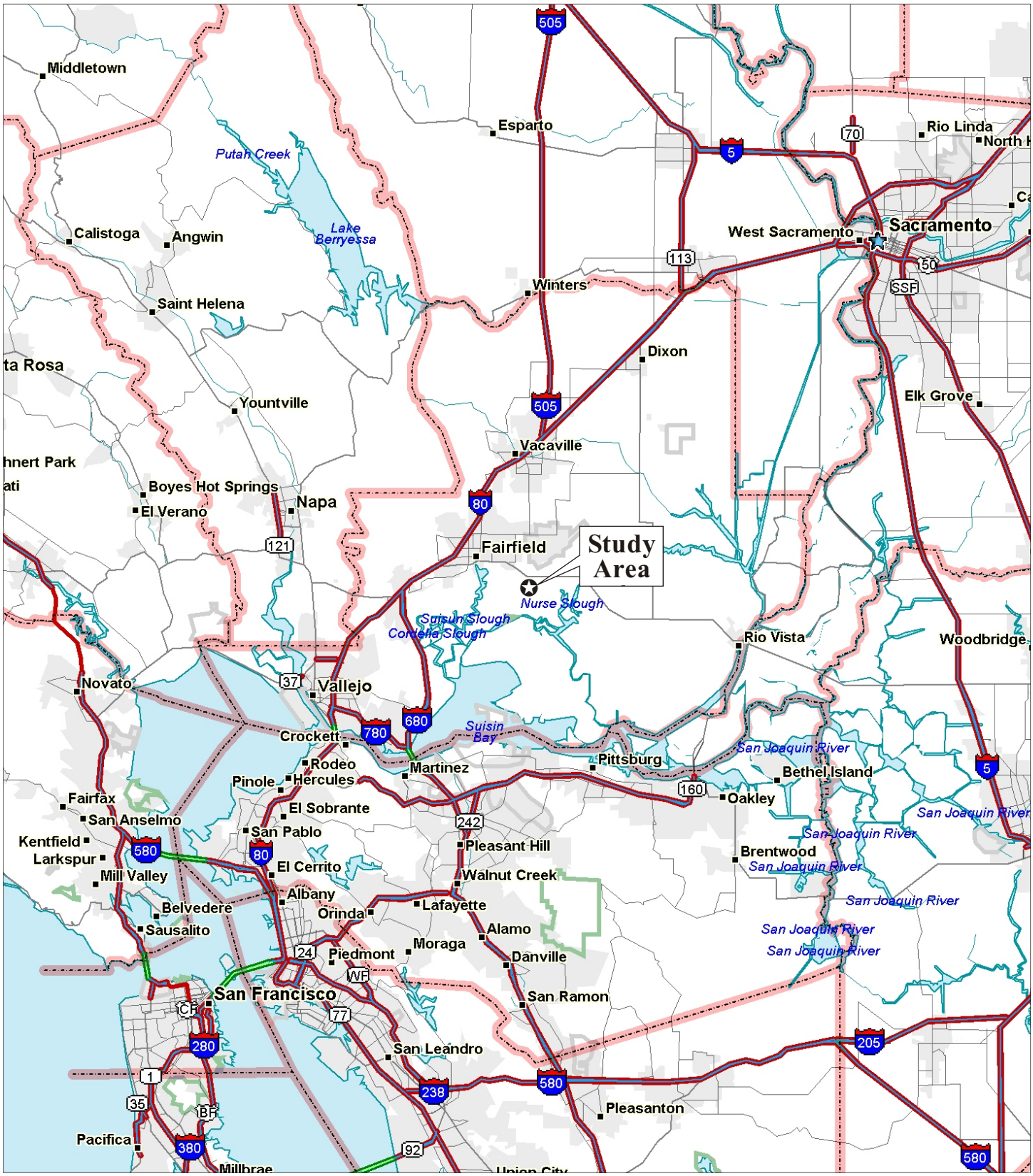

FIGURE 1

Potrero Hills Mitigation Site
Grassland Management Plan
Regional Location

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MILES

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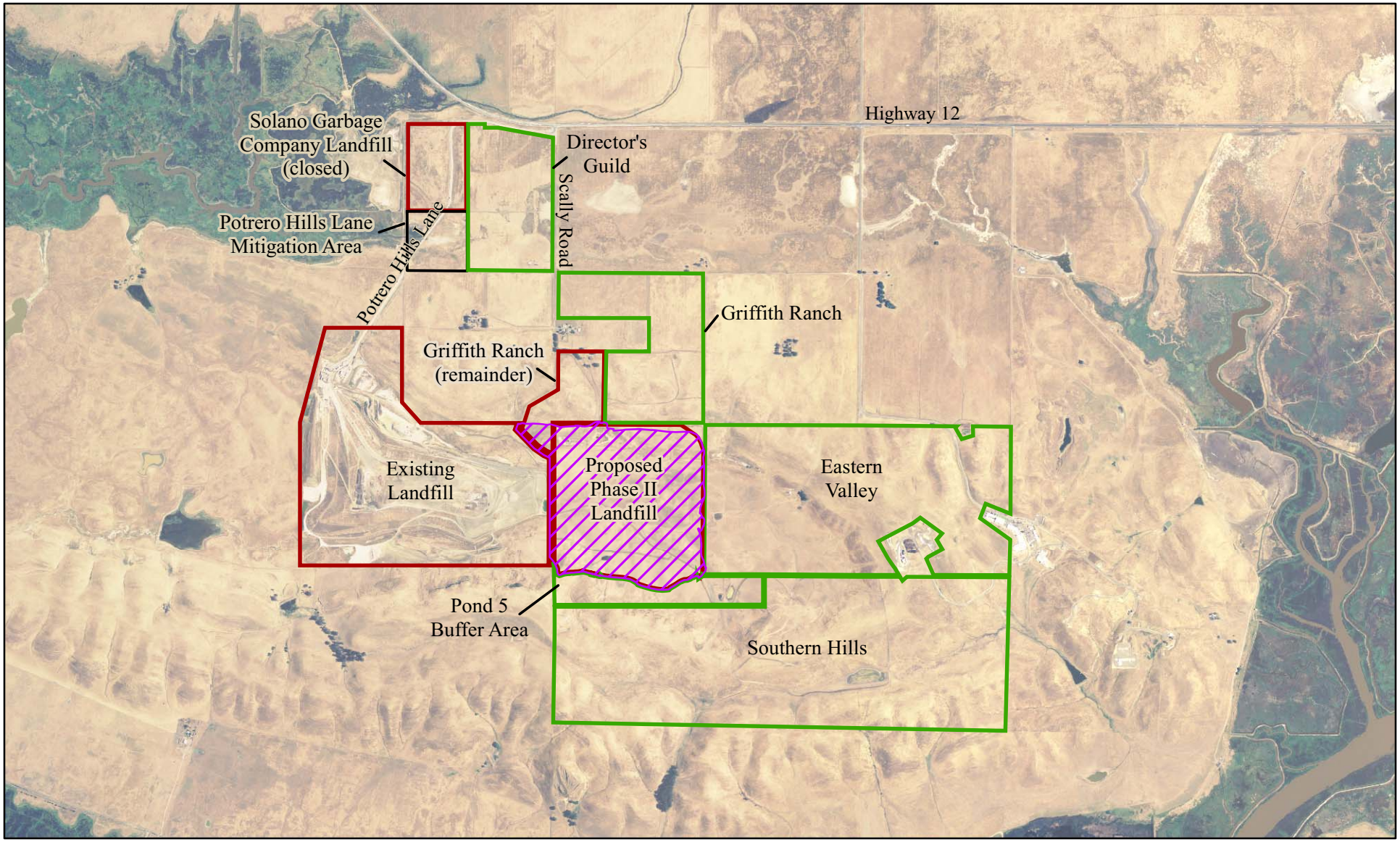

FIGURE 2

Potrero Hills Mitigation Site
Grassland Management Plan

Mitigation Parcels

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moderate permeability. Generally these are fine textured soils with relatively high forage production levels according to range site descriptions in the Solano County Soil Survey (SCS 1977).

Figure 3 provides a map showing the soil types on the mitigation parcels. Based on the acreages of these soils, and the Soil Survey (SCS 1977) dry-weight forage production estimates, recommended stocking rates (animal unit months [AUM][1] per acre) are calculated for each parcel for favorable, unfavorable, and average rainfall years in the attached Range Analysis Spreadsheets (Tables A-D).

1.3 PLANT COMMUNITIES

The Southern Hills, Eastern Valley, Pond 5 Buffer, and Griffith Ranch parcel's vegetation consists of non-native annual grassland dominated by Italian ryegrass (*Lolium multiflorum*), Mediterranean barley (*Hordeum marinum*), soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*) and wild oat (*Avena fatua*). An invasive non-native species, purple star-thistle (*Centaurea calcitrapa*) is abundant throughout the Southern Hills and Griffith Ranch parcels. Yellow star-thistle (*Centaurea solstitialis*) is also a common invasive non-native species. A highly invasive non-native grass, medusa-head (*Taeniatherum asperum*), is common on these two parcels and is especially dense on the Griffith Ranch. Native bunchgrasses are widely scattered on the three parcels. The steep southern portion of the Southern Hills parcel supports more abundant stands of native grasses, dominated by purple needlegrass (*Nasella pulchra*) and including blue wildrye (*Elymus glaucus*), and California melic (*Melica californica*).

The Director's Guild parcel includes the usual Mediterranean annual grasses as described above. Vernal pools, playas, and other wetlands on this parcel support a variety of wetland plants including curly dock (*Rumex crispus*), fiddle dock (*Rumex pulcher*), and semaphore grass (*Pleuropogon californicus*). Plants on the parcel that indicate alkaline or saline conditions include brass buttons (*Cotula coronopifolia*), alkali heath (*Frankenia salina*), pickleweed (*Salicornia virginica*), and salt grass (*Distichlis spicata*). Four special-status plants have been found on the Director's Guild parcel: alkali milk-vetch (*Astragalus tener* var. *tener*), Contra Costa goldfields (*Lasthenia conjugens*), San Joaquin spearscale (*Atriplex joaquiniana*), and crownscale (*Atriplex coronata* var. *coronata*).

1.4 WILDLIFE HABITAT

Wildlife habitat in the Southern Hills and Eastern Valley grazing units includes annual grasslands, stock ponds, seasonal wetlands, and intermittent drainages. Eucalyptus trees that could provide perches or nest sites for raptors or other wildlife occur on the Eastern Valley parcel. These parcels provide both upland and breeding habitat for California tiger salamanders (*Ambystoma californiense*). Burrowing owls (*Athene cunicularia*) have been observed incidentally on this parcel in winter and may use it for foraging or breeding because suitable habitat for both activities is present. Golden eagles (*Aquila chrysaetos*), ferruginous hawks (*Buteo regalis*), long-billed curlews (*Numenius americanus*), and tricolored blackbirds (*Agelaius tricolor*) also use the Southern Hills and Eastern Valley parcels as they do the adjacent Potrero Hills Valley and other parts of the Potrero Hills. Golden eagles are known to nest in the Potrero Hills south of the Phase I landfill parcel. No listed

[1] An animal unit month (AUM) is the amount of forage required to support an animal unit (one cow-calf pair or five sheep) for a month.

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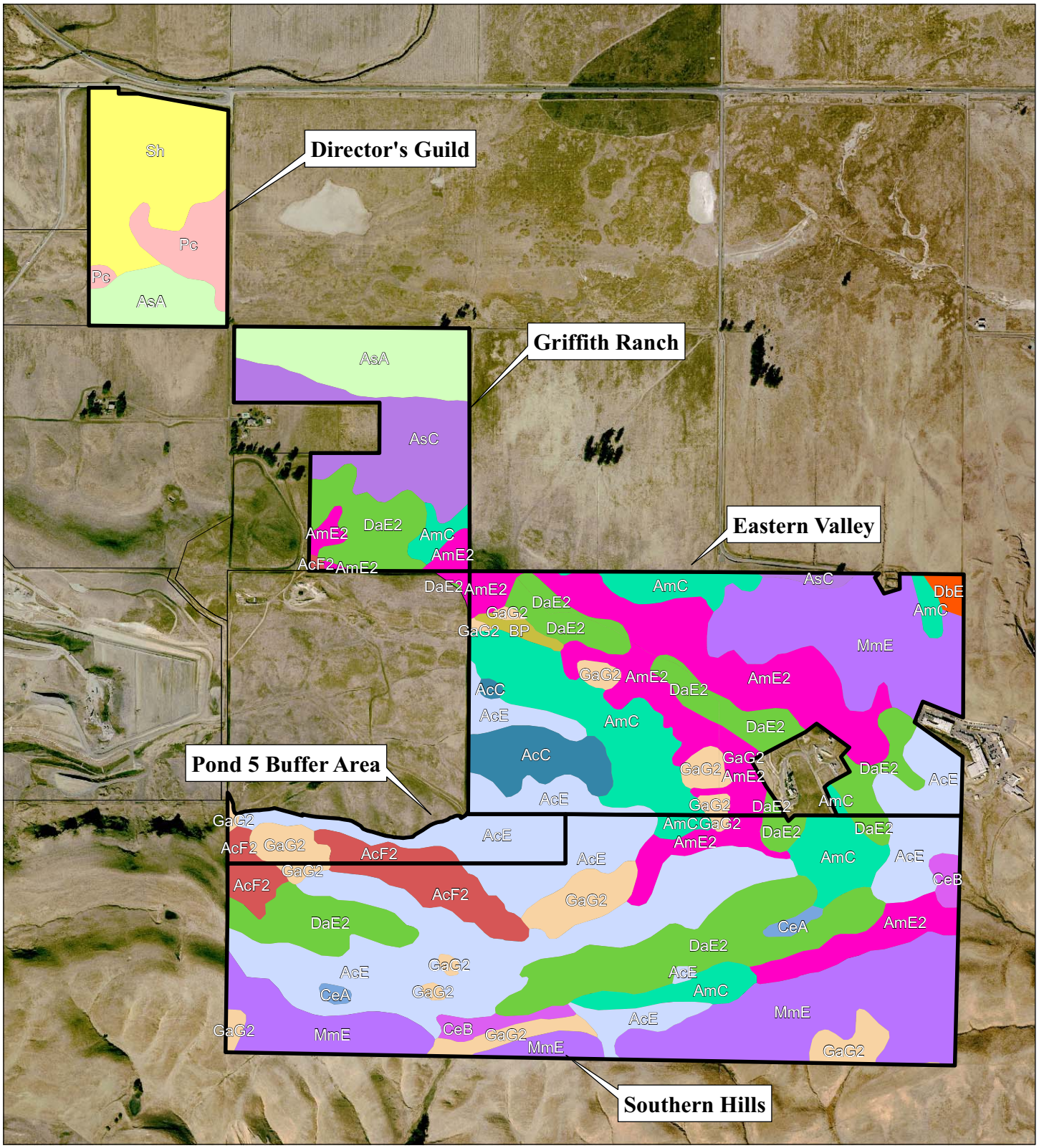

AcC	Altamont clay 2–9%	**CeA**	Clear Lake clay, 0–2%
AcE	Altamont clay 9–30%	**CeB**	Clear Lake clay, 2–9%
AcF2	Altamont clay 30–50%, eroded	**DaE2**	Diablo-Ayar clays, 9–30%, eroded
AmC	Altamont-Diablo clays, 2–9%	**DbE**	Dibble-Los Osos loams, 9–30%
AmE2	Altamont-Diablo clays, 9–30%, eroded	**GaG2**	Gaviota sandy loam, 30–75%, eroded
AsA	Antioch-San Ysidro complex, thick surface, 0–2%	**MmE**	Millsholm loam, 15 to 30%
AsC	Antioch-San Ysidro complex, thick surface, 2–9%	**Pc**	Pescadero clay loam
BP	Borrow Pit	**Sh**	Solano loam
		W	Water

N

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FEET

FIGURE 3

Protrero Hills Mitigation Site
Grassland Management Plan

Soil Map

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Table A: Range Analysis for Griffith Ranch

Target RDM (lb/acre)	750
Dry-Matter (lb) per AUM	1000

Soil Type	Acres	Dry-weight Production (lb/acre)			Available Forage (AUM/acre)			Total Available Forage (AUM)		
		Favorable Rainfall Year	Average Rainfall Year	Un-favorable Rainfall Year	Favorable Rainfall Year	Average Rainfall Year	Un-favorable Rainfall Year	Favorable Rainfall Year	Average Rainfall Year	Un-favorable Rainfall Year
AcE	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
AcF2	0.6	4000	3200	2400	3.3	2.5	1.7	1.9	1.4	1.0
AmC	4.7	4000	3200	2400	3.3	2.5	1.7	15.1	11.4	7.7
AmE2	6.6	4000	3200	2400	3.3	2.5	1.7	21.3	16.1	10.8
AsA	37.5	3300	2400	1600	2.6	1.7	0.9	95.5	61.8	31.8
AsC	41.1	3300	2400	1600	2.6	1.7	0.9	104.9	67.9	35.0
CeA	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
CeB	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
DaE2	21.8	4000	3200	2400	3.3	2.5	1.7	70.7	53.3	35.9
GaG2	0.0	1800	1500	900	1.1	0.8	0.2	0.0	0.0	0.0
MmE	0.0	3000	2000	1000	2.3	1.3	0.3	0.0	0.0	0.0
Pc	0.0	1870	1100	330	1.1	0.4	0.0	0.0	0.0	0.0
Sh	0.0	2250	1750	900	1.5	1.0	0.2	0.0	0.0	0.0
Total	**112.2**							**309.5**	**211.9**	**122.2**

Carrying Capacity by Duration and Animal Type - Average year

Months	2	4	6	8	10	12	AUE
Cow/calves	106	53	35	26	21	18	1.00
Horses	92	46	31	23	18	15	1.15
Yearlings	141	71	47	35	28	24	0.75
Sheep	530	265	177	132	106	88	0.20

Table B: Range Analysis for Director's Guild

Target RDM (lb/acre)	750
Dry-Matter (lb) per AUM	1000

Soil Type	Acres	Dry-weight Production (lb/acre)			Available Forage (AUM/acre)			Total Available Forage (AUM)		
		Favorable Rainfall Year	Average Rainfall Year	Un-favorable Rainfall Year	Favorable Rainfall Year	Average Rainfall Year	Un-favorable Rainfall Year	Favorable Rainfall Year	Average Rainfall Year	Un-favorable Rainfall Year
AcC	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
AcE	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
AcF2	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
AmC	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
AmE2	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
AsA	17.8	3300	2400	1600	2.6	1.7	0.9	45.4	29.4	15.1
AsC	0.0	3300	2400	1600	2.6	1.7	0.9	0.0	0.0	0.0
CeA	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
CeB	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
DaE2	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
GaG2	0.0	1800	1500	900	1.1	0.8	0.2	0.0	0.0	0.0
MmE	0.0	3000	2000	1000	2.3	1.3	0.3	0.0	0.0	0.0
Pc	17.3	1870	1100	330	1.1	0.4	0.0	19.3	6.0	0.0
Sh	51.6	2250	1750	900	1.5	1.0	0.2	77.4	51.6	7.7
Total	**86.7**							**142.1**	**87.0**	**22.9**

Carrying Capacity by Duration and Animal Type - Average year

Months	2	4	6	8	10	12	AUE
Cow/calves	44	22	15	11	9	7	1.00
Horses	38	19	13	9	8	6	1.15
Yearlings	58	29	19	15	12	10	0.75
Sheep	218	109	73	54	44	36	0.20

Table C: Range Analysis for Southern Hills

Target RDM (lb/acre)	750
Dry-Matter (lb) per AUM	1000

Soil Type	Acres	Dry-weight Production (lb/acre)			Available Forage (AUM/acre)			Total Available Forage (AUM)		
		Favorable Rainfall Year	Average Rainfall Year	Un-favorable Rainfall Year	Favorable Rainfall Year	Average Rainfall Year	Un-favorable Rainfall Year	Favorable Rainfall Year	Average Rainfall Year	Un-favorable Rainfall Year
AcE	160.4	4000	3200	2400	3.3	2.5	1.7	521.3	393.0	264.7
AcF2	32.5	4000	3200	2400	3.3	2.5	1.7	105.6	79.6	53.6
AmC	29.6	4000	3200	2400	3.3	2.5	1.7	96.2	72.6	48.9
AmE2	27.1	4000	3200	2400	3.3	2.5	1.7	88.2	66.5	44.8
AsA	0.0	3300	2400	1600	2.6	1.7	0.9	0.0	0.0	0.0
AsC	0.0	3300	2400	1600	2.6	1.7	0.9	0.0	0.0	0.0
CeA	3.6	4000	3200	2400	3.3	2.5	1.7	11.7	8.9	6.0
CeB	9.0	4000	3200	2400	3.3	2.5	1.7	29.3	22.1	14.9
DaE2	79.1	4000	3200	2400	3.3	2.5	1.7	257.1	193.8	130.5
GaG2	40.6	1800	1500	900	1.1	0.8	0.2	42.6	30.5	6.1
MmE	101.1	3000	2000	1000	2.3	1.3	0.3	227.4	126.3	25.3
Pc	0.0	1870	1100	330	1.1	0.4	0.0	0.0	0.0	0.0
Sh	0.0	2250	1750	900	1.5	1.0	0.2	0.0	0.0	0.0
Total	**483.1**							**1379.5**	**993.2**	**594.7**

Carrying Capacity by Duration and Animal Type - Average year

Months	2	4	6	8	10	12	AUE
Cow/calves	497	248	166	124	99	83	1.00
Horses	432	216	144	108	86	72	1.15
Yearlings	662	331	221	166	132	110	0.75
Sheep	2483	1241	828	621	497	414	0.20

Table D: Range Analysis for Eastern Valley

Target RDM (lb/acre)	750
Dry-Matter (lb) per AUM	1000

Soil			Dry-weight Production (lb/acre)			Available Forage (AUM/acre)			Total Available Forage (AUM)	
Type	Acres	Favorable Rainfall Year	Average Rainfall Year	Unfavorable Rainfall Year	Favorable Rainfall Year	Average Rainfall Year	Unfavorable Rainfall Year	Favorable Rainfall Year	Average Rainfall Year	Unfavorable Rainfall Year
AcC	20.6	4000	3200	2400	3.3	2.5	1.7	67.0	50.5	34.0
AcE	35.1	4000	3200	2400	3.3	2.5	1.7	114.1	86.0	57.9
AcF2	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
AmC	56.4	4000	3200	2400	3.3	2.5	1.7	183.3	138.2	93.1
AmE2	79.1	4000	3200	2400	3.3	2.5	1.7	257.1	193.8	130.5
AsA	0.0	3300	2400	1600	2.6	1.7	0.9	0.0	0.0	0.0
AsC	2.5	3300	2400	1600	2.6	1.7	0.9	6.4	4.1	2.1
BP	3.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
CeA	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
CeB	0.0	4000	3200	2400	3.3	2.5	1.7	0.0	0.0	0.0
DaE2	36.9	4000	3200	2400	3.3	2.5	1.7	119.9	90.4	60.9
DbE	3.1	3300	2400	1600	2.6	1.7	0.9	7.9	5.1	2.6
GaG2	9.9	1800	1500	900	1.1	0.8	0.2	10.4	7.4	1.5
MmE	62.0	3000	2000	1000	2.3	1.3	0.3	139.5	77.5	15.5
Pc	0.0	1870	1100	330	1.1	0.4	0.0	0.0	0.0	0.0
Sh	0.0	2250	1750	900	1.5	1.0	0.2	0.0	0.0	0.0
Total	**308.6**							**905.5**	**653.0**	**398.1**

Carrying Capacity by Duration and Animal Type - Average year

Months	2	4	6	8	10	12	AUE
Cow/calves	327	163	109	82	65	54	1.00
Horses	284	142	95	71	57	47	1.15
Yearlings	435	218	145	109	87	73	0.75
Sheep	1633	816	544	408	327	272	0.20

vernal pool crustaceans were found in Pond 7, but California fairy shrimp (*Linderiella occidentalis*) were observed in both Pond 5 and Pond 7 during surveys. Ponds 2, 3, 6, and 6b occur in the Eastern Valley and provide seasonal water for cattle and breeding sites for California tiger salamanders.

The seasonal wetlands on the Director's Guild parcel provide suitable habitat for federally listed vernal pool crustaceans. The playa pool supports vernal pool tadpole shrimp (*Lepidurus packardi*) and Conservancy fairy shrimp (*Branchinecta conservatio*). Three smaller seasonal pools on the parcel support Conservancy fairy shrimp. Tiger salamanders were not observed breeding in the playa pool during the 2003-2004 seasons, but it provides potentially suitable breeding habitat for this species while the surrounding uplands provide suitable habitat for adult salamanders.

Wildlife habitat on the Griffith Ranch parcel includes annual grasslands, a small stock pond, and seasonal wetlands. Eucalyptus trees grow around the barns and outbuildings onsite. The small stock pond onsite was sampled for vernal pool crustaceans in 2004 (LSA 2004), but was not found to support any listed species. No California tiger salamander larvae were observed in the stock pond, either. This stock pond is small and shallow and likely does not have a hydroperiod sufficient to allow salamanders to complete larval development prior to the pond drying up.

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2.0 GRASSLAND MANAGEMENT PLAN

2.1 GOALS AND OBJECTIVES

Livestock grazing and other management activities will be used on the mitigation parcels to achieve the following goals: 1) optimizing biodiversity and habitat values for California tiger salamanders, burrowing owl, other special-status species, and common grassland species; 2) to ensure that management actions do not have adverse effects on other species and their habitats; and 3) to reduce wildfire hazards. The following specific objectives will be achieved to realize these general goals.

- *Use livestock grazing as a resource management tool to maintain and enhance biodiversity.* Management strategies will use modern resource conservation practices based on scientific principals and incorporation of monitoring results to adjust, improve, and refine those practices using adaptive management. Stocking rates will be calculated initially to allow for moderate grazing use levels with minimum levels of residual dry matter (RDM) left after the grazing season to protect soils, maximize forage production and provide for desirable plant species composition (Bartolome et al. 2002). Residual dry matter is the old plant material left standing or on the ground at the beginning of a new growing season (typically early fall immediately prior to the first rains). The moderate level of grazing will leave a grass stubble height of 2-3 inches and an initial RDM level of about 750 pounds per acre at the end of the grazing season. This level is appropriate for California tiger salamander and burrowing owl management objectives and favors native grasses and forbs by removing non-native grass competition and associated thatch. Accumulation of high levels of thatch or RDM from non-native grasses around breeding pond margins and surrounding uplands can impede overland migration of juvenile and adult California tiger salamander leading to increased predation and desiccation (Robins and Vollmar 2002). This level of grazing early in the growing season is also consistent with enhancement of vernal pool and playa habitat on the Director's Guild. For example, a study in South Sacramento County showed that removal of cattle grazing from vernal pools significantly reduced ponding duration and native plant and animal abundance (Marty 2005, Pyke and Marty 2005). Also, a positive correlation between the intensity of sheep grazing and cover of native species in vernal pool habitats was documented on the Jepson Prairie (Phytosphere Research 2001, cited in Witham 2006a). Stocking levels will be adjusted based on monitoring results and yearly rainfall levels. Approximately 800 pounds of forage (dry weight) is required for one AUM. Therefore if a given soil type (for example MmE) produces 2,000 pounds per acre in an average year, 1,250 pounds of forage could be consumed if 750 pounds per acre is left as RDM. This translates to a stocking rate of about 1.3 AUM's per acre.
- *Eliminate or minimize impacts associated with unrestricted year-long use by cattle.* Impacts from unrestricted yearlong grazing can include soil erosion, and the establishment and spread of invasive non-native plant species such as yellow star-thistle, purple star-thistle, and medusahead, because of lowered competition from palatable and desirable plant species. To achieve this objective, perimeter fencing will be installed and maintained to prevent cattle access from adjacent private land (Figure 4). New barbed wire fence will be installed where gaps exist to consolidate each parcel into a single grazing unit. Old fencing that is no longer necessary will be removed. A seasonal grazing program, generally from October through June and resting the unit

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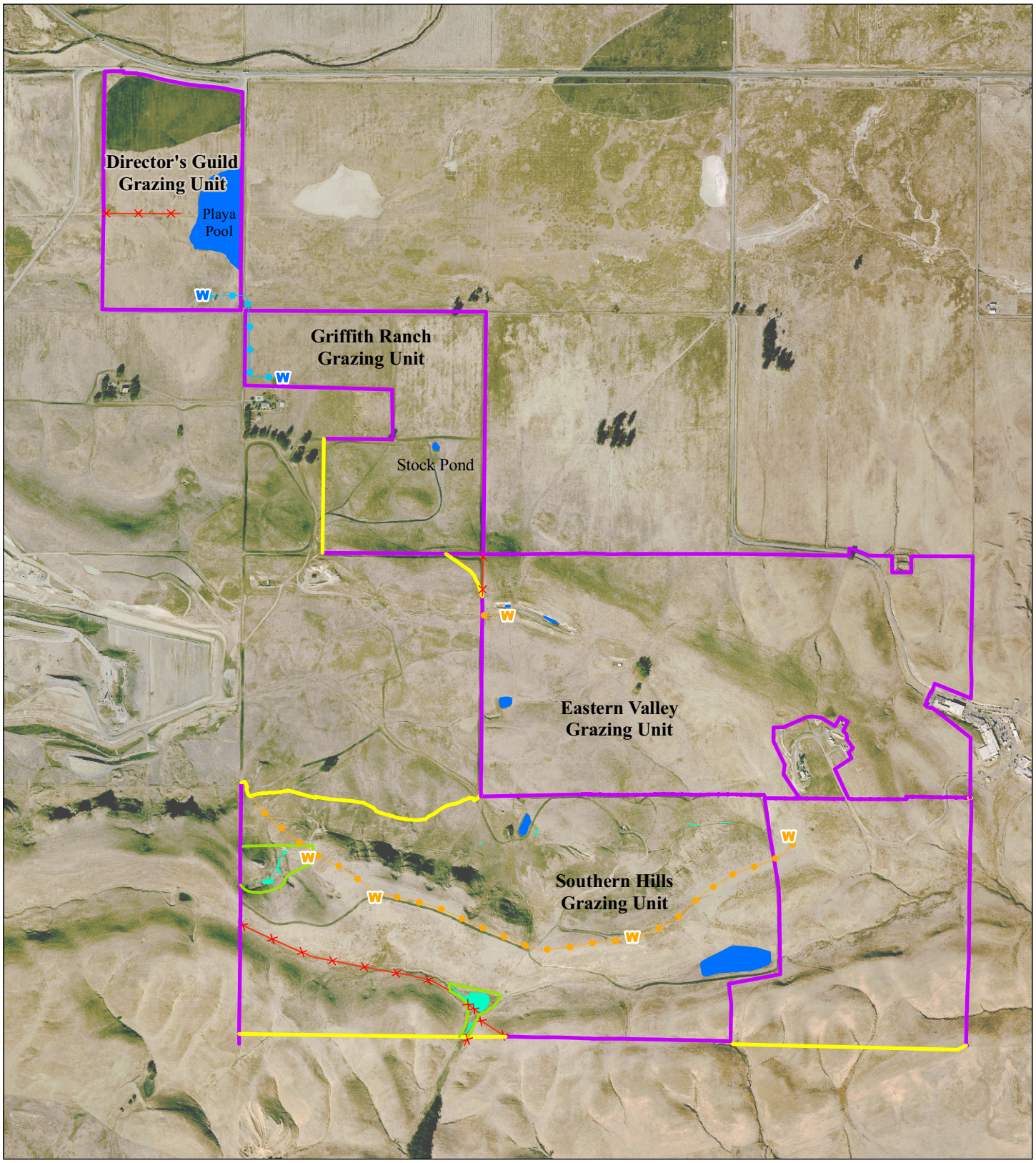

FIGURE 4

Potrero Hills Mitigation Site
Grassland Management Plan

Range Improvements

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from grazing during the late-summer/early-fall dry season, will allow for more control and flexibility over management of vegetation resources. This season of use is consistent with that recommended for the East Wilcox Ranch unit of the Greater Jepson Prairie Ecosystem Reserve (Witham 2006b) which is especially relevant to the Director's Guild parcel because of the occurrence in both areas of vernal pool flora and fauna.

Grazing use during the wet season (late-fall to late-spring) allows for more even grazing use patterns as livestock disperse over widespread areas. Specifically, grazing animals derive a large portion of their water intake from the green forage and less from ponds, streams, and other water sources. Limiting grazing to the wet season would exert less pressure on wetland habitats. Grazing early in the season when native grasses are generally dormant and competing non-native grasses are green would also concentrate grazing use on the non-native annual grasses to the competitive advantage of natives. Early grazing prior to seed ripening of invasive non-native annual plant species could also be used for weed control. It would also be most beneficial for California tiger salamander to concentrate livestock grazing beginning in late fall (October-December) with livestock removed or reduced in late spring or early summer (May-June) during juvenile transformation and migration. Removal of cattle too early could have negative impacts due to less pool turbidity, resulting in higher predation levels to tiger salamander larvae. These guidelines will be considered preliminary and adjustments made in response to monitoring results.

Yearlong grazing is also not feasible under current conditions because only seasonal ponds for livestock drinking water are present on the Southern Hills and Eastern Valley grazing units. Cattle on the Southern Hills parcel currently are watered on adjacent private land. An existing well and water trough occurs on private property adjacent to the Griffith Ranch parcel. This also provides a permanent livestock drinking water source for the Director's Guild parcel through a pipeline across Scally Road (Figure 4).

Development of additional permanent and reliable water sources on the Southern Hills and Eastern Valley parcels would allow for more flexibility for grazing operations. This would allow for grazing for short periods outside of the October-June seasonal window if prescribed by the Resource Manager to achieve biodiversity goals, or to help control invasive non-native plants. As with all management actions, the grazing season will be adjusted based on yearly weather patterns and monitoring results using an adaptive management approach.

- *Use cattle grazing as a tool to help control invasive non-native plant species.* Research has shown that cattle grazing can help control weeds through the impacts of herbivory on target species as documented below.
- *Use goat grazing and/or non-grazing treatments such as burning, mowing, herbicide use, biological controls (insects) and seeding with natives to help achieve biodiversity goals.*
    - Grazing by goats will be considered to help control invasive non-native species that are not palatable to cattle, or that prescribed cattle grazing has been ineffective in controlling. This will require confining the goats with a herder to a small area using temporary fencing and water. Because goat products are not in large demand and goat grazing is not economically viable, goat operations would likely need to be subsidized.
    - Non-grazing weed control treatments such as herbicides, mowing, or biological controls (in coordination with the Solano County Agriculture Department and/or Solano Weed Management Area) will also be used as necessary. Burning will also be considered, although

it may not be feasible due to air quality concerns and other constraints. Weed control treatments will be followed up by seeding with native grasses and forbs for long-term increases in biodiversity.

2.2 RESOURCE MANAGER

Prior to mitigation sign-off, the Potrero Hills Landfill will identify a qualified long-term Resource Manager who is licensed by the State as a certified rangeland manager and acceptable to the regulating agencies. The Resource Manager could be hired as a part-time employee of the Landfill, a consultant under contract to the Landfill, or a staff member of a non-profit public benefit land trust (e.g., the Solano Land Trust) provided under a conservation agreement. The Resource Manager may employ laborers or technicians to provide maintenance, erosion control, weed control, and trash removal activities. Funding for these activities, including salaries, will be provided by grazing fees and the Mitigation Endowment Fund. The Resource Manager's responsibilities and duties will include working with the grazing lessee (see below) to:

- Maintain fencing, livestock water facilities, and signage;
- Coordinate and oversee trash removal;
- Coordinate and oversee thatch (residual dry matter-RDM) removal, invasive non-native plant species control, and native plant revegetation activities;
- Review biological/rangeland monitoring data;
- Maintain records of RMP activities, correspondence, and decisions;
- Conduct general inspections of the mitigation areas;
- Recommend and implement corrective actions to attain the goals of the RMP;
- Coordinate with the Solano County Mosquito Abatement District to expedite mosquito control measures;
- Ensure compliance with rules and regulations protecting resource values and coordinate enforcement activities with the Solano County Sherriff's Department;
- Recommend and implement volunteer educational or habitat restoration programs.

2.3 GRAZING MANAGEMENT

2.3.1 Grazing Leases or Licenses

The terms of grazing leases/licenses and the lessee selection process can substantially affect progress towards attainment of biodiversity goals. The lessee selection process and lease terms will favor a livestock operator who is motivated to help attain the plan goals and will provide incentives towards their attainment. The following criteria, based on standard guidelines for grazing leases on open space lands (EBR 2001, EBMUD 2001), will be used to develop a lease program that provides conservation incentives:

- *The lessee selection process will be based on an appraisal (proposal and interview) method rather than an economic bid system*. Appraisal methods evaluate relevant criteria to select grazing tenants that are qualified and motivated to enhance grassland biodiversity values. Conversely, leases based on bidding are not recommended because they can encourage economic short cuts and improper grazing practices such as overstocking. Grazing tenant selection for new leases will be based on a proposal and interview process with a selection committee that includes

the Resource Manager. Proposal evaluation criteria for selection of a grazing lessee will include accuracy and responsiveness of the proposal, financial stability, adjacency of existing grazing operations, experience with invasive non-native weed control and revegetation activities, ability to respond quickly to problems (preferably with a continuous onsite presence), and relevant experience with rangeland conservation practices. The proposal process will not be necessary if present grazing tenants on Potrero Hills Landfill property with proven track records for conservation grazing practices wish to renew their leases. Both grazing tenants of the proposed mitigation areas have demonstrated a willingness to comply with conservation practices and livestock facility maintenance requirements. Based on observations of existing conditions by qualified rangeland managers and discussions with landfill staff, it is likely that such lessees would be suitable partners in grassland management of the mitigation areas.

- *Leases will be awarded for long-terms (at least five years)*. Long-term leases provide grazing tenants with incentives against deferring maintenance and management activities. Grazing history interviews for the draft Greater Jepson Prairie Ecosystem Regional Management Plan (Witham 2006a) indicate that livestock operators are more likely to overstock the range when they are uncertain about continuing operations in the following year. Tenure on the land, conversely, motivates the lessee to develop a sustainable operation conducive to attaining resource objectives.
- *Lease fee structures will be based on animal unit months (AUM's), not on acreage*. Because ecological sites vary significantly in forage production, the monetary value of a given area for grazing also varies. Grazing leases based purely on acreage are unfair and encourage overstocking. The lease fee structure will set stocking rates in AUM's and show how they are calculated.
- *Grazing leases will provide incentives for lessees to participate in resource management activities*. The lease fee structure will provide a framework for the lessee to be compensated for labor and materials expended in installing or maintaining range improvements and in conducting biodiversity enhancement activities such as weed control and native plant seeding under direction of the Resource Manager. It will also define utilization levels using residual dry matter (RDM) levels as targets in pounds per acre.
- *The grazing lease will require that the lessee and Resource Manager prepare an annual grazing plan (AGP) that is developed to incrementally attain the goals of the GMP*. The lessee will work with the Resource Manager to develop an AGP each year prior to introduction of livestock. The AGP will identify invasive non-native plant control and native revegetation activities, grazing schedules (including AUM's and pasture rotation schedules), RDM targets, range improvement installation and maintenance activities, and monitoring schedules.
- *The grazing lease will require that the lessee and Resource Manager document actual use.* Records will be kept and documented each year in the AGP on the previous year's livestock use including animal types, numbers, and schedules.

A typical grazing license that incorporates most of these elements as used by the East Bay Regional Park District is included as an example in Appendix A. This sample of a grazing license was intended for a recreational open space area and does not include all of the elements appropriate for a mitigation open space. For example, a grazing license for the Potrero Hills Mitigation Areas should require compliance with the terms and conditions of this Grassland Management Plan.

2.3.2 Actual Use

Actual Use. The Southern Hills and Pond 5 Buffer areas are grazed by cattle in a cow-calf operation in common with adjacent private land to the south. According to the lessee when the ponds dry up on the Southern Hills and Pond 5 Buffer area in the summer, the cattle move onto the private land where permanent water is available (Ahart, pers. comm.). Actual livestock use of the Southern Hills parcel and adjacent private land is about one cow per eight acres throughout the year, which translates to 1.5 AUM per acre.

The Griffith Ranch parcel is part of a yearlong grazing operation of 35 cow-calf pairs grazed in rotation with adjacent private parcels. According to the lessee, the area is grazed yearlong because a permanent source of drinking water is available from a well on the property (Tonnesen, pers. comm.). Actual livestock use of the Griffith Ranch and adjacent private land is about one cow per ten acres, which translates to 1.2 AUM per acre.

The Director's Guild had not been grazed for several years prior to 2006. It was grazed by 30 cows, 30 yearlings (6 months to 1 year old, 0.5 animal units each) and one bull (1.5 animal units) for about one month from early March to early April 2006. This grazing level translates to about 1.1 AUM's per acre. Grazing was implemented on the recommendation of the LSA team (including the author of this report) who had observed that heavy accumulations of thatch were adversely affecting special-status species such as alkali milk-vetch. Based on monitoring after livestock removal, this grazing level resulted in RDM levels of about 800 pounds per acre.

The Eastern Valley is currently grazed by a different lessee than those who graze the Southern Hills/Pond 5 Buffer, and Griffith Ranch/Director's Guild. One large pond (Pond 3) and two small ponds (Ponds 2 and 6) provide seasonal water sources in this area. These ponds will continue to be used on a seasonal basis, but will also be supplemented with a permanent water source.

2.3.3 Type of Livestock

Cattle are preferred for grazing the mitigation parcels for two reasons: 1) cattle prefer to graze grass rather than forbs (broadleaved plants), so would be more effective in reducing non-native grass thatch and would have less impact on native wildflowers and special-status plants as compared with sheep or goats; and 2) there is more demand for cattle forage than for sheep or goat forage, allowing more income from leases that could be available for range improvements or ecological restoration.

As an alternative, horses would be allowed to graze as they also prefer grass and there could be some demand for forage for horses used in ranch operations. Although likely to require a subsidy, goat grazing may be useful and cost effective for small scale site-specific weed control treatments by confining goats to infested areas using temporary fencing and water trailers.

2.3.4 Range Analysis and Stocking Rates

A range analysis was conducted (see Tables A, B, and C) to identify areas on the mitigation parcels that are suitable for grazing and to estimate forage production and appropriate stocking rates, based on forage production estimates by range sites from the Soil Survey (SCS 1977) and target residual dry matter levels developed by this plan for consistency with resource management objectives. The

forage production figures from the Soil Survey were verified for this plan by a certified rangeland manager using visual estimates (Guenther 1998).

The stocking rates calculated by these range analyses will be used as a benchmark to establish initial stocking rates for average, favorable (wet) and unfavorable (dry) rainfall years. They can be achieved either by adjusting the grazing season (shorter for dry years) or the number of animals. These stocking rates will then be adjusted (up or down) based upon monitoring results. The normal stocking rates will be based on the number of pounds of forage available in each grazing unit in a normal year. Estimates of forage production will be based on site-specific measurements of RDM and grass heights to be collected periodically during the grazing season.

During the spring months in a normal year, green grass will likely grow faster than the cattle will consume it, and grass height will be at the high end of the desired range. During the late spring and early summer months, the grass will stop growing, die, and might be reduced in height by grazing to the low end of the desired range. It will be the livestock tenant's responsibility to increase or decrease the number of cattle on a feasible schedule to achieve the standards for each management objective. To ensure that those adjustments are made in a timely manner, oversight will be provided by the Resource Manager.

As an example, if the 112-acre Griffith Ranch was grazed for four months in an *average* year, it would support 53 cow-calf units to attain the RDM target (Table A). If Director's Guild was grazed for two months from January 15 to March 15 in an *average* year, it would support 44 cow-calf units to attain the RDM target (Table B). If the Southern Hills grazing unit, based on livestock drinking water availability, was grazed for six-months from December 15 to May 15 during an *average* year, it would support 156 cow/calf units to attain the desired 750 pounds per acre RDM level (Table C). The Eastern Valley would support 109 cow/calf units for six months during an average year (Table D).

2.3.5 Season of Use

Livestock will be introduced to each of the parcels in the late fall or early winter (October-December) after enough green vegetation (3 to 4 inches in height) has become established to provide soil protection and adequate forage and after the ponds have been inundated sufficiently to provide livestock with drinking water. The schedule for moving livestock onto the property will be determined based on visual estimates of green grass height and pond inundation, and will vary based on rainfall and temperature conditions.

Livestock will be removed from the Southern Hills and Eastern Valley grazing units and Griffith Ranch parcel in the early summer (May-June) also based on visual analysis, water availability and monitoring results to maximize resource management benefits (*i.e.*, minimizing impacts on wetlands, native grasslands, and wildflower fields as well as controlling non-native invasive species) and achieve an even distribution of grazing use levels as described above. Livestock will be removed earlier from the Director's Guild property (no later than March 30 in a typical year) when the pools begin to dry to avoid impacts to sensitive vernal pool vegetation and invertebrates as the pools and playa are drying. As a contingency measure for each grazing parcel, livestock may be concentrated for brief periods (one to several days) using temporary electric fencing and portable water sources on areas of star-thistle infestation. This will be conducted as a weed control measure in late May or June

(based on observations of plant phenology) when the star-thistles are bolting (sending up flower stalks) but prior to development of flowers and spines (Thomsen et al. 1996).

Grazing should be deferred on any areas disturbed by grading activities or other areas that require erosion control or revegetation until vegetation is well established. Cattle grazing and trampling interfere with revegetation, and cattle may eat the straw that is often spread in these areas as a mulch.

2.3.6 Grass Height and Residual Dry Matter

To maintain optimum habitat conditions, grass height will not exceed the range of 3 to 12 inches (on the basis of means for each parcel) at any time of the year. The mean RDM at the end of the grazing season will be no less than 750 pounds/acre depending on topographic position and slope steepness. A maximum grass height of 18 inches will be acceptable for short periods during the growing season if necessary because of feasibility limits on the livestock operation or excessive spring grass growth. Periodic adjustments in stocking rates will be used to balance grazing utilization with grass growth. When grass height begins to exceed these standards, additional cattle (ideally yearling stocker steers) will be introduced to the parcels.

The 2-inch minimum height and minimum of 750 pounds/acre are required to achieve optimum forage production and good rangeland condition in California annual grassland under moderate grazing (Bartolome et al. 2002). The height measure is most important to habitat quality for California tiger salamanders and burrowing owls. Therefore, if the two variables appear to conflict in a management decision process, the height standard will take precedence over the weight standard. The upper end of the height range (12 or 18 inches) is not likely to provide the desired habitat objectives.

Assessments of the grass height and RDM standards will be based on an average of multiple monitoring samples (visual estimates calibrated with clipping as described below) distributed across each parcel or grazing unit. Grazing variability at a moderate rate usually results in an uneven appearance with a mosaic of patches of longer and shorter grass (Clawson et al. 1982). This is a desirable outcome for habitat objectives: an important management objective will be to assure a moderate degree of landscape heterogeneity across the property.

2.3.7 Range Improvements (Fencing, Water Sources)

The Director's Guild parcel is surrounded by existing livestock fencing (Figure 4) consisting of five-strand barbed wire supported by T-Posts. This perimeter fencing and gates will be inspected to determine the need for repair or replacement. Remnants of an old cross fence running from east to west across the parcel will be removed to facilitate livestock and wildlife movement. The existing water trough and pipeline (Figure 4) will be inspected and maintained as necessary.

The Griffith Ranch perimeter fence and gates will also be inspected and repaired or replaced as necessary. A new fence will be installed with a gate at the western end of the parcel (Figure 4). The existing water trough north of the Tonneson house and the stock pond to the south will be maintained as they provide adequate water sources for this parcel.

The existing perimeter fence and gates around the Southern Hills grazing unit will be inspected and repaired or replaced as necessary. New perimeter fences (five-strand barbed wire) will be installed where none exists along the southeast and southwest boundaries to separate the parcel from adjoining private properties. Gates will be installed at strategic locations which may be kept open until permanent water sources are developed on the parcel and/or if determined expedient by the resource manager and the existing grazing tenant (Ernie Ahart). An old remnant cross fence in the southwestern portion of the parcel will be removed as a "housekeeping" measure and to allow for unrestricted livestock and wildlife movement. The existing north-south cross fence in the eastern portion of the parcel will be inspected and repaired or replaced as necessary because it allows for a smaller pasture that helps facilitate moving livestock in and out of the parcel (Ahart, pers. com.). Two other separate wetland pastures will be created with new "wildlife-friendly" fencing (four-strand 42-inch high with 18-inch high lower strand) with gates around Seasonal Wetland 1 (a series of seeps in the northwest corner of the parcel) and Seasonal Wetlands 2 and 3 (two wet meadows joined by a short drainage along the southern boundary of the parcel next to the Ahart property line). A water trough will be installed in the Seasonal Wetland 1 pasture as described below, but water ponds long enough in the Seasonal Wetlands 2-3 to be used directly by livestock. The dirt ranch road to the Ahart property that crosses the drainage between the two wetlands will have to be relocated outside of the fence to the east. Livestock will be allowed to graze these wetland pastures for short periods based on observations and recommendations by the Resource Manager ("pulse" grazing) to allow for thatch removal and wetland vegetation management, with the wetlands protected during the rest of the year to allow for wetland enhancement. This will also allow for protection from grazing long enough for native woody vegetation to be planted and established in the wetland/riparian pastures. Similar fencing of the Stock Ponds 5 and 7 was considered but rejected because season long grazing (October through June) is favorable for California tiger salamander (CTS) breeding habitat and reducing the grazing season could result in dense growth of woody riparian and emergent wetland vegetation, which is not favorable for CTS habitat.

To distribute livestock use more evenly and allow for more flexibility (such as allowing for late summer grazing if desirable for resource objectives), permanent water sources will be developed in the Southern Hills grazing unit. A pipeline could be run from proposed wells in the eastern landfill expansion area (Covington pers. com), entering the Southern Hills unit in the northwest corner and extending along the ridge into the eastern pasture (Figure 4). This could feed a series of three to four water troughs installed on gravel or concrete pads: one in the Seasonal Wetland 1 wetland pasture, one or two more along the ridge in the main western pasture, and one inside the cross fence in the eastern pasture. The number and locations of troughs shown in Figure 4 are preliminary. Actual siting will be based on mapped grazing use patterns as discussed below.

The existing perimeter fence and gates around the south and west sides of the Eastern Valley parcel will be inspected and repaired or replaced as necessary (Figure 4). New perimeter fences (five-strand barbed wire) will be installed where none exists along the eastern and northern boundaries to separate the parcel from adjoining properties. Gates will be installed at strategic locations which may be kept open until permanent water sources are developed on the parcel and/or if determined expedient by the resource manager and the existing grazing tenant (Ernie Ahart). To allow for a permanent water source for livestock, a pipeline could be run from proposed wells in the eastern landfill expansion area (Covington pers. com), entering the Eastern Valley parcel to an existing concrete trough in the northwest corner that was formerly fed by a well which no longer functions (Figure 4).

2.3.8 Supplemental Feeding

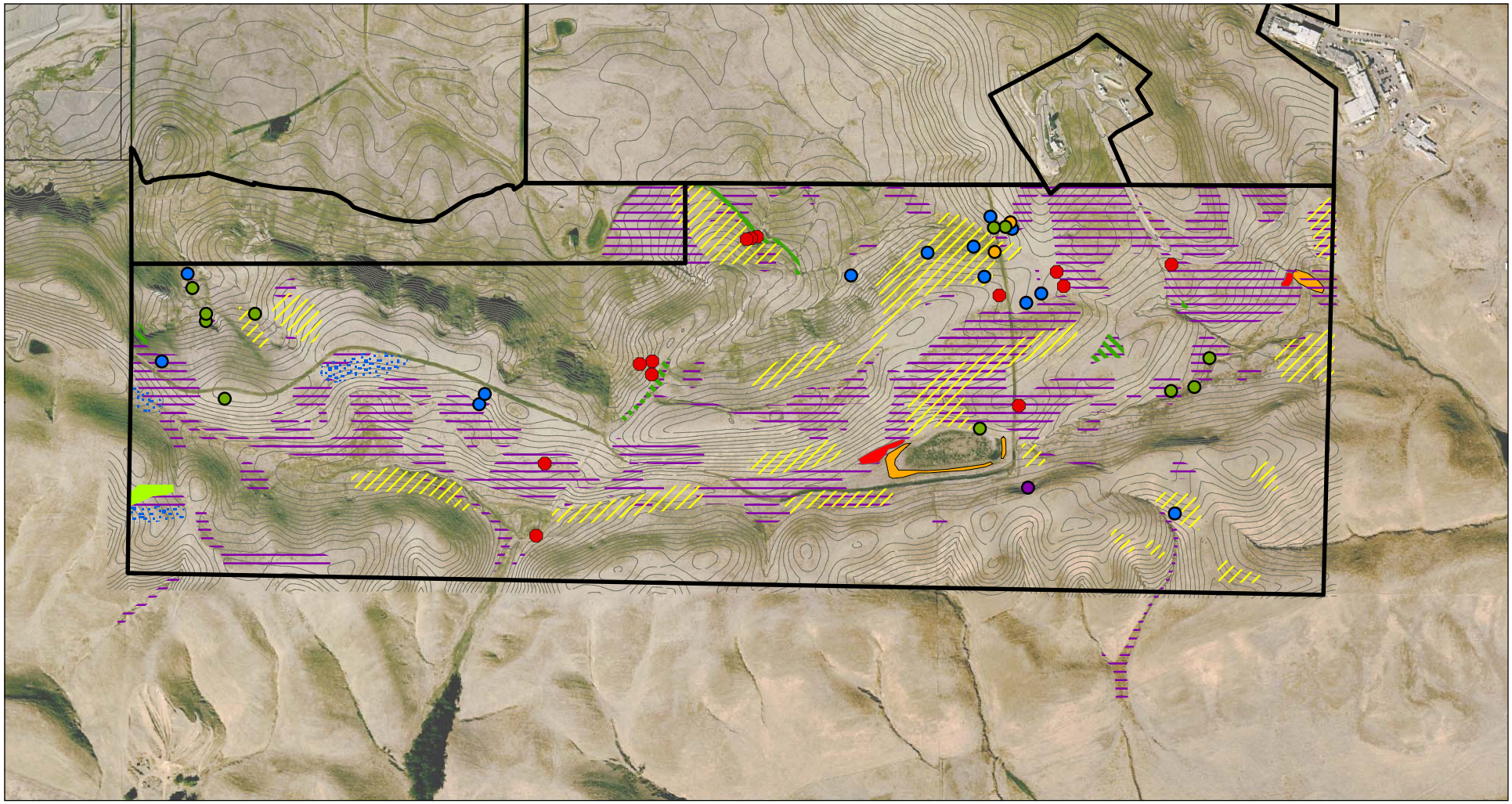
Supplemental feeding of livestock with alfalfa or hay can introduce invasive non-native plants and will not be allowed on Potrero Hills Mitigation lands. Mineral supplements, salt licks, and molasses/protein supplements are allowable, but locations will be moved periodically and some supplements placed away from water sources to avoid overuse and provide for more even livestock distribution. Grazing use pattern maps will be used to determine optimal supplement locations.

2.4 INVASIVE NON-NATIVE PLANT SPECIES CONTROL

Biodiversity and forage productivity of the proposed mitigation grasslands has been degraded because of infestation by invasive non-native plant species. Large portions of the Griffith Ranch parcel are dominated by medusa-head, a non-native grass that is rated as a high priority invasive species by Cal-IPC (2006). Medusa-head also dominates large areas throughout the lower north facing slopes of the Southern Hills grazing unit (Figure 5). Barbed goatgrass, listed as a Category B invasive noxious weed by the USDA and rated high as an invasive species by Cal-IPC (2006), is scattered throughout the western portions of the Southern Hills grazing unit (Figure 5). Several stands of artichoke thistle grow in monotypic stands (essentially out-competing all other plants) throughout the Southern Hills grazing unit (Figure 5). Yellow star-thistle and purple star-thistle grow in patches throughout both the Southern Hills grazing unit and Griffith Ranch parcel.

The first priority is to limit the spread of these weeds and the introduction of new invasive species. Control of new introductions and expansion of pest plants will be minimized by avoiding to the extent possible the creation of bare ground from grading or disking or over-grazing and cattle concentration around corrals and supplemental feed stations. The prescription for stocking rates discussed above will prevent over-grazing in typical years with the potential exception of the first year of unexpected drought. Cattle concentration areas for supplemental feeding will be placed away from water sources to the extent possible and moved periodically. Water troughs will be placed on concrete or gravel pads twice the size of the trough to avoid soil compaction and to prevent establishment of invasive plants. Corrals for holding of cattle will be temporary and portable, and be situated when needed in an area designated for repeated use. As is standard for reclamation plan specifications, straw used as mulch for revegetation or erosion control should only come from certified weed free sources. The Resource Manager and grazing tenant will monitor areas of cattle concentration or other soil disturbances such as the disked fuel break for introductions or expansion of pest plants and eradicate them. One recommendation that will be implemented immediately is to keep the fuel break in the same alignment instead of moving it each year to minimize the area of disturbance. Another alternative that will be explored for it's acceptability to the fire department is close mowing of the fuel break instead of disking. Mowing would result in less disturbance to the habitat than disking. Areas that have been cleared of vegetation by weed control activities, grading or other disturbances should be revegetated with a native grassland seed mix as specified in the Mitigation Monitoring Plan (LSA 2006, pp. 52-53) to provide cover for erosion control and vegetative competition for weed control.

An inventory will be conducted to locate and map infestations of invasive non-native weeds using GPS technology. A preliminary partial GPS inventory for the Southern Hills grazing unit was conducted for this plan based on a one-day winter survey (Figure 5), but this should be updated prior to control efforts. The invasive plant polygons should then be analyzed by the Resource Manager and



Mitigation Area Boundary

Artichoke-thistle (*Cynara cardunculus*)

Milk-thistle (*Silybum marianum*)

Starthistle (*Centaurea sp.*)

Spiny cocklebur (*Xanthium spinosum*)

Bull-thistle (*Cirsium vulgare*)

Yellow starthistle (*Centaurea solstitialis*) and Purple starthistle (*Centaurea calcitrapa*)

Medusa-head (*Taeniatherum caput-medusae*)

Artichoke-thistle (*Cynara cardunculus*)

Goat-grass (*Aegilops triuncialis*)

Milk-thistle (*Silybum marianum*)

Spiny cocklebur (*Xanthium spinosum*)

Skeleton weed (*Chondrilla juncea*)

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FIGURE 5

Potrero Hills Mitigation Site
Grassland Management Plan

Invasive Plant Species

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grazing lessee to target and prioritize infestations for control, in coordination with the Solano Weed Management Area. Weed control targets and priorities for the upcoming year will be documented in the Annual Grazing Plan. Once control priorities are determined, a combination of treatments will be used in an Integrated Pest Management (IPM) approach. These treatments will include grazing, mowing, herbicide use, burning (if feasible), and biological controls. Herbicide use will be conducted only with approved chemicals applied according to label requirements under direction of qualified personnel with a Qualified Applicator's license. Herbicide use will follow Solano County Agricultural Commissioner's recommendations and Environmental Protection Agency guidelines, state and federal laws and product labeling instructions. Any herbicides to be used near drainages, ponds or wetlands will be labeled by the U.S. Environmental Protection Agency for use in or near aquatic environments. Herbicide application methods will be limited to the most target specific approaches practicable such as use of a wick applicator or spot spraying with a backpack sprayer. If these measures are followed, herbicide use will not require separate agency review and approval. Based in part on guidelines from the Solano County Weed Management Area (2002) and the Greater Jepson Prairie Ecosystem Regional Management Plan (Witham 2006a), the target species can be controlled (but not necessarily eliminated) through a combination of treatments, as follows:

- ***Artichoke thistle.*** This is the highest priority for control because it occurs in a discrete area which could easily be converted to more desirable vegetation. It is also highly competitive and virtually eliminates desirable plant species where it grows. It can be controlled by spraying with the selective herbicide Garlon 3A® in March, or by cutting and spraying the base with 25% glyphosphate (Round--Up®) from February through May.
- ***Barbed goatgrass***. This species is a top priority for control because it is apparently a recent introduction and has a high risk of spreading. It is unpalatable to livestock and out-competes more desirable forage species. It spreads rapidly in the fur of livestock and through wind dispersal of the seed heads. This species will be targeted for eradication before it has a chance to spread further. The Southern Hills and Eastern Valley grazing units will be thoroughly surveyed for occurrences of goatgrass, which will be eradicated. Barbed goatgrass is most effectively controlled by two consecutive years of burning prior to seed maturation in the late spring or early summer. Because burning may not be feasible, repeated treatments with glyphosphate (Round--Up®) for at least two consecutive years may be conducted prior to seed maturation in the early spring (February-April) followed by seeding of natives. Since glyphosphate is a non-selective herbicide, it should be applied by wicking or site-specific spot spraying to minimize impacts on non-target species. Repeated mowing of spot infestations of goatgrass prior to seed maturation may also be effective.
- ***Perennial pepperweed***. This species is a Category B invasive noxious weed and is rated high as an invasive weed by Cal-IPC (2006). It is has been observed on the Director's Guild. This species is a high priority for control because it spreads quickly and forms a monoculture which can cause significant degradation of wetland and riparian habitats. In 2008, the area was observed again and the pepperweed in this location had been effectively eradicated (Buxton, pers. comm.). For future infestations, heavy grazing or mowing in the winter (January-February) followed by spraying the resprouting plants from mid-March through mid-May with a form of glyphosphate (Rodeo®) that is approved for use in aquatic sites will be conducted as it was shown to be more effective than herbicide alone (Renz and DiTomaso 1998, 2004). Since glyphosphate is a non-selective herbicide, it should be applied by wicking or site-specific spot spraying to minimize impacts on non-target species. Selective herbicides may also be used that have proven effective

on this species including 2,4-D, Telar®, or Arsenal®/Chopper®/Stalker® (SCWMA 2002). Repeated treatments will probably be necessary to eradicate perennial pepperweed. The latter two herbicides should not be used near standing water. Research on trade names and formulations of Telar is needed to determine if any are registered for use on rangelands (Witham 2006a).

- ***Purple star-thistle***. Although rated as moderate priority invasive weed by the Cal-IPC, this species is a high priority for control on Potrero Hills because it is more prevalent throughout Solano County and creates more impacts than a statewide rating system would indicate. As an indication of the priority for controlling purple star-thistle in Solano County, it is actually used as the logo of the Solano County Weed Management Area. This species, unlike yellow star-thistle, is unpalatable to livestock at all life stages and in some areas dense stands of this weed can preclude cattle from grazing (Witham 2006a). Therefore, this species causes significant losses of forage and it is not effectively controlled by grazing. It is typically a biennial or perennial species, with rosettes forming the first year followed by flowering the second and subsequent years. Application of glyphosphate in the late spring-early summer on the rosettes and early blooming plants after adjacent desirable annual species have set seed is an effective control (Amme 1985). Care must be taken to limit this treatment to areas devoid of native perennials because this herbicide is non-selective. Selective herbicides that are effective in these cases include 2,4-D; Clopyralid (Transline®), Dicamba®; or Garlon 3A® (SCWMA 2002). Areas to be treated will be mowed in the early spring prior to seed set to remove standing purple star-thistle flowers and open the treated areas to grazing (DiTomaso pers. com., reported in Witham 2006a). These should be applied on a site-specific basis to minimize impacts as they can affect desirable non-target broadleaved plants (especially Transline). Transline can severely impact certain desirable native broadleafed plants so should be used on a site-specific basis.
- ***Yellow star-thistle***. This species is rated as a high priority invasive species by the Cal-IPC (2006). A combination of techniques is most effective in controlling this annual invasive species, including grazing, mowing, burning, herbicide use, and biological controls. Mid- to late spring grazing (May-June), before the plant has produced spines, but after bolting, may control seed production and spread to a limited degree (Thomsen et al. 1996). Early summer grazing could be expected to reduce the number of flowers and the biomass of the plants, but probably not the density of this plant on the landscape. If needed in the opinion of the Resource Manager, the grazing termination date may be extended to allow continued grazing at specified areas of infestation of star-thistle. A grazing period extension will help to control the expansion of star-thistle, but it will probably have little affect on its current abundance.

  Where the Resource Manager determines that infestations of star-thistle are threatening the biological integrity of undeveloped lands, particularly with respect to listed animal species, a more focused management approach may be implemented. Under this approach, the infested area could be separated with temporary fencing. Grazing would be postponed within the exclosure to allow growth and elongation of the grasses and star-thistle, and then high intensity grazing would be applied during the period when star-thistle begins to emerge from the rosette and flower. Repeated treatments would be required to maintain that control. Extra livestock management would be required to keep extra animals at the site past the normal grazing period, maintain the fencing, and manage the animals. If the Resource manager deems it appropriate, sheep or goats may be used instead of cattle for intensively managed grazing treatment of invasive species. In small areas where grazing is not feasible, mowing during the same period will be used to control

yellow star-thistle. If possible, prescribed burning during this period would also help to control this species.

Finally, herbicides such as Round-Up®; 2,4-D; Dicamba; or Garlon 3A® can be used to control infestations of this species if applied by personnel with a QAL prior to seed set. Clopyralid (Transline) is effective on yellow star-thistle as both a pre- and post-emergent. It is most effective when applied to the early rosette stage in January or February. Transline can severely impact certain desirable native broadleafed plants so should be used on a site-specific basis.

- ***Medusa-head***. Although this plant is not palatable after flowers have developed because of stiff pointed awns, and is low in palatability the rest of the year due to high silica content, early spring grazing when the plant is still relatively palatable may limit the spread of medusa-head (Bossard et al. 2000). If deemed appropriate by the Resource Manager, intensive grazing treatments such as those described above for star-thistle using temporary fencing could be conducted where concentrations of medusa-head occur. A carefully managed combination of prescribed fire, grazing, herbicide treatments and reseeding with native perennial grasses may be the most effective treatment of medusa-head (McKell et al. 1962) and will be considered where medusa-head is seriously threatening resource values. Medusa-head may be susceptible to intensive grazing prior to seed set from mid-February to mid-May. Treatment with glyphosphate between mid-March and Mid-May may also be effective in controlling medusa-head.
- ***Spiny cocklebur***. This species is not listed by Cal-IPC, but it is known as "one of the world's worst weeds" (Holm et al. 1977). The seeds are easily spread by their ability of get caught in animal fur and human clothing, it reduces forage production and the seeds are poisonous to livestock (Pitcher 1989). It occurs around stock ponds and seasonal wetlands in the mitigation areas, especially around stock pond 3 and 5. Hand pulling or mowing prior to the burs forming can be an effective control as is spraying (again prior to burs forming) with a broadleaf selective herbicide such 2,4-D or Banvel (Pitcher 1989).
- ***Other invasive species***. Other invasive non-native plants that have been identified on the mitigation parcels include bull thistle (*Cirsium vulgare*), skeleton weed (*Chondrilla juncea*), field bindweed (*Convolvulus arvensis*), prickly ox-tongue (*Picris echioides*), Italian thistle (*Carduus pycnocephalus*), prickly lettuce (*Lactuca serriola*), and milk thistle (*Silybum marianum*). These will be inventoried and considered for control when they present a significant management problem, show evidence of rapid spread, or when they become priority targets as other higher priority invasive species are controlled. These other species will also be watched because they could spread into available niches once occupied by invasive species that have been controlled.

2.5 DEBRIS AND TRASH REMOVAL

Metallic debris such as wire and discarded appliances will be removed from the grazing parcels to enhance habitat values and eliminate grazing obstructions. Woody debris such as the collapsed barn near Pond 5 will remain because it provides cover for adult and metamorph CTS. Trash blown in from the adjacent landfill operations also can impact grazing operations. The grazing parcels will therefore be periodically inspected by the Resource Manager and grazing tenants and any trash removed immediately to facilitate livestock operations. If this becomes a persistent problem, trash barrier fencing along the boundaries of the mitigation parcels with the landfill will be installed.

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3.0 MONITORING

3.1 RDM AND UTILIZATION ASSESSMENTS

The monitoring program will be based on visual assessments of the vegetation during the grazing season to ensure that desired grazing levels are not exceeded. Monitoring visits will be made twice per grazing season: once in the fall or winter at the beginning of the grazing season to determine when forage production is adequate to introduce cattle, and once in the late spring or early summer towards the end of the grazing season to measure RDM and map grazing utilization patterns. Assessments of the grass height and RDM standards will be based on an average of multiple monitoring samples (visual estimates calibrated with clipping as described below) distributed across the property. Estimates can be facilitated using an RDM Monitoring Photo-Guide (Guenther 1998). Using visual assessments, a utilization pattern map will be developed that shows areas of heavy, moderate, low, and no grazing use. The utilization pattern map will be used to direct management actions (such as locations for water and supplement sources) and determine where grazing levels will be increased or decreased to meet resource objectives.

The visual estimates of RDM levels may be confirmed and calibrated by clipping plots in key locations in each grazing unit (Bartolome et al. 2002). This is conducted by placing a 0.96 square foot quadrat on the ground, removing all summer annuals (star-thistle, turkey mullein, etc.) from the quadrat, clipping the remaining plant material as close to the ground as possible without disturbing the soil surface, and weighing the dry plant material (1 gram per 0.96 square foot = 100 pounds per acre). The RDM levels will be further documented each year by photographs taken of the quadrats prior to clipping.

3.2 BIODIVERSITY GOALS

In addition to monitoring for determination of grazing use levels, species composition of grasslands will be assessed based on a monitoring system similar to that used recently on the Jepson Prairie (Swiecki and Bernhardt 2002). This system uses permanent belt transects 20 meters wide, located and marked using GPS technology, that traverse all of the grazing pastures. The transects are divided into 50 meter long segments for data collection and analysis. Percent cover of target species is estimated and assigned to one of four cover classes. Small populations of invasive weeds or native target species outside of the transects that are not encountered inside the transects are mapped using GPS receivers.

Target species for monitoring will include the invasive non-native priority species discussed above, special-status plant species, native grasses such as purple needlegrass, early perennial forbs such as Johnny jump-up (*Viola pedunculata*), late perennial forbs such as yarrow (*Achillea millefolium*), and early annual forbs such as goldfields (*Lasthenia* spp.) or Johnny-tuck (*Triphysaria eriantha*). Monitoring results will be used for any adjustments to management activities such as weed control, grazing management, or revegetation. Monitoring results can also be used to determine locations for range improvements such as water sources, fencing, and supplements.

Biodiversity monitoring is expensive, so it will not be conducted every year. An initial monitoring study will be conducted as a baseline in the first year of mitigation, and continued yearly during the first three years after management actions, thereafter every five years. The methodology described here is to be used only as a general guideline, prior to implementation of a monitoring system for Potrero Hills mitigation lands, the Jepson Prairie data will be analyzed to determine if similar data can be obtained from a less intensive sampling protocol.

3.3 MONITORING REPORT

The Resource Manager will submit monitoring reports to the appropriate permitting agencies by December 15 of each monitoring year. During the MMP monitoring period (LSA 2006), RMP monitoring results will be reported as part of the MMP annual report. Following attainment of MMP performance criteria and submitting of the final MMP monitoring report, RMP monitoring results will be submitted as a separate report every three years.

The reports will include the following information:

- a description of the methodology used to conduct the monitoring, including any changes to the methodology from that described herein;
- the results of the annual monitoring studies;
- copies of all data sheets and monitoring photographs;
- a list of all persons who participated in the monitoring and preparation of the annual report;
- a list of persons receiving the report;
- a summary of the report contents;
- a summary of grazing actions during the preceding year;
- a summary of all other management actions undertaken during the preceding year; and
- recommendations for remedial actions and modifications to the RMP or monitoring plan.

4.0 PROJECT STAFF

4.1 LSA ASSOCIATES, INC.

Tim Lacy, Project Manager
Richard Nichols, Certified Rangeland Manager #45
Eva Buxton, Senior Botanist
Greg Gallaugher, Senior GIS Specialist/Botanist

4.2 JANE VALERIUS ENVIRONMENTAL CONSULTING

Jane Valerius, Botanist

4.3 ENVIRONMENTAL STEWARDSHIP & PLANNING, INC.

Steve Peterson, Principal-in-Charge

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5.0 REFERENCES

5.1 LITERATURE CITED

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5.2 PERSONAL COMMUNICATIONS

Ahart, Ernie. Livestock Operator, Southern Hills parcel. February 15, 2006 and August 24, 2006.
Covington, Richard. Site Supervisor, Potrero Hills Landfill. February 13, 2006.
Tonnesen, Greg. Livestock Operator, Griffith Ranch parcel. February 22, 2006.

APPENDIX A

SAMPLE GRAZING LICENSE

East Bay Regional Park District
Grazing License
Extension and Modification

Licensee:

Address:

Park:	Date:
Grazing Unit:	
County:	Term:
Acres:	Start Date:
AUMs:	End Date:

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EAST BAY REGIONAL PARK DISTRICT
GRAZING LICENSE

This GRAZING LICENSE is made and entered into in the City of Oakland, County of Alameda, State of California, on _____, by and between EAST BAY REGIONAL PARK DISTRICT, ("Licensor"), whose address is 2950 Peralta Oaks Court, Oakland, California 94605-0381, and _____, ("Licensee"), whose address is _____.

1. GOALS AND PURPOSE

The EBRPD Master Plan (1997) states that "The District will conserve, enhance, and restore biological resources to promote naturally functional ecosystems. Conservation efforts may involve using controlled grazing, in accordance with Wildland Management Policies and Guidelines, prescribed burning, mechanical treatments, integrated pest management, and/or habitat protection and restoration." The District Planning/Stewardship Department manages and implements grazing practices with the help of qualified livestock producers of the local and regional ranching community.

The EBRPD Grazing License is a stewardship management tool. The District Planning/Stewardship Department develops and manages livestock grazing practices and plans for the Park Open Space and Wildlands. The District Wildland Vegetation Program Manager coordinates livestock practices with the Park Supervisors and the livestock management Licensees.

The Licensee incorporates the District Stewardship Managements objectives for each grazing unit. Management goals include: 1) encouraging and enhancing native grassland communities, 2) minimizing wildfire potential and brush encroachment, 3) controlling and managing invasive weedy vegetation, 4) enhancing wildlife habitat, 5) protecting and enhancing riparian and wetland habitat values, 6) controlling and minimizing erosion potential, and 7) maintaining open landscapes and viewsheds.

2. PREMISES

a. Licensor hereby licenses to Licensee, and Licensee hereby licenses from Licensor for the non-exclusive purpose of livestock grazing pursuant to the terms and conditions hereinafter set forth, that certain real property situated in the County of _____State of California, hereinafter called "premises," containing an area of _____ acres, more or less, and more specifically described and depicted in Exhibits "A" and "B" attached hereto and made a part hereof.

b. Licensor makes no warranties and/or representations to Licensee concerning the suitability of the premises for grazing purposes.

c. Licensee's use of the premises is subject to:

(1) The primary rights of individuals using East Bay Regional Park District owned or leased lands, which comprise the premises in whole or in part.

(2) All policies, rules, and regulations of the East Bay Regional Park District.

(3) All existing easements, servitudes, licenses, and rights of way for canals, ditches, levees, roads, highways, and telegraph, telephone, and electric

power lines, railroads, pipelines, and other purposes, whether recorded or not.

(4) Recognition by the Licensee that this Grazing License does not bestow a property right, but is a privilege approved for the use and benefit of the person, persons, or legal entity to whom it is issued or with whom executed for purposes of providing vegetation management services to the Licensor.

(5) Recognition by the Licensee that the premises consist of public land, and that cooperation of the Licensee and Licensor is necessary to conserve the flora, fauna, soil, water, air, and aesthetic resources of the premises through appropriate land management.

3. GENERAL USE OF PREMISES

Licensee shall use the premises for livestock grazing, and for operations normally associated with such grazing, and for no other purpose or purposes whatsoever, without the prior written consent of Licensor. Licensee shall conduct all operations on the premises in a responsible, safe, professional, and environmentally conscious manner, and is responsible at all times for containment of livestock on the premises. Licensor reserves and retains for itself and its successors or assigns all waters and water rights appurtenant to the premises and the right to all water subject to appropriation and use thereon, including the right to develop, conserve, store, and convey such water, and to remove, export, or deliver such water from the premises to locations elsewhere upon, or to properties other than, the premises, except such water as Licensor deems necessary and beneficial for watering of livestock on the premises, and for other uses associated with the rights herein granted by this License, consistent with resource conservation objectives. Licensee's use of water is with permission of Licensor, and shall not develop into a prescriptive right.

4. ACCEPTANCE AND SURRENDER OF PREMISES

By entry under this License, Licensee accepts the premises in their present "as is" condition and agrees that on the last day of the term, or upon sooner termination of this License, or upon the withdrawal of Licensee from said premises, Licensee shall peaceably vacate and surrender the premises and the appurtenances thereon to Licensor in the same condition as when received, reasonable use, wear, or damage by fire, Act of God, or the elements excepted, and shall remove all personal property from the premises.

5. ENTRY AND INSPECTION

Licensor and its agents reserve full authority to enter onto the premises to inspect them, make any changes or alterations or repairs which Licensor shall consider necessary for the protection, improvement or preservation thereof, or to post any notice provided for by law, or otherwise to protect any and all rights to Licensor; and Licensee shall not be entitled to any abatement of rental by reason of the exercise by Licensor of any such rights herein reserved. Nothing herein contained shall be construed to obligate Licensor to make any changes, alterations or repairs to said premises.

6. LICENSEE AS INDEPENDENT CONTRACTOR

Licensee enters into this License as an independent contractor and not as an agent or employee of Licensor, as the word "employee" is defined in the Workmen's Compensation Act of the State of California.

7. ASSIGNMENT AND SUBLETTING

Neither this license nor any rights or interest hereunder shall be transferred or assigned by

Licensee voluntarily or involuntarily, nor shall the premises or any portion thereof be sublet, nor shall Licensee permit the use of the premises or any part thereof by any third party or parties for any purpose, nor shall this License or any interest therein be assignable by action of law, including bankruptcy (voluntary or involuntary) and no sheriff, trustee, creditor, purchaser at any judicial sale, officer of any court, or receiver shall acquire the use or possession of said premises or any part thereof, nor shall they acquire any rights under this License, unless the written consent thereto of Licensor is first obtained. Licensee may, however, upon first obtaining the written approval of Licensor, take for pasturage livestock belonging to a third party or parties. No such consent by Licensor under this paragraph shall constitute a waiver or discharge of the provisions of this paragraph except as to the specific instance covered by such consent.

8. LICENSEE HAVING AGENT OR MANAGER RELATIONSHIP

Notwithstanding paragraph 7 above, Licensee may make legal arrangements with a third party to assist Licensee in operating the premises and to manage permitted livestock under an agent or manager relationship, with the understanding that Licensee shall retain full responsibility for compliance with the provisions, covenants, and requirements of this License. Licensee shall provide Licensor with a copy of the written agreement between Licensee and third party agents or managers specifying the scope of authority conferred upon said agents or managers by the Licensee. The person or persons so designated shall, in addition, abide by paragraph 11. (d) of the Notifications Section of this License.

9. INITIAL TERM, POSSESSION, EXTENSION, TERMINATION

a. The term of this License shall be for the periods stated in Exhibit A, unless sooner terminated or mutually extended in accordance with the provisions contained herein. If Licensee remains in possession of the premises after expiration or termination of the term, or after the date in any notice given by Licensor to Licensee terminating this License, with Licensor's written consent and in the absence of a contrary written agreement between the parties, such possession by Licensee shall be deemed to occur from month-to-month terminable upon thirty (30) days written notice given at any time by either party to the other, and subject to all provisions of this License. Notwithstanding anything herein contained to the contrary, Licensor shall have the right at any time during the term hereof to terminate this License for any reason whatsoever upon sixty (60) days' prior written notice to Licensee.

b. Notwithstanding subparagraph a. above to the contrary, Licensor shall have the right to terminate this License as to all or any portion of the premises if Licensor requires the same to be devoted to resource protection and conservation or public park uses, or if any entity which has granted funds to acquire the premises, or any part thereof, specifies or requires the land to be managed for another use or purpose. Said termination shall become effective upon Licensor giving Licensee sixty (60) days' prior written notice thereof. In the event of such termination, any claim for damages shall be limited to a proportionate reduction of the rent paid in advance toward the livestock carrying capacity (expressed in animal unit months or AUMs) of the land withdrawn as it relates to the total livestock carrying capacity (expressed in animal unit months or AUMs) of the entire premises.

c. Licensee agrees that in the event of the inability of Licensor to deliver possession of the premises at the commencement of the initial term, Licensor shall not be liable for any damage caused thereby nor shall this License be void or voidable, but Licensee shall not be liable for rent until such time as Licensor offers to deliver possession of the premises to Licensee, but the term hereof shall not be extended by such delay. If Licensee, with Licensor's consent, takes possession prior to the commencement of the term, Licensee shall do so subject to all of the terms, covenants, and conditions hereof and shall pay rent for the period of time beginning with the date of possession and ending with the commencement of the initial term.

10. RENT

As payment for grazing privileges, Licensee hereby agrees to pay rent to Licensor in two installments, semi-annually as outlined in Exhibit C for the actual livestock use that occurs over the grazing season, herein defined as the period beginning each November 1 and extending through October 31 of the following year. Licensee shall during said term pay to Licensor at its office at 2950 Peralta Oaks Court, Oakland, California 94605-0381 each and every installment of rent due, at the time and in the manner prescribed herein. Said rent shall be determined using the method described in Exhibit C of this Grazing License. Exhibit C includes the Rental Adjustment Table and the method for recording and calculating AUMs for the Stocking Reports. Rent shall be payable in lawful money of the United States. Licensee shall not accept any federal cost-sharing payments for conservation practices that would result in a duplicate payment.

11. NOTIFICATIONS

a. Licensee shall notify the Park Supervisor assigned to the premises, or their designates fourteen (14) days prior to the date Licensee intends to introduce livestock to the premises in order that Licensor can verify range readiness conditions as specified in paragraph 20 (a), (b), and (c). Licensee shall refrain from introducing livestock to the premises until written or verbal authorization and concurrence for grazing to occur on said premises is obtained from the Park Supervisor or Wildland Vegetation Program Manager.

b. Licensee shall submit monthly stocking reports by mail, Fax, or Email to the Park Supervisor assigned to the premises. Information in the stocking report shall include the dates introduced, number, kind and class of livestock, AUMs, and pasture units of all livestock grazing the premises. A final Stocking Report shall be submitted by the Licensee to the Wildland Vegetation Program Manager at the end of the first half of the grazing season (April 30) and at the end of the second half of the grazing season (October 31) for determining the rent due as outlined in Exhibit C.

c. Licensee shall provide seven (7) days advance notice to the Licensor, and shall provide specific notification to the Park Supervisor assigned to the premises, before performing any major livestock roundups, or activities involving the movement of animals on the premises and/or the use of corral facilities, or the introduction or removal of livestock and receive verbal authorization and concurrence of the Licensor and Park Supervisor for same to minimize conflicts with park users.

d. Licensor and Licensee shall provide to one another home, office, work, mobile, cellular, third party, and other telephone and pager numbers where they can be reached or a message can be left. Licensor and Licensee will also maintain answering machine, voice mail, e-mail and/or FAX capability to provide a means of reporting emergency situations and conveying to one another important messages and instructions in the event of the other's absence. The Licensor shall require Licensee to respond within a minimum of 24 hours and act upon said emergencies, messages, and instructions.

e. Wherever this License provides for notices between the parties, or wherever the law requires or gives the right of serving a notice, the same shall be served as appropriate either verbally, personally, by telephone, facsimile transmission, electronic mail, or via the Postal Services, including registered or certified mail, if necessary. All correspondence shall be addressed to Licensor as follows:

East Bay Regional Park District
2950 Peralta Oaks Court
P.O. Box 5381
Oakland, CA 94605-0381

and addressed to Licensee at the address stated in Exhibit A, provided, however, that Licensor and Licensee may, at any time in the manner provided herein, change the place of receiving notice.

12. LICENSEE'S DEFAULT

The occurrence of any one or more of the following events shall constitute a default and breach of this License by Licensor:

a. The vacating or abandoning of the premises by the Licensee.

b. The failure of Licensee to make any payment of the rent herein reserved, or any installment or part thereof, or any sum required by Licensee to be paid to Licensor at the times or in the manner herein provided.

c. The failure by Licensee to observe and perform any of the covenants, conditions, or provisions of this License where such failure shall continue for a period of fifteen (15) days after written notice thereof by Licensor to Licensee; provided, however, that if the nature of Licensee's default is such that more than fifteen (15) days are reasonably required for its cure, then Licensee shall not be deemed to be in default if Licensee commences a cure within a fifteen(15) day period and thereafter diligently prosecutes such cure to completion.

13. REMEDIES ON DEFAULT

In the event of any such default or breach by Licensee, as herein described, Licensor may, at any time thereafter, with or without notice or demand, and without limiting Licensor in the exercise of any other right or remedy which Licensor may have at law or in equity by reason of such default, failure, breach or neglect:

a. Terminate this License prior to the expiration of the term hereof, in which case Licensee shall immediately, quietly and peaceably surrender and deliver to the Licensor the possession of the premises, including preexisting and new improvements made thereon in the condition in which they were found, reasonable wear and tear excepted, and Licensee shall pay rent to the date possession is delivered to Licensor.

b. Enter the premises or any part thereof and, with or without terminating this License, and with or without process of law, expel, remove, and put out Licensee or any person or persons occupying said premises, and remove all personal property and livestock therefrom, using such force as may be necessary to repossess said premises, without prejudice to any remedy which might otherwise be available at law or equity, and without liability to any person for damages sustained by reason of such removal. No such entry or taking of possession of said premises by Licensor shall be construed as an election on its part to terminate this License unless a written notice of such intention be given Licensee.

c. Petition the Superior Court of the State of California, at Licensee's expense for, and be entitled as a matter of right to, the appointment of a Receiver, and have said Court appoint such Receiver and vest in him or her such powers and authority as may be necessary or proper to fully protect all the rights herein granted or reserved to the Licensor.

d. Let and relet said premises in whole or in part, at such rental and upon such terms and for such length of time, whether less or greater than the unexpired portion of the term of this License, as Licensor may see fit, and recover from Licensee the rent and any other charges and

adjustments as may be due hereunder. Notwithstanding such letting or reletting, should this License not be terminated, Licensor may, at any time thereafter elect to terminate it.

14. LICENSEE PROBATION

If Licensee fails, neglects, or refuses to perform, meet or observe any of its obligations hereunder and has been given written notice by the Licensor of any such breach of the covenant(s) contained in this License, Licensor may, at its option, immediately proceed with termination of this License or place the Licensee on probation. In the event the Licensee is placed on probation, the Licensor will so inform the Licensee by written notice of the reason(s) for which probation is given. If after one year from the initiation of probation, Licensee fails to remedy all deficiencies previously described by written notice to the satisfaction of the Licensor, the Licensor may then at its option proceed with termination of this License without further notice.

15. LIVESTOCK CARRYING CAPACITY

a. Livestock carrying capacity, as defined herein, is the level of livestock use allowed on the premises consistent with forage production, resource conservation, and recreational objectives. The unit of measure of livestock carrying capacity shall be the animal unit month (AUM), which, as defined herein, is the amount of forage (equivalent to 1000 pounds of dry, herbaceous plant material) necessary to sustain a mature cow for a period of one month. Licensor shall regulate the kind and number of livestock, and the amount of time the premises are grazed by same, herein defined as the period of use, to assure conformity to livestock carrying capacity estimates. Licensor shall be the sole judge as to the livestock carrying capacity of the premises, or any part or parts thereof, and shall, at its option at any time, give such consideration as it deems advisable to the compatibility of said livestock carrying capacity with vegetation, wildlife, fisheries, soil, water, air, aesthetic, and other resource and recreational values.

b. The Licensor shall conduct an analysis of the premises to identify areas the Licensor considers suitable for grazing and to estimate the forage production thereon. Residual dry matter standards described herein in paragraph 19 (a) shall be subtracted from the total amount of available forage produced on said suitable areas to determine how much forage is available for livestock to consume in an average, favorable, and unfavorable rainfall year. The livestock carrying capacity Licensor assigns to the premises shall be based on the estimated forage production in an average rainfall year, and may be subject to change by Licensor and Licensor alone.

16. CHANGE IN LIVESTOCK CARRYING CAPACITY BY LICENSOR

Licensor may at any time modify the kind and number of animals permitted, animal unit months, and/or period of use for the current year and any or all succeeding years remaining in the term, if, in Licensor's opinion, such modification is necessary for conservation of the premises. Written notice of any such change will be conveyed by Licensor to Licensee, who shall have fifteen (15) days in which to comply as directed. Unless so changed, said number of animals, AUMs, or periods of use for any lease-year shall remain as last authorized by the Licensor.

17. CHANGE IN LIVESTOCK CARRYING CAPACITY BY MUTUAL CONSENT

In addition to the changes in the kind and number of animals permitted, animal unit months, and/or period of use allowed on the premises hereinabove provided for, livestock carrying capacity may also be changed at any other time by mutual agreement of the Licensee and Licensor. Any such change shall remain in force and effect until the beginning of the next lease-

year, unless sooner terminated or amended by further mutual agreement. Under such mutual agreement, rental for the premises shall be revised upward or downward to reflect the change in livestock carrying capacity. In the event of an increase in grazing capacity, rent to cover such increase shall be due and payable upon the next installment payment due following execution of the mutual agreement; in the event of a decrease in said capacity the rental covered by said decrease shall be credited against the next installment payment of rent due from the Licensee.

18. EXCEEDING LIVESTOCK CARRYING CAPACITY WITHOUT AUTHORIZATION

Licensee shall limit the number of livestock to be grazed upon the premises and the period of use so that the authorized number of animal unit months is not exceeded. Should said premises be grazed in excess of the authorized number of animal unit months, Licensee shall immediately remove all or such number of livestock as are necessary to comply with the maximum livestock carrying capacity authorized by the Licensor. In addition to all other rights which the Licensor may have or exercise under this License because of such overgrazing, Licensee shall pay to Licensor promptly, upon demand, three (3) times the rent in this License provided for each AUM or portion thereof grazed in excess of said authorized number, such amount being hereby agreed upon as the minimum damage to Licensor from such excess usage.

19. RESIDUAL DRY MATTER STANDARDS

a. Residual dry matter (RDM), as used herein, is a measure of dry, herbaceous plant material in pounds per acre or kilograms per hectare representing the amount of ungrazed vegetation that the Licensor has specified must remain on the ground at the conclusion of grazing within the given grazing season. The amount of residual dry matter on the ground at the end of the grazing season shall exceed 600 lbs/acre on slopes less than 30%, 800 lbs/acre on 30% to 50% slopes, and 1000 lbs/acre on slopes greater than 50%. These standards generally translate into 4 to 6 inches of standing vegetation at the end of the grazing season.

b. Licensor shall periodically monitor forage utilization to insure that Licensee receives advance notice when or before residual dry matter levels reach 200 lbs./acre above the minimum standards to allow Licensee ample time to decrease herd size or remove livestock. If the RDM levels drop below the amounts hereinabove specified, then all livestock shall be immediately removed from the affected area(s) until such time Licensor determines that said area(s) have recovered sufficiently to allow restocking.

c. Optional residual dry matter standards that require more or less plant material to remain on the ground following grazing may be prescribed for the premises, in whole or in part, at Licensor's discretion, to promote soil stability, maintain plant productivity or diversity, enhance visual and recreational values, conserve wildlife habitat, and/or reduce fire hazards.

20. RANGE READINESS

a. Livestock that traditionally are returned to the premises prior to the onset of fall rains shall not be allowed to graze said premises until an inspection as per Paragraph 11. (a) of this Grazing License is conducted by the Licensor to insure that adequate dry plant material is available to support permitted livestock into the late fall when green forage will begin to provide sufficient vegetative cover.

b. In situations where, in the previous grazing season, forage utilization has occurred to within or beyond the residual dry matter standards established in Paragraph 19 (a) of this Grazing License, Licensor shall require that sufficient plant regrowth be established to provide adequate forage and soil protection before grazing of the premises, in whole or in part,

will be allowed to resume or continue, and that the resumption or continuation of such grazing shall occur only after green annual grasses have achieved a height of two (2) to three (3) inches.

c. Licensor shall make an annual assessment of early rainfall patterns to determine whether precipitation appears average or significantly different than the norm. In the event said rainfall patterns remain below normal, resulting in below normal forage production and diminished livestock carrying capacity, Licensor shall reconsider, delay, or modify, if necessary, the date of livestock introduction to the premises, period of use, and/or stocking levels commensurate with forage availability and other resource management considerations.

21. LAND MANAGEMENT AND FORAGE UTILIZATION

a. Licensee shall distribute or rotate livestock evenly throughout said premises or among pasture fields as specified by the Licensor. Licensee shall not cause overgrazing to occur on the premises and shall obtain optimum distribution of grazing animals over said premises by frequent herding, by strategic location of supplemental feeds, and by maintaining in good condition and repair boundary and interior fencing and developed water for livestock. Licensee shall use said premises in accordance with rangeland management practices specified by the Licensor, and with due regard to the conservation of the natural resources thereon, and without discrimination in reference to other private and leased lands controlled by Licensee as part of Licensee's overall grazing operation. Licensee shall conduct grazing operations on said premises so that minimum residual dry matter standards are exceeded, and shall maintain a vegetative stubble height of four (4) to six (6) inches of standing vegetation upon the premises at the end of the grazing season.

b. Licensor shall evaluate periodically the relative presence, abundance, dominance, and composition of native herbaceous plant species as an indicator of range condition in various locations of the premises, and may prescribe corrective action to influence and enhance such plant composition through adjusting grazing practices on all or part of said premises.

c. Licensee shall at all times prevent livestock from trespassing onto lands owned or operated by Licensor for which the Licensee is not authorized to graze, into areas within the premises excluded from grazing, or upon adjacent, third-party, private and public lands.

d. Licensee is responsible at all times to adhere to the aforementioned conditions, and Licensor shall advise Licensee when in the opinion of the Licensor, any of said conditions are not being accomplished. Licensee recognizes that in some years it may be necessary to reduce stocking or remove animals earlier than expected due to unusual or emergency conditions. Licensor shall have the right to direct the termination of grazing in the event of overgrazing or direct the amount of grazing that will not constitute overgrazing. Should the License be terminated, Licensee shall have no recourse to damages against the Licensor or any of its employees.

22. WEED AND PEST CONTROL

a. Licensee shall be responsible for the control of range weeds and pests as specified by the Licensor. The Licensor shall be responsible for first reducing weed and pest populations to what it determines to be a manageable level, and the Licensee shall take subsequent responsibility for weed and pest control thereafter at Licensee's sole cost and expense. Licensor shall determine at what point subsequent responsibility for weed and pest control will be transferred to the Licensee, and shall specify in writing the appropriate materials and practices to be used to achieve said weed and pest control, which Licensee shall abide by in conducting weed and pest control operations. An annual pest management site assessment will be made of the premises by Licensor's Integrated Pest Management Specialist and/or Range Management

Specialist, and Licensee shall be notified in writing of the status of the problem, need for, timing of, and procedures for conducting weed and pest control on the premises.

b. Licensee is prohibited from transporting, mixing, applying, storing, or disposing or otherwise permitting the transportation, mixture, application, storage, or disposal of pesticides or hazardous substances upon the premises without having first obtained written permission from Licensor's Integrated Pest Management Specialist. Licensee is further prohibited from using any pesticide or hazardous substance anywhere on the premises in an unsafe or careless manner or in any manner that is contrary to the manufacturer's instructions as they appear on the label, or as further modified by the Licensor. The transportation, mixture, application, storage, or disposal of pesticides or hazardous substances upon the premises shall be conducted in accordance and compliance with Licensor's pest management policies and practices, pesticide application permit requirements, and all Federal, State, County and local regulations.

c. Licensee shall take precautions to prevent drift, or movement off-site, of any and all chemicals used in weed and pest control operations, and the Licensee shall maintain sufficient materials, tools, and equipment on-site to contain and clean up any hazardous spills that may result from use of such chemicals. Licensee shall not dispose of on park land any excess chemicals, containers, medicines, materials, or paraphernalia used to control weeds and pests, or to treat livestock on the premises.

d. In the event Licensee shall fail to perform its obligations hereunder, Licensor, in addition to all other remedies available hereunder or by law, and without waiving any said alternative remedies, may perform same, with Licensee agreeing to reimburse Licensor the cost thereof as part of the rental payable on the next installment upon which rent becomes due, and failure to pay same shall carry with it the same consequences as failure to pay any installment of rental.

23. LICENSEE'S OBLIGATION TO PERFORM ROUTINE MAINTENANCE

a. Licensee shall, at Licensee's sole cost and expense, and in a timely manner throughout the term hereof, maintain the premises and all improvements thereon and all appurtenances thereto in good order and condition to the satisfaction of the Licensor, including, but not limited to, barns, windmills, boundary and interior fences, including fences installed for resource protection purposes, gates, corrals, cattleguards, water developments, and other improvements related to grazing use of said premises without any alterations or additions except as shall be first approved by Licensor. It shall be acceptable to manage and maintain improvements and appurtenances that need replacement at a minimal operational level pending their replacement or reconstruction, as agreed by the parties hereto. Licensee hereby waives all rights to make repairs at the expense of Licensor as provided for in any statute or law in effect at the time of execution of this License or any amendment thereof or any other statute or law which may be hereafter enacted during the term of this License.

b. In the event Licensee shall fail to perform its obligations hereunder, Licensor, in addition to all other remedies available hereunder or by law, and without waiving any said alternative remedies, may perform same, with Licensee agreeing to repay Licensor the cost thereof as part of the rental payable as such on the next installment upon which rent becomes due, and failure to pay same shall carry with it the same consequences as failure to pay any installment of rental.

24. LICENSEE'S OBLIGATION TO PERFORM RESOURCE IMPROVEMENTS AND SPECIAL CONSERVATION ACTIVITIES

a. "Resource Improvements and Special Conservation Activities" as used herein, shall mean any management activity for the protection, preservation, and improvement of the

License area or any part thereof including property and any and all appurtenant facilities. Licensee's may perform such resource management and improvements that may from time-to-time be approved in advance by the Park Supervisor and the Wildland Vegetation Program Manager. Reimbursement for labor and materials expended shall be permissible for work involving new construction, reconstruction, relocation, or major repair of boundary and interior fences, or fences installed for resource protection purposes, gates, water developments, cattleguards, corrals, roads, trails, and other valid range improvement projects intended to sustain or improve grazing operations or promote resource protection or conservation. The estimates and final costs for any labor and materials born by the Licensee will be itemized in the Resource Improvement Authorization Form (Exhibit D). The construction and installation of the aforesaid improvements shall be in accordance with Licensor's specifications and instructions, shall conform to proper design, size, location, installation, and safety standards established by the Licensor, and shall maintain harmony with other park uses, values, and activities. Upon completion and inspection of the improvements the Licensor will pay the Licensee for the final costs itemized in the Resource Improvement Authorization Form.

b. Licensee shall not accept any federal cost-sharing payments for conservation practices that would result in a duplicate payment.

c. In any agreement entered into between Licensee and outside contractor(s), said contractor shall act as an independent professional and not as an agent of Licensor, and nothing contained in this agreement or any contractor agreement shall create a contractual relationship between any contractor or subcontractor and Licensor. Any agreements entered into by Licensee with contractors to perform work in accordance with this provision must receive prior written approval of the Licensor. The Licensee shall notify Licensor at least seven (7) days prior to the commencement of said approved work and immediately upon completion thereof.

25. ALTERATIONS, LIENS

a. Licensee agrees not to make any alterations of, changes in, or additions to the premises without the prior written consent of Licensor. As a condition to granting its consent, Licensor shall require that:

(1) Licensee shall submit for Licensor's approval detailed final plans and specifications and working drawings of the proposed alterations and the name of its contractor at least fifteen (15) days before the date it intends to commence the alterations.

(2) Any alterations must be approved by all appropriate government agencies, and all applicable permits and authorizations must be obtained prior to commencement of the alterations, and such alterations shall be completed with due diligence in compliance with the plans and specifications and all applicable laws.

b. All alterations, additions and improvements, including fixtures, made to or upon the premises, except unattached, movable fixtures owned by the Licensee, shall be the property of Licensor, and shall remain upon and be surrendered with the premises, except that Licensee will ascertain from Licensor within thirty (30) days before the end of this term whether Licensor desires to have the premises, or any part or parts thereof, restored to the condition they were found in when the premises were delivered to Licensee and, if Licensor shall so desire, Licensee shall so restore said premises or such part or parts thereof before the end of the term of this License, entirely at Licensee's own cost and expense.

c. Licensee agrees that, if any such alterations, changes or additions are to be made, Licensee shall indemnify, defend, protect and hold harmless Licensor from all liens, claims, demands, and liabilities arising out of any work performed, materials furnished, or obligations

incurred by or for Licensee upon said premises during said term and shall not suffer any such lien or other lien to be created.

26. UTILITIES

Licensee agrees to pay for all water, fuel, gas, oil, heat, electricity, power, materials and services which may be furnished to or used upon said premises in conjunction with grazing activities.

27. LIVESTOCK IDENTIFICATION

All permitted livestock and their offspring shall be branded or marked with the brand or mark of the Licensee. Licensor, under certain conditions, may require Licensee to identify permitted livestock with distinctive eartags to prevent or detect trespass by unauthorized animals. Licensee shall be required for the record to submit to Licensor a copy or copies of Licensee's Certificate(s) of Brand.

28. SUPPLEMENTAL FEEDING

a. Licensee shall not conduct supplemental feeding of domestic livestock on the premises to prolong grazing use in areas where established forage utilization levels have been reached or exceeded.

b. Licensee shall relocate supplemental feeding sites when such sites become sufficiently grazed, or at the direction of Licensor, so as to minimize the potential for resource damage from congregating animals.

c. Licensee shall locate supplements out of sight of roads, trails and public use areas, in under-utilized areas of said premises, and at least 1000 feet or more away from water, whenever possible.

d. In the event of unusual or emergency circumstances, such as drought or the loss of vegetation by wildfire, Licensor will have the discretion to allow short-term supplemental feeding on the premises until Licensee can make arrangements to remove livestock from the premises, which may require short-term confinement of permitted livestock to restricted locations within said premises to minimize resource impacts.

29. DISPOSAL OF LIVESTOCK CARCASSES

Licensee shall, at Licensor's sole discretion, remove, bury, or relocate to a remote site in a manner satisfactory to the Licensor any and all livestock which may die on the premises. If Licensee fails to remove, bury, or relocate such livestock within five (5) days of notice by Licensor requesting same, Licensor may, acting alone or through contract with an outside party, cause the removal, burial, or relocation of such livestock and be monetarily reimbursed by the Licensee for any labor and material expended. Said reimbursement shall be included in the rental payable as such on the next installment upon which rent becomes due, and failure to pay same shall carry with it the same consequences as failure to pay any installment of rental.

30. CARE OF PERMITTED ANIMALS

Licensee shall maintain permitted animals in a healthy condition at all times. Licensor shall reserve the right to contract for the services of a veterinarian to attend to or euthanize sick animals on park land and be monetarily reimbursed by the Licensee in the event Licensee is unable or unwilling to provide medical assistance to the animal in a timely manner. Said reimbursement shall be included in the rental payable as such on the next installment upon which rent becomes due, and failure to pay same shall carry with it the same consequences as failure to pay any installment of rental. Licensee shall remove from the premises, within 24 hours upon

notification by Licensor, any and all problem or aberrant animals posing a threat or nuisance to park visitors, staff, or neighbors.

31. OUTBREAKS OF DISEASE

Licensee shall immediately report to Licensor and all proper governmental authorities any case of infectious animal disease appearing in livestock on the premises, and shall, at Licensee's sole cost and expense, take all steps required to isolate, control, and eliminate any such disease. Livestock exhibiting symptoms of diseases communicable to humans shall be immediately removed from the premises.

32. MOTORIZED VEHICLES AND HEAVY EQUIPMENT

Motorized vehicles used by Licensee shall be restricted to two-track fire roads, and Licensee shall refrain from using roads during wet conditions. Licensor may make exceptions to allow the use of balloon-tired all terrain vehicles on wet roads upon approval of the Park Supervisor assigned to the premises. Licensor will provide Licensee with copies of fire closure plans and Licensee will honor all park fire closures and fire restrictions involving access and the use of motor vehicles, welding, and power tools. All motorized vehicles and equipment used by Licensee on park land shall be outfitted with appropriate spark arrestors and mufflers. No heavy equipment, including, but not limited to bulldozers, backhoes, excavators, or trenchers shall be allowed to cross or operate on the premises without Licensor's consent.

33. FIREARMS

Licensee shall not carry on their person or use firearms on the premises. Problem animals interfering with livestock operations shall be handled through the Licensor's Public Safety Department in cooperation with County Animal Control or the California Department of Fish and Game.

34. REMOVAL OR USE OF NATURAL RESOURCES

Licensee shall not destroy or remove nor permit to be destroyed or removed any earth, soil, vegetation, artifacts, fossils, or firewood found on the premises, nor commit any waste thereon, without written authority from Licensor to commit any such acts, except where such earth, soil, or vegetation in the form of landslides, down trees, or shrubs are creating an immediate hazard and impediment to the routine operation of the rights herein granted. Licensee shall not hunt, fish, or camp, nor permit any hunting, fishing, or camping upon the premises, and shall, at all times, keep and maintain said premises in a clean and sanitary condition to the satisfaction of the Licensor.

35. COMPLIANCE WITH LAW

Licensee shall comply with all applicable laws, permits, statutes, ordinances, rules, governmental orders and regulations pertaining to the occupancy and use of the premises hereunder, and shall furnish evidence as to Licensee's compliance therewith upon request by the Licensor. Licensee shall not do, or suffer to be done upon the premises, any act or thing which is or may be a nuisance, and shall not use or permit others to use said premises for any unlawful purpose.

36. INDEMNIFICATION

a. Licensee agrees to indemnify, hold harmless, defend, and protect Licensor, its officers, directors, agents, employees, invitees (each of which is an indemnitee) from and against any and all claims, losses, damages, demands, liabilities, suits, costs, expenses (including

attorneys' fees), penalties, judgments, or obligations whatsoever for or in connection with injury (including death), damage to any person, loss or damage of property to whomsoever belonging, or pecuniary or monetary loss resulting from, arising out of, or in any way related to activity conducted by the Licensee. This includes, but is not limited to, Licensee's development, construction, use, maintenance, and occupation of, and/or removal from the premises, and any facilities or operations thereon, including events occurring on or off the property, premises, or facilities, regardless of how the injury or damage was caused or suffered, unless the injury or damage resulted from the sole negligence or the intentional and willful misconduct of the Licensor, its officers, directors, agents or employees.

b. Licensee hereby waives all claims and recourse against Licensor, including the right of contribution for loss, damage, or expenses by reason of death or injury to persons or damage to the premises, and releases Licensor from any liability relating to or in any way connected with Licensee's activities or Licensee's use of the property, premises, or facilities, unless injury or damage is caused by the sole negligence or the intentional and willful misconduct of Licensor, its officers, directors, agents or employees.

c. The provisions of this section shall survive the termination or expiration of this License.

37. INSURANCE

a. Licensee shall procure, and keep in force during the term of the License, at Licensee's own cost and expense, the following policies of insurance with companies licensed to do business in the State of California and which are acceptable to the Licensor in Licensor's sole opinion. Licensee shall, within fifteen (15) days from the date of the License, supply Licensor with a copy of any policy certified to be a true and complete copy of the original showing that such insurance is in force prior to commencement of the term.

(1) Workers' Compensation as required by law and Employer's Liability with limits of $500,000 per occurrence.

(2) Public Liability (bodily injury and property damage) including premises and operations, blanket contractual liability, broad form property damage, personal injury and owner's and contractor's protective liability in an amount not less than $1,000,000 per occurrence.

(3) Automobile Liability (bodily injury and property damage) extending to owned, non-owned and hired vehicles and including contractual liability covering all liability assumed under the License in an amount not less than $1,000,000 per occurrence.

Each of the above policies must contain a provision that the policy shall not be cancelled or materially changed without thirty (30) days' prior written notice to Licensor. No cancellation provision in any insurance policy shall be construed in derogation of the continuous duty of Licensee to furnish the required insurance during the term of the License.

b. The policies listed under a.(1) above shall contain a waiver of subrogation against Licensor, its officers, directors, agents and employees.

c. The policies listed under a.(2) and (3) above shall name the District as an additional insured with respect to the operations performed under this Agreement.

d. That coverage afforded on behalf of Licensor under (2) and (3) above shall be primary insurance and any other insurance available to Licensor under any other policies shall be excess over the insurance outlined above.

e. Upon written request by Licensor, the insurer or his agent shall furnish a copy of any policy cited above, certified to be a true and complete copy of the original.

38. TAXES

Licensee agrees to be responsible for all taxes that arise by virtue of the imposition of a possessory interest tax and such other taxes as arise from the grazing operation.

39. CONFLICT OF INTEREST

Licensee hereby warrants and represents to Licensor that no officer and/or employee of the Licensor, nor any member of Licensor's Board of Directors has or will have, directly or indirectly, any interest whatsoever in this License.

40. ADVICE OF COUNSEL

Both parties have had a full and complete opportunity to have this Grazing License reviewed by legal counsel and no presumption or rule that ambiguity shall be construed against the drafting party shall apply to the interpretation or enforcement of this Grazing License.

41. SURRENDER OF LICENSE

No act or conduct of the Licensor shall be deemed to be or constitute an acceptance of the surrender of the premises by Licensee prior to the expiration of the term hereof, and such acceptance by Licensor of surrender by Licensee shall only flow from and must be evidenced by a written acknowledgement of acceptance of surrender by the Licensor. The voluntary or other surrender of this License by Licensee, or a mutual cancellation thereof, shall not work a merger, and shall, at the option of the Licensor, terminate all or any existing sublicenses or subtenancies, or concessions, or may at the option of the Licensor operate as an assignment to him of any or all such sublicenses or subtenancies or concessions.

42. CUMULATIVE REMEDIES, NON-WAIVER

The receipt by the Licensor of any rent or payment with or without knowledge of the breach of any covenant hereof shall not be deemed a waiver of any such breach and no waiver by Licensor of any sum due hereunder or any provision hereof shall be deemed to have been made unless expressed in writing and signed by the Licensor. No delay or omission in the exercise of any right or remedy accruing to Licensor upon any breach by Licensee under this License shall impair such right or remedy or be construed as a waiver of any such breach theretofore or hereafter occurring. The waiver by Licensor of any breach of any term, covenant or condition herein contained shall not be deemed to be a waiver of any subsequent breach of the same or any other term, covenant or condition herein contained. All rights, powers, options or remedies afforded to the Licensor either hereunder or by law shall be cumulative and not alternative and the exercise of one right, power, option or remedy shall not bar other rights, powers, options or remedies allowed herein or by law.

43. MISCELLANEOUS

a. It is agreed by and between the parties hereto that all the agreements herein contained upon the part of Licensee, whether technically covenants or conditions, shall be deemed conditions for the purpose hereof, conferring upon Licensor, in the event of breach of any of said agreements, the right to terminate this License.

b. In the event where there is more than one Licensee, the obligation of the Licensee's execution of this License shall be joint and several. The words "Licensor" and "Licensee" as used herein shall include the plural as well as the singular. The covenants and agreements contained herein shall be binding upon and be enforceable by the parties hereto and

their respective heirs, executors, administrators, successors and assigns, subject to the restrictions herein imposed on assignment by Licensee.

c. Time is of the essence of this License and of each and every covenant, condition and provision herein contained.

d. The paragraph headings of this License are inserted only as a matter of convenience and for reference and in no way define, limit or describe the scope or intent of this License or any provision thereof or in any way affect this License.

e. The word "term" as used herein shall be deemed to refer to both the initial and extended term.

f. This License shall be governed by the Laws of the State of California.

g. This License contains all of the agreements and understandings of the parties pertaining to the subject matter contained herein and supersedes all prior, contemporaneous agreements, representations, and understandings of the parties.

h. The unenforceability, invalidity, or illegality of any provision herein contained shall not render the other provisions unenforceable, invalid or illegal.

IN WITNESS WHEREOF the parties hereto have subscribed their names, the day and year first hereinabove written.

By _____ By _____

EAST BAY REGIONAL PARK DISTRICT LICENSEE

EXHIBIT A

TO THAT CERTAIN GRAZING LICENSE

DATED _____

BETWEEN THE EAST BAY REGIONAL PARK DISTRICT ("Licensor") and

_____ ("Licensee")

1. PREMISES

The premises are located in EBRPD Park _____, Unit ___,

County of _____, State of California, and are described as follows:

2. TERM

The initial term shall be for _____commencing

_____, and ending _____

3. LIVESTOCK CARRYING CAPACITY

The livestock carrying capacity shall not exceed _____animal unit months (AUMs), and shall be subject to adjustment upward or downward at the discretion of Licensor.

4. NOTICES

Licensee's address:_____

Resolution No._____

Adopted:_____

INITIALS:

_____ _____

Licensor Licensee

East Bay Regional Parks

2,000 1,000 0 2,000 Feet

Planning/Stewardship and GIS Services

Exhibit B
Grazing License Map
Del Valle Regional Park
Grazing Unit 1

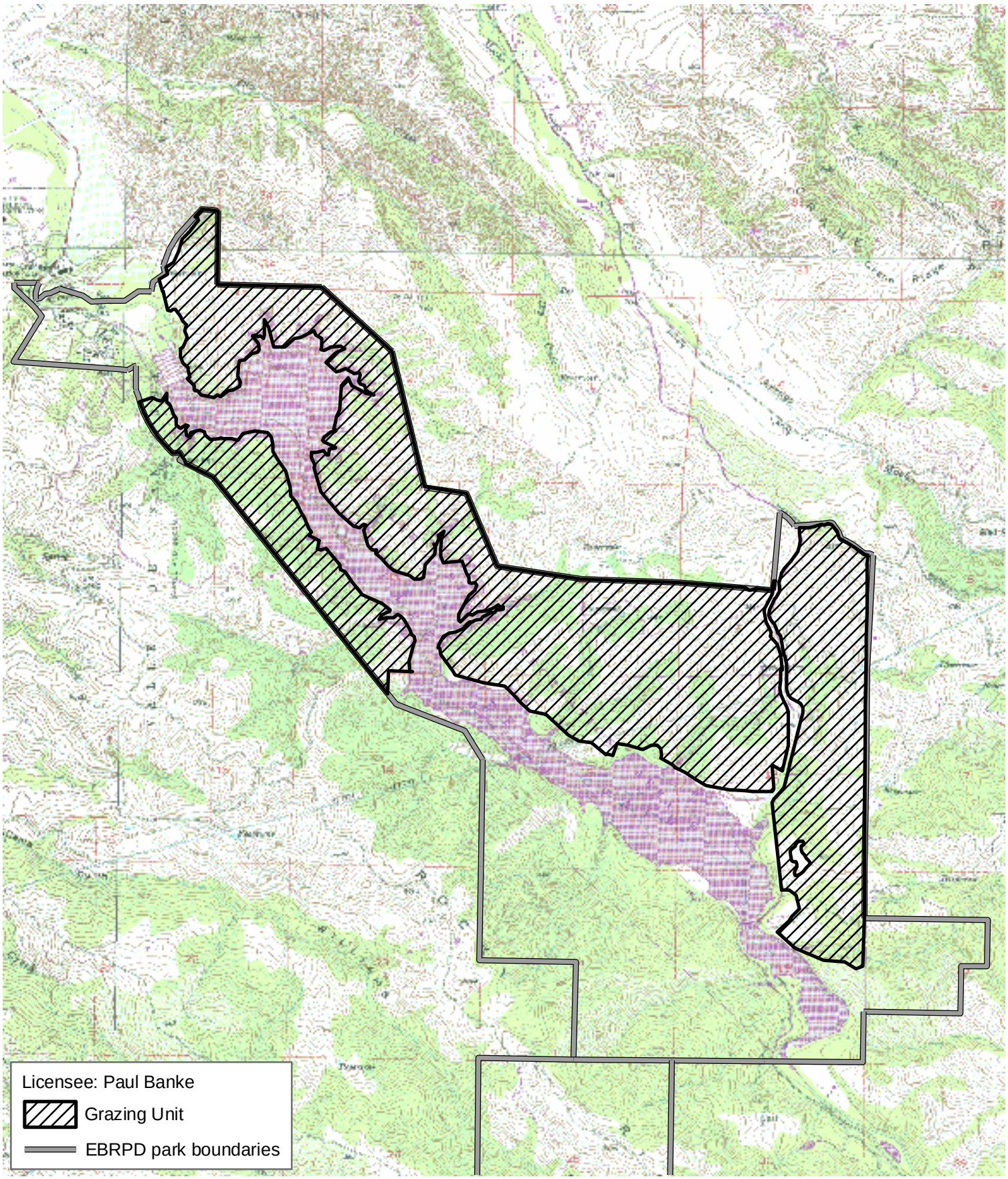

EXHIBIT C

DETERMINATION AND PAYMENT OF GRAZING RENT

A license-year is defined as the 12 month period commencing each November 1st and extending through October 31st of the following year. For each and every license-year, which shall begin on the first day of the term of this License, and thereafter on November 1 of each year during said term, the annual rent for grazing use shall be determined in accordance with the "Rental Adjustment Table," hereinafter contained, and shall be adjusted upward or downward from license-year to license-year, depending upon the grazing capacity of the premises as determined by Licensor, and whether the average selling price of beef cattle, as hereinafter computed, is higher or lower than the corresponding average selling price for the preceding license-year.

For the purpose of determining the rental, the average selling price of beef cattle shall be taken as the average selling price of Medium Frame No. 1 Muscling Steers and Heifers, 500-800 lbs., as reported by the Cattle Marketing Information Service, Inc. (Cattle-Fax) for the month of June of each license-year. The rental rate determined from this process will be used to compute the grazing rent for the subsequent license-year beginning November 1st.

In the event that said average sales price of beef cattle is not obtainable in any year from Cattle-Fax as now constituted, then the average sales price to be used in determining the rental rate shall be obtained from some other authentic source to be selected by Licensor as providing a comparable price for the purpose. It is further mutually understood and agreed that in the event the Federal Government or any agency whatever in any manner subsidizes the raising of beef cattle, thereby effecting a lower average sales price as reported by Cattle-Fax referred to above, the annual rental shall be increased to fully offset the effect of the subsidy payment on the sale price of cattle.

The rental rate per animal unit month to be paid by Licensee for any given license-year shall be determined through the use of the attached Rental Adjustment Table, within which the average selling price of beef cattle per hundred-weight, as so reported for the month of June of that license-year as defined above, shall be matched with the appropriate price range found in Column 1 of said table to determine the corresponding rental rate found opposite this entry in Column 2. The rent payment due to Licensor shall be computed by multiplying this rental rate by the total number of animal unit months of forage authorized by Licensor for said license-year.

The annual rent due as hereinabove calculated shall be due and payable by Licensee in lawful money of the United States in semi-annual installments. The District will bill the Licensee for the animal unit month (AUM) amount based upon the Stocking Report. The first installment shall be determined from the Stocking Report of the first half of the grazing season ending on April 30. The second installment shall be determined from the Stocking Report of the second half of the grazing season ending on October 31. For seasonal grazing operations where livestock are removed early in the second half of the grazing season (June), the final Stocking Report is due 10 days after the livestock have been removed. Grazing rents must be paid within 30 days of due dates or accrue interest at the rate of 1% per month or fraction thereof until paid, and if not paid within thirty (30) days of the date of demand, Licensor, may, at its option, terminate this license, in which case the provisions of default as set forth in Paragraphs 12 and 13 of this license shall apply.

This License is subject to the following additional reservations, conditions and agreements, and Licensee does hereby further agree with Licensor as follows:

1. Licensee shall, during said term, pay to Licensor at its office 2950 Peralta Oaks Court, Oakland, CA 94605, or at such other place as may be designated in writing by Licensor,

EXHIBIT C

the said rent and each and every installment thereof, at the time and in the manner aforesaid. Said rent shall be due and payable on the basis of the determination by Licensor of the AUM capacity of the premises for each and every license-year.

2. The words "animal unit month" (AUM) as used in this License shall mean the utilization of the premises for feeding purposes by one animal, 1,000 pounds or more in weight, for a period of one month. Authorized AUMs shall be assigned on the basis of the carrying capacity of the premises as determined by Licensor, and stocking levels shall be computed by calculating the relative forage requirements of each of the kind or kinds of livestock intended to be grazed on the premises in any one grazing season, as expressed by the following conversion factors.

Kind of Livestock	Animal Unit Months (AUMs)
Adult Cow with Calf up to 6 months old	1.00
Heifer or Steer, 2 years & older (1,000 lbs or more)	1.00
Yearling to 2-year-old (750# to 1,000 lbs)	0.75
Weaned Calf to Short Yearling (up to 750 lbs)	0.50
Bull	1.00
Horse	1.25
Sheep	0.20
Goats	0.20

The premises shall be used by Licensee only for grazing of animals designated in the table above entitled "Kind of Livestock." The total number of animal unit months accruing from grazing the premises by the kinds of livestock authorized by Licensor during any given license-year shall remain consistent with and not exceed the livestock carrying capacity established by the Licensor.

3. Licensee shall submit monthly Stocking Reports by mail, Fax, or Email to the Park Supervisor assigned to the premises at the end of each month. The AUMs only have to be calculated at the end of April and October for calculating the rent. A Stocking Report presented below in this exhibit is an example of a seasonal stocker grazing program. The sample shows how to present the information and calculate the AUMs. Also shown below is the Animal Unit Month Calculation Table. Blank Stocking Report forms will be supplied by the Wildland Vegetation Program Manager.

EXHIBIT C

Rent Adjustment Table

COLUMN 1 Medium Frame No. 1 Muscling Steers & Heifers (500 – 800 lbs.) Average Selling Price per cwt. For June of License Year	COLUMN 2 Rental Per Animal Unit Month	COLUMN 1 Medium Frame No. 1 Muscling Steers & Heifers (500 – 800 lbs.) Average Selling Price per cwt. For June of License Year	COLUMN 2 Rental Per Animal Unit Month
$ 45.01 to 45.50	$10.50	$ 63.01 to 63.50	$12.30
45.51 to 46.00	10.55	63.51 to 64.00	12.35
46.01 to 46.50	10.60	64.01 to 64.50	12.40
46.51 to 47.00	10.65	64.51 to 65.00	12.45
47.01 to 47.50	10.70	65.01 to 65.50	12.50
47.51 to 48.00	10.75	65.51 to 66.00	12.55
48.01 to 48.50	10.80	66.01 to 66.50	12.60
48.51 to 49.00	10.85	66.51 to 67.00	12.65
49.01 to 49.50	10.90	67.01 to 67.50	12.70
49.51 to 50.00	10.95	67.51 to 68.00	12.75
50.01 to 50.50	11.00	68.01 to 68.50	12.80
50.51 to 51.00	11.05	68.51 to 69.00	12.85
51.01 to 51.50	11.10	69.01 to 69.50	12.90
51.51 to 52.00	11.15	69.51 to 70.00	12.95
52.01 to 52.50	11.20	70.01 to 70.50	13.00
52.51 to 53.00	11.25	70.51 to 71.00	13.05
53.01 to 53.50	11.30	71.01 to 71.50	13.10
53.51 to 54.00	11.35	71.51 to 72.00	13.15
54.01 to 54.50	11.40	72.01 to 72.50	13.20
54.51 to 55.00	11.45	72.51 to 73.00	13.25
55.01 to 55.50	11.50	73.01 to 73.50	13.30
55.51 to 56.00	11.55	73.51 to 74.00	13.35
56.01 to 56.50	11.60	74.01 to 74.50	13.40
56.51 to 57.00	11.65	74.51 to 75.00	13.45
57.01 to 57.50	11.70	75.01 to 75.50	13.50
57.51 to 58.00	11.75	75.51 to 76.00	13.55
58.01 to 58.50	11.80	76.01 to 76.50	13.60
58.51 to 59.00	11.85	76.51 to 77.00	13.65
59.01 to 59.50	11.90	77.01 to 77.50	13.70
59.51 to 60.00	11.95	77.51 to 78.00	13.75
60.01 to 60.50	12.00	78.01 to 78.50	13.80
60.51 to 61.00	12.05	78.51 to 79.00	13.85
61.01 to 61.50	12.10	79.01 to 79.50	13.90
61.51 to 62.00	12.15	79.51 to 80.00	13.95
62.01 to 62.50	12.20	80.01 to 80.50	14.00
62.51 to 63.00	12.25	80.51 to 81.00	14.05

EXHIBIT C

Rent Adjustment Table (cont.)

COLUMN 1 Medium Frame No. 1 Muscling Steers & Heifers (500 - 800 lbs.) Average Selling Price per cwt. for June of License Year	COLUMN 2 Rental Per Animal Unit Month	COLUMN 1 Medium Frame No. 1 Muscling Steers & Heifers (500 - 800 lbs.) Average Selling Price per cwt. for June of License Year	COLUMN 2 Rental Per Animal Unit Month
81.01 to 81.50	$14.10	101.01 to 101.50	$16.10
81.51 to 82.00	14.15	101.51 to 102.00	16.15
82.01 to 82.50	14.20	102.01 to 102.50	16.20
82.51 to 83.00	14.25	102.51 to 103.00	16.25
83.01 to 83.50	14.30	103.01 to 103.50	16.30
83.51 to 84.00	14.35	103.51 to 104.00	16.35
84.01 to 84.50	14.40	104.01 to 104.50	16.40
84.51 to 85.00	14.45	104.51 to 105.00	16.45
85.01 to 85.50	14.50	105.01 to 105.50	16.50
85.51 to 86.00	14.55	105.51 to 106.00	16.55
86.01 to 86.50	14.60	106.01 to 106.50	16.60
86.51 to 87.00	14.65	106.51 to 107.00	16.65
87.01 to 87.50	14.70	107.01 to 107.50	16.70
87.51 to 88.00	14.75	107.51 to 108.00	16.75
88.01 to 88.50	14.80	108.01 to 108.50	16.80
88.51 to 89.00	14.85	108.51 to 109.00	16.85
89.01 to 89.50	14.90	109.01 to 109.50	16.90
89.51 to 90.00	14.95	109.51 to 110.00	16.95
90.01 to 90.50	15.00	110.01 to 110.50	17.00
90.51 to 91.00	15.05	110.51 to 111.00	17.05
91.01 to 91.50	15.10	111.01 to 111.50	17.10
91.51 to 92.00	15.15	111.51 to 112.00	17.15
92.01 to 92.50	15.20	112.01 to 112.50	17.20
92.51 to 93.00	15.25	112.51 to 113.00	17.25
93.01 to 93.50	15.30	113.01 to 113.50	17.30
93.51 to 94.00	15.35	113.51 to 114.00	17.35
94.01 to 94.50	15.40	114.01 to 114.50	17.40
94.51 to 95.00	15.45	114.51 to 115.00	17.45
95.01 to 95.50	15.50	115.01 to 115.50	17.50
95.51 to 96.00	15.55	115.51 to 116.00	17.55
96.01 to 96.50	15.60	116.01 to 116.50	17.60
96.51 to 97.00	15.65	116.51 to 117.00	17.65
97.01 to 97.50	15.70	117.01 to 117.50	17.70
97.51 to 98.00	15.75	117.51 to 118.00	17.75
98.01 to 98.50	15.80	118.01 to 118.50	17.80
98.51 to 99.00	15.85	118.51 to 119.00	17.85
99.01 to 99.50	15.90	119.01 to 119.50	17.90
99.51 to 100.00	15.95	119.51 to 120.00	17.95
100.01 to 100.50	16.00	120.01 to 120.50	18.00
100.51 to 101.00	16.05	120.51 to 121.00	18.05

EXHIBIT C

EXAMPLE
STOCKING REPORT

PARK: East Bay Park **TENANT:** Joe Cattleman

SEASON: 2005-06 **PASTURE:** Pond Pasture

ACRES: 2147 **ALLOTED AUMS:** 1695

For each month enter the date the livestock were moved in or out. To calculate the AUMs, multiply the number of livestock X portion (%) of month X Animal Unit Conversion to derive the AUMs. More than one line can be filled out during a month, especially when livestock are being moved in or out. Carry over the livestock numbers of the previous month to the next month. Any livestock moves in or out during that month can be entered on the following lines. Note: One day is credited for the day livestock are hauled in. Utilize the AUM Calculation Table to calculate the portion of the month.

Month Date	**In/Out**	**Number X**	**Portion (%) of Month X** (AUM Calculation Table)	**AU Conversion =** (1, 0.75, or 0.5, etc.)	**AUM**
NOV. 16	IN	86	0.43	.5	18.5
DEC.		86	1.00	.5	43.0
DEC. 8	IN	84	0.71	.5	28.6
DEC. 9	IN	86	0.68	.5	31.8
DEC. 11	IN	82	0.61	.5	24.7
JAN.		338	1.00	.5	169.0
JAN. 16	IN	58	.45	.5	13.1
JAN. 19	IN	48	.35	.5	8.4
FEB.		494	1.00	.5	247
MARCH		494	1.00	.5	247
APRIL		494	1.00	.5	247
				First Half Total	1078.1
MAY		494	1.00	.5	247
JUNE 11	OUT	(258)	494 X .35	.5	172.90
JUNE 12	OUT	236	236 X .03	.5	3.5
				Second Half Total	423.4
				TOTAL AUMS	1501.5

EXHIBIT C

Animal Unit Month (AUM) Calculation Table

28 Day Month

Livestock Intro Date	Days Remaining	Percent of Month	Livestock Removal Date	Days In	Percent of Month
1	30	0.96	1	1	0.04
2	29	0.93	2	2	0.07
3	28	0.89	3	3	0.11
4	27	0.86	4	4	0.14
5	26	0.82	5	5	0.18
6	25	0.79	6	6	0.21
7	24	0.75	7	7	0.25
8	23	0.71	8	8	0.29
9	22	0.68	9	9	0.32
10	21	0.64	10	10	0.36
11	20	0.61	11	11	0.39
12	19	0.57	12	12	0.43
13	18	0.54	13	13	0.46
14	17	0.50	14	14	0.50
15	16	0.46	15	15	0.54
16	15	0.43	16	16	0.57
17	14	0.39	17	17	0.61
18	13	0.36	18	18	0.64
19	12	0.32	19	19	0.68
20	11	0.29	20	20	0.71
21	10	0.25	21	21	0.75
22	9	0.21	22	22	0.79
23	8	0.18	23	23	0.82
24	7	0.14	24	24	0.86
25	6	0.11	25	25	0.89
26	5	0.07	26	26	0.93
27	4	0.04	27	27	0.96
28	3	0.00	28	28	1.00

29 Day Month

Livestock Intro Date	Days Remaining	Percent of Month	Livestock Removal Date	Days In	Percent of Month
1	28	0.97	1	1	0.03
2	27	0.93	2	2	0.07
3	26	0.90	3	3	0.10
4	25	0.86	4	4	0.14
5	24	0.83	5	5	0.17
6	23	0.79	6	6	0.21
7	22	0.76	7	7	0.24
8	21	0.72	8	8	0.28
9	20	0.69	9	9	0.31
10	19	0.66	10	10	0.34
11	18	0.62	11	11	0.38
12	17	0.59	12	12	0.41
13	16	0.55	13	13	0.45
14	15	0.52	14	14	0.47
15	14	0.48	15	15	0.48
16	13	0.45	16	16	0.55
17	12	0.41	17	17	0.59
18	11	0.38	18	18	0.62
19	10	0.34	19	19	0.66
20	9	0.31	20	20	0.69
21	8	0.28	21	21	0.72
22	7	0.24	22	22	0.76
23	6	0.21	23	23	0.79
24	5	0.17	24	24	0.83
25	4	0.14	25	25	0.86
26	3	0.10	26	26	0.90
27	2	0.07	27	27	0.93
28	1	0.03	28	28	0.97
29	0	0.00	29	29	1.00

EXHIBIT C

Animal Unit Month (AUM) Calculation Table

31 Day Month

Livestock Intro Date	Days Remaining	Percent of Month	Livestock Removal Date	Days In	Percent of Month
1	30	0.97	1	1	0.00
2	29	0.94	2	2	0.03
3	28	0.90	3	3	0.06
4	27	0.87	4	4	0.10
5	26	0.84	5	5	0.13
6	25	0.81	6	6	0.16
7	24	0.77	7	7	0.19
8	23	0.74	8	8	0.23
9	22	0.71	9	9	0.26
10	21	0.68	10	10	0.29
11	20	0.65	11	11	0.32
12	19	0.61	12	12	0.39
13	18	0.58	13	13	0.35
14	17	0.55	14	14	0.45
15	16	0.52	15	15	0.48
16	15	0.48	16	16	0.52
17	14	0.45	17	17	0.55
18	13	0.42	18	18	0.58
19	12	0.39	19	19	0.61
20	11	0.35	20	20	0.65
21	10	0.32	21	21	0.68
22	9	0.29	22	22	0.71
23	8	0.26	23	23	0.74
24	7	0.23	24	24	0.77
25	6	0.19	25	25	0.81
26	5	0.16	26	26	0.84
27	4	0.13	27	27	0.87
28	3	0.10	28	28	0.90
29	2	0.06	29	29	0.94
30	1	0.03	30	30	0.97
31	0	0.00	31	31	1.00

30 Day Month

Livestock Intro Date	Days Remaining	Percent of Month	Livestock Removal Date	Days In	Percent of Month
1	29	0.97	1	1	0.03
2	28	0.93	2	2	0.07
3	27	0.90	3	3	0.10
4	26	0.87	4	4	0.13
5	25	0.83	5	5	0.17
6	24	0.80	6	6	0.20
7	23	0.77	7	7	0.23
8	22	0.73	8	8	0.27
9	21	0.70	9	9	0.30
10	20	0.67	10	10	0.33
11	19	0.63	11	11	0.37
12	18	0.60	12	12	0.40
13	17	0.57	13	13	0.43
14	16	0.53	14	14	0.47
15	15	0.50	15	15	0.50
16	14	0.47	16	16	0.53
17	13	0.43	17	17	0.57
18	12	0.40	18	18	0.60
19	11	0.37	19	19	0.63
20	10	0.33	20	20	0.67
21	9	0.30	21	21	0.70
22	8	0.27	22	22	0.73
23	7	0.23	23	23	0.77
24	6	0.20	24	24	0.80
25	5	0.17	25	25	0.83
26	4	0.13	26	26	0.87
27	3	0.10	27	27	0.90
28	2	0.07	28	28	0.93
29	1	0.03	29	29	0.97
30	0	0.00	30	30	1.00

EXHIBIT D

EAST BAY REGIONAL PARK DISTRICT
RESOURCE IMPROVEMENT AUTHORIZATION FORM

This form is both a record of the estimated and final costs. All pertinent receipts, invoices, records, etc. should be attached. If more space for Project Description or Costs is needed, attach additional sheets.

Date Submitted: _____ **Date Completed**: _____

Park Name: _____ **Licensee Name**: _____

Project Description (include type of work involved and location within the grazing unit):

_____
_____
_____
_____
_____

Estimated Project Costs

Contracts (include contractors' names and bid amounts):

_____
_____
_____
_____

Total Estimate Contract Cost: _____
*Total Final Contract Cost***:** _____

Materials (include itemized list of materials needed to complete the project and their cost; attach additional page(s), if necessary):

_____
_____
_____
_____

Total Estimate Materials Cost: _____
Total Final Cost: _____

Labor (include name(s) of person(s) contributing labor, their estimated time involved in the project, and their cost per hour or day):

_____
_____
_____
_____

Total Estimate Labor Cost: _____
Total Final Labor Cost: _____

EXHIBIT D

Rental Equipment (include type of equipment needed, estimated rental time, and cost per hour or day; include hourly rate of equipment operator if this is a separate expense):

_____

_____

_____

_____

_____

Total Estimate Rental Equipment Cost: _____

Total Final Rental Equipment Cost: _____

Total Estimated Project Cost*: _____

Total Final Project Cost: _____

Estimated/Actual Completion Dates: _____/_____

* The total final cost of the project cannot exceed ten percent (10%) of the estimated cost in this authorization without the consent of the Wildland Vegetation Program Manager.

Approvals (signature and date):

_____
Licensee

_____ _____
Park Supervisor Unit Manager

_____ _____
Wildland Vegetation Program Manager District Counsel